

Incident ID	<b>NVV2003536983</b>
District RP	
Facility ID	
Application ID	

## Remediation Plan

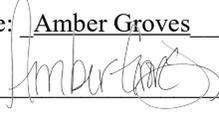
**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Amber Groves Title: Remediation Coordinator  
 Signature:  Date: 7/23/2020  
 email: algroves@paalp.com Telephone: (575)200-5517

**OCD Only**

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

- Approved       Approved with Attached Conditions of Approval       Denied       Deferral Approved

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	<b>NVV2003536983</b>
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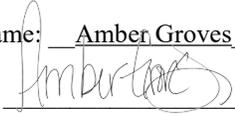
## Closure

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

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

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

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Amber Groves Title: Remediation Coordinator  
 Signature:  Date: 7/23/2020  
 email: algroves@paalp.com Telephone: (575)200-5517

**OCD Only**

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

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

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

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



12600 WEST CO RD 91  
MIDLAND, TX 79707  
OFFICE: 432.653.4203

## **SOIL REMEDIATION ACTIVITIES REPORT AND RISK BASED CLOSURE/DEFERENTIAL REQUEST**

PLAINS PIPELINE, L.P.

COG CRAIG STATE #3H RELEASE

EDDY COUNTY, NM

NMOCD INCIDENT #: NVV2003536983

SRS #: 2020-004

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July 22, 2020

New Mexico Oil Conservation Division District 2  
811 S. First Street  
Artesia, New Mexico 88210

**Re: Soil Remediation Activities Report and Risk Based Closure/Deferel Request**

**COG Craig State #3H Release**

**Unit Letter C, Section 36, Township 25S, Range 26E**

**GPS: N 32.092713°, W -104.249139°**

**Eddy County, New Mexico**

**NMOCD Incident #: NVV2003536983**

**SRS #: 2020-004**

## **1. Introduction**

Dean Companies, Inc. (Dean) is pleased to present this Soil Remediation Activities Report and Closure Request on behalf of Plains Pipeline, L.P. (Plains) to document the field soil remediation activities that were conducted at the COG Craig State # 3 H Release site. The crude oil release occurred from a LACT unit, located approximately 9.33 miles southeast of Whites City, Eddy County, New Mexico in Unit Letter C, Section 36, Township 25S, and Range 36E. The GPS coordinates for the site is N 32.092713° and W -104.249139°. A "Site Location Map" is provided as Figure 1.

## **2. Release Description and Response**

On January 11, 2020, a crude oil release occurred at the COG Craig State #3 H and was attributed to a failure of the LACT unit air eliminator. Approximately eight (8) barrels (bbls) of crude was released with five (5) bbls recovered for a net loss of three (3) bbls of crude. The release was contained onsite adjacent to the LACT unit affecting an area measuring approximately thirty-six (36) feet (ft) in length by sixteen (16) ft in width to an estimated maximum depth of seven (7) ft below ground surface (bgs).

On January 14, 2020, Dean was assigned management oversight responsibilities for impacted soil delineation, remediation, soil sampling, site restoration, and reporting activities by Plains. On January 14, 2020, Plains submitted the initial C-141 Form to the NMOCD (Appendix A).

### **3. NMOCD Regulatory Limits**

NMOCD assessment and cleanup levels for hydrocarbon and produced water releases are based on depth to groundwater and follow the criteria in the revised August 2018 Title 19 Chapter 15 Part 29 New Mexico Administration Code (19.15.29 NMAC) regulations. Groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and the New Mexico Bureau of Geology & Mineral Resources (NMBGMR) were accessed to determine if any registered water wells in or near Unit Letter C, Section 36, Township 25S, and Range 26E. Neither of the two databases identified any registered water wells in or near Unit Letter C, Section 36, Township 25S, and Range 26E. However, one water well (C 01368) was listed in Section 22, Township 25S, and Range 26 E approximately 2 miles northwest of the site with groundwater reported at 118 feet bgs. See Appendix B for the NMOSE water well depths near site. In addition, according to the Bureau of Land Management (BLM) the site is located in an area of high potential karst topography. See Figure 2 "Site Location Relative to Known Regional Karst Topography". As outlined in 19.15.29.12.B. (4) NMAC, the release does not occur in referenced sensitive areas, with the nearest water body feature being Cottonwood Draw located approximately 1.0 mile north of the site. Meeting the previous criteria, the NMOCD restoration and cleanup levels for soils impacted by hydrocarbons with high karst topography is as follows:

- Chloride 600 mg/Kg
- Total TPH 100 mg/Kg
- Benzene 10 mg/Kg
- Total BTEX 50 mg/Kg

### **4. Soil Assessment Activities and Sample Analysis**

On January 15, 2020, Dean Personnel conducted soil assessment activities at the release site. A hand auger was utilized to collect soil samples from the site to determine depth of hydrocarbon and chloride impacts. Soil samples were collected at one (1) ft. intervals to a maximum depth of seven (7) feet bgs or until refusal was encountered due to underlying limestone. Five (5) auger hole locations (AH-1 through AH-5) were installed within the LACT unit with collected soils placed into laboratory-provided sample containers, labeled, stored on ice, and transported under proper chain-of-custody documentation to Cardinal Labs of Hobbs, New Mexico (Cardinal). Samples

were analyzed for total petroleum hydrocarbons (TPH) utilizing Method SW-846 8015M, with select samples analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) utilizing Method SW-846 8021B, and chlorides utilizing Method 4500-CL-B. See Figure 3 "Site Details and Delineation Soil Sample Location Map". Benzene concentrations were below the NMOCD standards of 10 milligrams per kilogram (mg/Kg) for all samples analyzed with the exception of soil samples AH-3 @ 1 ft and AH-4 @ 1 ft, which exhibited benzene concentrations of 11.9 mg/Kg and 35.9 mg/Kg, respectively. Total BTEX were below NMOCD standards of 50 mg/Kg for all samples analyzed with the exception of soil samples AH-3 @ 1 ft and AH-4 @ 1 ft, which exhibited total BTEX concentrations of 193 mg/Kg and 442 mg/Kg, respectively. Total TPH concentrations were below the NMOCD standard of 100 mg/Kg for only one sample AH-1 @ 1 ft with a result of < 10.0 mg/Kg. The remaining samples had TPH concentrations that were above the NMOCD standards and ranged from 208 mg/Kg for soil sample AH-5 @ 1 ft to 8,430 mg/Kg in soil sample AH-4 @ 1 ft. See Table 1 for delineation analytical results. Chlorides were below NMOCD standards of 600 mg/Kg for all samples collected and analyzed. Laboratory reports containing analytical methods, results, and chain-of-custody documents are included in Appendix C. Due to the amount of existing piping and ancillary equipment onsite, further delineation utilizing mechanical means and hand excavation were not feasible at the site. In an email dated April 7, 2020, the NMOCD granted approval of a variance request to adjust the required remediation action levels to 2,500 mg/Kg TPH due to known depth to groundwater (93 ft bgs) and high total dissolved solids (TDS) of 485,000 mg/L in groundwater near the site. See site photographs documenting site conditions in Appendix D.

##### **5. Soil Remediation and Wall Confirmation Soil Sampling**

Between January 16 and February 26, 2020, Dean Personnel conducted oversight of third-party soil remediation activities at the Craig St. 3-13H Release site. Soil remediation commenced utilizing hand excavation of hydrocarbon impacted soils adjacent to the LACT unit and the onsite piping with the excavated soils stockpiled on plastic. Due to limited accessibility, the site was excavated to a maximum depth of three (3) ft bgs at which point limestone rock was encountered thus preventing further vertical hand excavation of site. Mechanical means of excavation was not feasible at the site due to the tight quarters and underground piping. Thus, additional hydrocarbon impacted soils above 100 mg/Kg TPH could not be excavated to depth and were left in-situ at the base and walls of the excavation. See Site Photographs in Appendix D. Final dimensions of the excavation were approximately thirty-six (36) ft. in length, by sixteen (16) ft. in width to a depth of

three (3) ft bgs. Approximately 100 cubic yards of soil were removed and stockpiled on plastic at the site.

On February 27, 2020, two (2) composite five (5) point bottom hole (BH-1 @ 3' and BH-2 @ 3') and four (4) composite five (5) point wall samples (North SW @ 2', East SW @ 2', South SW @ 2', and West SW @ 2') were collected within two hundred (200) square feet of each other from the bottom and four side walls and submitted for analysis of TPH, BTEX, and chlorides to Cardinal. The bottom hole analytical results were below the NMOCD standards for all samples analyzed with the exception of soil sample BH-1 @ 3', which had a TPH concentration of 2,567 mg/Kg. The BTEX analysis for the all wall samples were below NMOCD standards with the exception of soil sample West SW @ 2' which had a total BTEX concentration of 66.4 mg/Kg. In addition, the TPH for all wall samples exceeded the NMOCD standards of 100 mg/Kg for all samples analyzed and ranged from 239.8 mg/Kg for soil sample East SW @ 2' to 7,505 mg/Kg for soil sample West SW @ 2'. All chloride analysis was below NMOCD standards of 600 mg/Kg for all samples analyzed. See Figure 4 "Site Details & Confirmation Soil Sample Location Map" for soil sample locations and Table 2 for confirmation analytical results. Due to the limited accessibility, the site was not delineated for hydrocarbons.

## **6. Variance Request and NMOCD Response**

In an email dated March 10, 2020, Plains requested a variance to the current rules, due to limited accessibility to soils (i.e. electrical piping, LACT unit, tank battery location), limited confinement of hydrocarbons to LACT unit, and non-abatable shallow (93 ft bgs) underlying groundwater with elevated total dissolved solids (485,000 mg/L) located within 3.42 miles of the site. See Appendix E for monitor well boring and groundwater analysis. In an email dated April 7, 2020, the NMOCD granted Plains approval of request to terminate via variance with remediation/delineation concentrations revised to 2,500 mg/Kg TPH along with a deferral of cleanup/remediation from 3 ft to 7 ft at time of abandonment. In addition, Plains proposed to install a 20-mil polyethylene liner throughout the entire base of the excavation to prevent further vertical migration of the impacted soil and backfill the site with materials with like source clean soils. The NMOCD stated that a polyethylene liner was not required at the site. See Appendix F for NMOCD variance approval email.

## **7. Soil Disposal and Site Restoration**

Upon approval of the variance request from the NMOCD, Plains was onsite the week of May 6, 2020 to backfill the excavation with locally sourced non-impacted soils and the site brought up to

grade. Approximately 100 cubic yards of hydrocarbon impacted soils were transported offsite for disposal at Lazy Ace Land Farm, LLC in Eunice, New Mexico with waste manifests available upon request. The site restoration was completed in compliance with the variance request as approved by the NMOCD.

### **8. Closure Request**

With the completion of the backfilling of the excavation with locally sourced non-impacted soils, Plains believes the site has been remediated to within standards as approved with the variance request approved by the NMOCD on April 7, 2020. As such, Plains respectfully requests that the NMOCD consider the site for risk-based closure. A C-141 closure is attached to the front of this report.

If you have any questions, or if additional information is required, please feel free to contact Amber Groves (email: [ALGroves@paalp.com](mailto:ALGroves@paalp.com), cell: 575.200.7717) of Plains or Sylwia Reynolds (email: [sylwiareynolds@deandigs.com](mailto:sylwiareynolds@deandigs.com), cell: 432.999.8675) or Jeff Kindley (email: [jeffrekindley@deandigs.com](mailto:jeffrekindley@deandigs.com) cell: 432.230.0920) of Dean.

Sincerely,



**Sylwia Reynolds**

Project Manager



**Jeffrey Kindley, PG.**

Professional Geologist

## **TABLES**



**Chemistry Table 1 - Delineation Soil Sample Analytical Results**  
**Concentrations of Benzene, BTEX, Chlorides, and TPH in soil**  
**Plains Pipeline, L.P.**  
**Craig St 3-13H Release**  
**Eddy County, New Mexico**  
**SRS # 2020-004**

SAMPLE INFORMATION					METHODS: EPA SW 846-8021B, 5030					METHOD: E 300	METHODS: EPA SW 846-8015M				
SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH	SAMPLE METHOD	MATRIX	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENE (mg/kg)	Total BTEX (mg/kg)	CHLORIDES (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	GRO + DRO (mg/kg)	ORO (mg/kg)	TOTAL TPH (mg/kg)
AH-1 @ 1 FT-R	01/15/20	1 FT	GRAB	SOIL	<0.050	<0.050	<0.050	<0.150	<0.300	352	<10.0	<10.0	<10.0	<10.0	<10.0
AH-2 @ 3 FT-R	01/15/20	3 FT	GRAB	SOIL	<0.050	<0.050	<0.050	<0.150	<0.300	48	<10.0	428	428	147	575
AH-3 @ 1 FT	01/15/20	1 FT	GRAB	SOIL	11.9	54.8	17.3	109	193	<16.0	1,360	4,500	5,860	773	6,633
AH-3 @ 3 FT	01/15/20	3 FT	GRAB	SOIL	0.099	1.31	2.63	15.2	19.2	-	390	2,910	3,300	445	3,745
AH-3 @ 5 FT	01/15/20	5 FT	GRAB	SOIL	-	-	-	-	-	-	743	5,430	6,173	798	6,971
AH-3 @ 7 FT-R	01/15/20	7 FT	GRAB	SOIL	-	-	-	-	-	-	74	573	647	84.4	731.4
AH-4 @ 1 FT-R	01/15/20	1 FT	GRAB	SOIL	35.9	123	30.3	253	442	<16.0	2,300	5,450	7,750	680	8,430
AH-5 @ 1 FT-R	01/15/20	1 FT	GRAB	SOIL	<0.050	<0.050	<0.050	0.189	<0.300	128	<10.0	178	178	30	208
<b>NMOCDC Recommended Remediation Action Level</b>					<b>10</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>600</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>100</b>

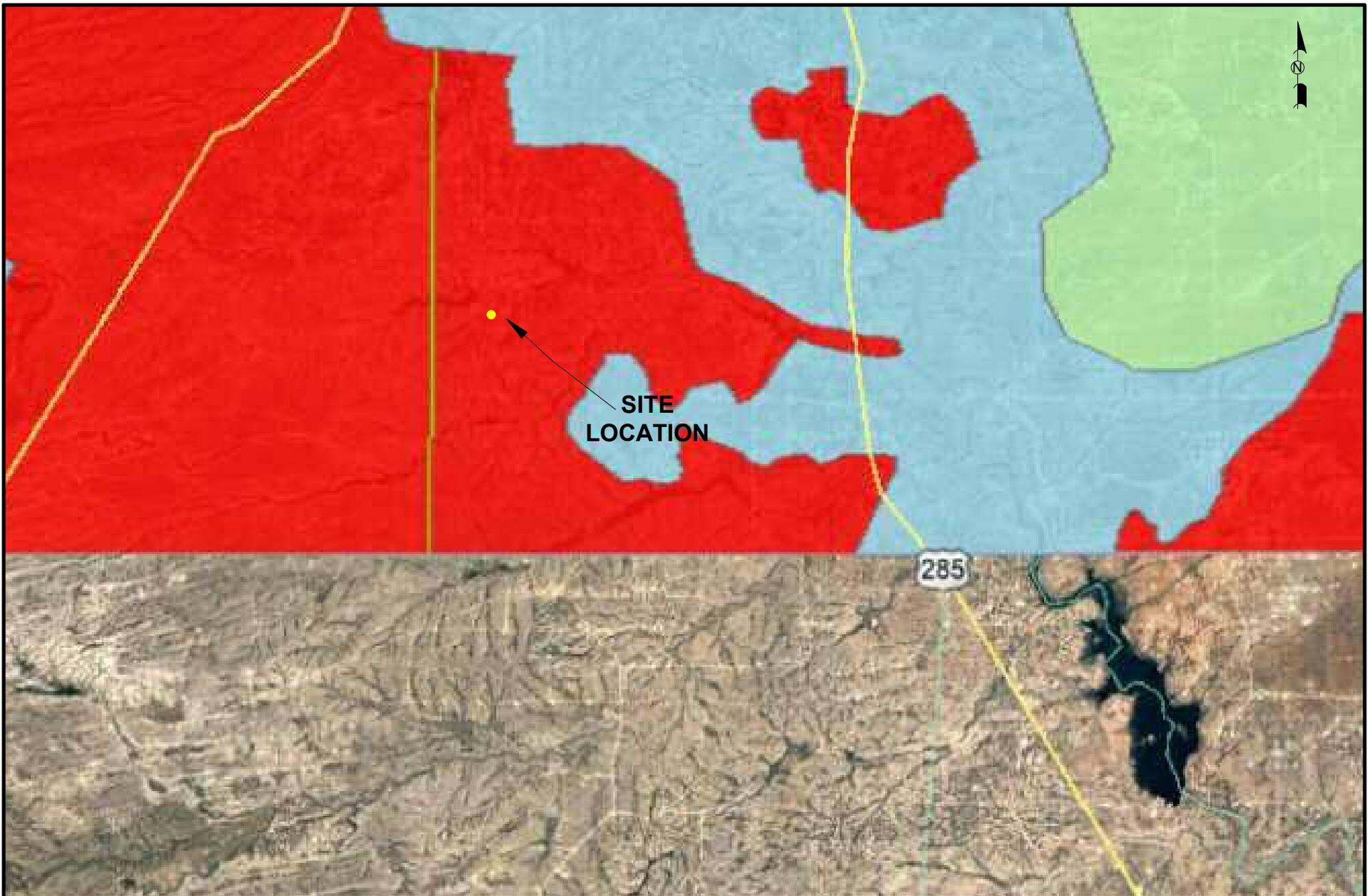


**Chemistry Table 2 - Confirmation Soil Sample Analytical Results**  
**Concentrations of Benzene, BTEX, Chlorides, and TPH in soil**  
**Plains Pipeline, L.P.**  
**Craig St 3-13H Release**  
**Eddy County, New Mexico**  
**SRS #2020-004**

SAMPLE INFORMATION					METHODS: EPA SW 846-8021B, 5030					METHOD: E 300	METHODS: EPA SW 846-8015M				
SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH	SAMPLE METHOD	MATRIX	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENE (mg/kg)	Total BTEX (mg/kg)	CHLORIDES (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	GRO +DRO (mg/kg)	ORO (mg/kg)	TOTAL TPH (mg/kg)
BH-1 @ 3'	02/27/20	3ft	GRAB	SOIL	0.314	1.92	2.47	16.5	21.2	16.0	231	997	1,228	111	<b>2,567</b>
BH-2 @ 3'	02/27/20	3ft	GRAB	SOIL	<0.050	<0.050	<0.050	<0.150	<0.300	32.0	<10.0	<10.0	<10.0	<10.0	<10.0
NORTH SW @ 2'	02/27/20	2ft	GRAB	SOIL	<0.050	0.213	0.270	2.32	2.81	32.0	34.1	403	437.1	48.5	<b>922.7</b>
EAST SW @ 2'	02/27/20	2ft	GRAB	SOIL	<0.050	0.095	0.088	0.730	0.914	16.0	<10.0	202	202	37.8	<b>239.8</b>
SOUTH SW @ 2'	02/27/20	2ft	GRAB	SOIL	<0.050	0.059	0.282	1.27	1.61	48.0	61.9	447	508.9	53.7	<b>562.6</b>
WEST SW @ 2'	02/27/20	2ft	GRAB	SOIL	2.02	10.9	5.71	47.8	<b>66.4</b>	16.0	1,630	5100	6,730	775	<b>7,505</b>
<b>NMOCD Recommended Remediation Action Level</b>					<b>10</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>600</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>100</b>

## FIGURES





**LEGEND:**

- Low Potential Karst Topography
- Medium Potential Karst Topography
- High Potential Karst Topography

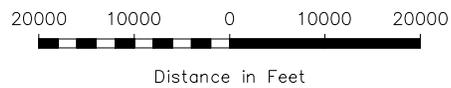


Figure 2  
Site Location Relative to  
Known Regional Karst Topography  
Plains Pipeline, L.P.  
Craig St 3-13H  
Eddy County, NM

Scale: 1" = 20,000'
CAD By: NPC
Checked By: SR
Draft: March 4, 2020
Lat. N 32.092713° Long. W 104.249139°
Dean Job #PP-2008





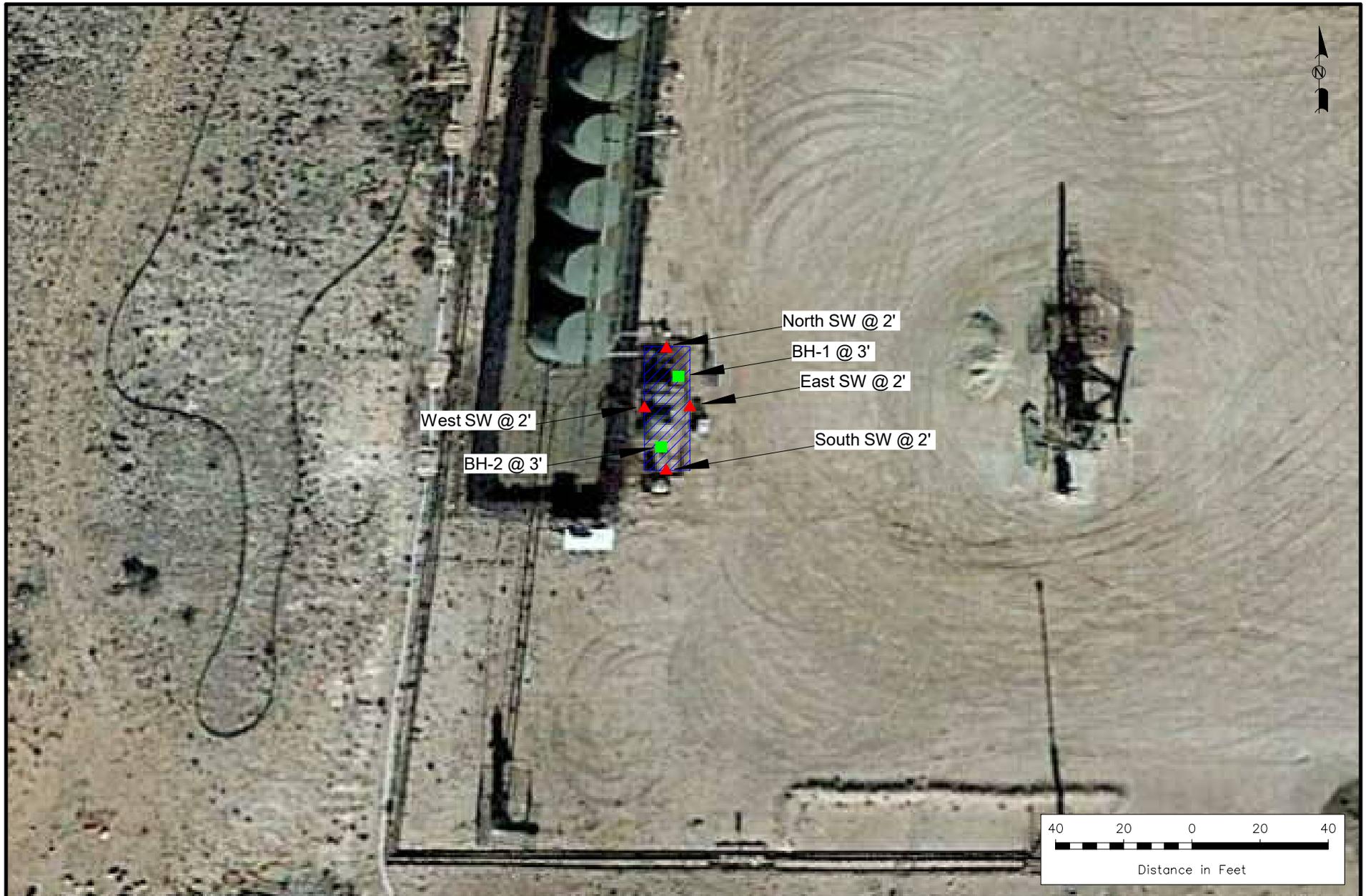
**LEGEND:**

-  Impacted Area
-  Confirmation Grab Soil Sample Location

Figure 3  
Site Details & Delineation  
Soil Sample Location Map  
Plains Pipeline, L.P.  
Craig St 3-13H  
Eddy County, NM

Scale: 1" = 40'
CAD By: NPC
Checked By: JK
Draft: July 15, 2020
Lat. N 32.092521° Long. W 104.249139°
Dean Job #PP-2008





**LEGEND:**

-  Impacted Area
-  Confirmation Grab Soil Sample Location
-  Side Wall Confirmation Soil Sample Location

Figure 4  
Site Details & Confirmation  
Soil Sample Location Map  
Plains Pipeline, L.P.  
Craig St 3-13H  
Eddy County, NM

Scale: 1" = 40'

CAD By: NPC

Checked By: SR

Draft: March 4, 2020

Lat. N 32.092713° Long. W 104.249139°

Dean Job #PP-2008



**APPENDIX A**  
**NMOCD INITIAL C-141 FORM**

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural  
Resources Department  
  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party Plains Pipeline, L.P.	OGRID 713291
Contact Name Amber Groves	Contact Telephone 575-200-5517
Contact email algroves@paalp.com	Incident # (assigned by OCD)
Contact mailing address 577 US HWY 385 N Seminole, TX 79360	

### Location of Release Source

Latitude 32.092713 Longitude -104.249139  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name COG Craig State #3H	Site Type LACT Unit
Date Release Discovered 1/11/2020 @ 9:20 AM	API# (if applicable)

Unit Letter	Section	Township	Range	County
C	36	25S	26E	Eddy

Surface Owner:  State  Federal  Tribal  Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 8 bbls	Volume Recovered (bbls) 5 bbls
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release  
Failure on the LACT unit air eliminator

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
---------------------------------------------------------------------------------------------------------------------------------------	--

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

### Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Amber Groves Title: Remediation Coordinator  
 Signature: *Amber Groves* Date: 1/14/2020  
 email: algroves@pawetp.com Telephone: 575-200-5517

**OCD Only**  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_

## Amber L Groves

---

**From:** Tommy J Bacon  
**Sent:** Tuesday, January 14, 2020 4:17 PM  
**To:** Amber L Groves  
**Subject:** Craig St 3-13

Calculation are for the release at the Craig St 3-13 Meter skid.

$100'(L) \times 4'(W) \times 1.25'(D) \times 0.0154 = 7.7 \text{ BBLs}$

Tommy

**APPENDIX B**  
**NMOSE WATER LEVELS**



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,  
O=orphaned,  
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin Code	County	Q 1	Q 2	Q 3	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
<a href="#">C 01368</a>	C	ED	1	1	22	25S	26E			567261	3554059*	143	118	25
<a href="#">C 03655 POD1</a>	CUB	ED		4	22	25S	26E			550692	3561324			
<a href="#">C 03655 POD2</a>	CUB	ED		4	22	25S	26E			550732	3561337			
<a href="#">C 03655 POD3</a>	CUB	ED	1	4	4	22	25S	26E		568458	3553019			
<a href="#">C 03655 POD4</a>	CUB	ED		4	22	25S	26E			550684	3561362			

Average Depth to Water: **118 feet**  
 Minimum Depth: **118 feet**  
 Maximum Depth: **118 feet**

**Record Count:** 5

**PLSS Search:**

**Section(s):** 22

**Township:** 25S

**Range:** 26E

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

7/14/20 4:01 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

**APPENDIX C**  
**LABORATORY ANALYTICAL REPORTS**



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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January 22, 2020

SYLWIA REYNOLDS

DEAN

12600 W. COUNTY ROAD 91

MIDLAND, TX 79707

RE: PLAINS

Enclosed are the results of analyses for samples received by the laboratory on 01/17/20 9:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	01/17/2020	Sampling Date:	01/15/2020
Reported:	01/22/2020	Sampling Type:	Soil
Project Name:	PLAINS	Sampling Condition:	Cool & Intact
Project Number:	PP-2008	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS - EDDY CO NM		

**Sample ID: AH - 1 @ 1' R (H000181-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/21/2020	ND	1.82	90.9	2.00	13.6	
Toluene*	<0.050	0.050	01/21/2020	ND	1.76	88.0	2.00	15.1	
Ethylbenzene*	<0.050	0.050	01/21/2020	ND	1.81	90.6	2.00	14.8	
Total Xylenes*	<0.150	0.150	01/21/2020	ND	5.23	87.2	6.00	14.9	
Total BTEX	<0.300	0.300	01/21/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	01/22/2020	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/21/2020	ND	212	106	200	3.47	
DRO >C10-C28*	<10.0	10.0	01/21/2020	ND	229	114	200	0.944	
EXT DRO >C28-C36	<10.0	10.0	01/21/2020	ND					

Surrogate: 1-Chlorooctane 96.6 % 41-142

Surrogate: 1-Chlorooctadecane 97.4 % 37.6-147

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	01/17/2020	Sampling Date:	01/15/2020
Reported:	01/22/2020	Sampling Type:	Soil
Project Name:	PLAINS	Sampling Condition:	Cool & Intact
Project Number:	PP-2008	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS - EDDY CO NM		

**Sample ID: AH - 3 @ 3' (H000181-02)**

BTEX 8021B		mg/kg		Analyzed By: MS				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Benzene*</b>	<b>0.099</b>	0.050	01/21/2020	ND	1.82	90.9	2.00	13.6		
<b>Toluene*</b>	<b>1.31</b>	0.050	01/21/2020	ND	1.76	88.0	2.00	15.1		
<b>Ethylbenzene*</b>	<b>2.63</b>	0.050	01/21/2020	ND	1.81	90.6	2.00	14.8		
<b>Total Xylenes*</b>	<b>15.2</b>	0.150	01/21/2020	ND	5.23	87.2	6.00	14.9		
<b>Total BTEX</b>	<b>19.2</b>	0.300	01/21/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 253 % 73.3-129

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10*</b>	<b>390</b>	10.0	01/21/2020	ND	212	106	200	3.47		
<b>DRO &gt;C10-C28*</b>	<b>2910</b>	10.0	01/21/2020	ND	229	114	200	0.944		
<b>EXT DRO &gt;C28-C36</b>	<b>445</b>	10.0	01/21/2020	ND						

Surrogate: 1-Chlorooctane 134 % 41-142

Surrogate: 1-Chlorooctadecane 139 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	01/17/2020	Sampling Date:	01/15/2020
Reported:	01/22/2020	Sampling Type:	Soil
Project Name:	PLAINS	Sampling Condition:	Cool & Intact
Project Number:	PP-2008	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS - EDDY CO NM		

**Sample ID: AH - 2 @ 3' R (H000181-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/21/2020	ND	1.82	90.9	2.00	13.6	
Toluene*	<0.050	0.050	01/21/2020	ND	1.76	88.0	2.00	15.1	
Ethylbenzene*	<0.050	0.050	01/21/2020	ND	1.81	90.6	2.00	14.8	
Total Xylenes*	<0.150	0.150	01/21/2020	ND	5.23	87.2	6.00	14.9	
Total BTEX	<0.300	0.300	01/21/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>48.0</b>	16.0	01/22/2020	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/21/2020	ND	212	106	200	3.47	
<b>DRO &gt;C10-C28*</b>	<b>428</b>	10.0	01/21/2020	ND	229	114	200	0.944	
<b>EXT DRO &gt;C28-C36</b>	<b>147</b>	10.0	01/21/2020	ND					

Surrogate: 1-Chlorooctane 93.8 % 41-142

Surrogate: 1-Chlorooctadecane 98.7 % 37.6-147

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	01/17/2020	Sampling Date:	01/15/2020
Reported:	01/22/2020	Sampling Type:	Soil
Project Name:	PLAINS	Sampling Condition:	Cool & Intact
Project Number:	PP-2008	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS - EDDY CO NM		

**Sample ID: AH - 3 @ 1' (H000181-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>11.9</b>	0.500	01/22/2020	ND	1.82	90.9	2.00	13.6	
<b>Toluene*</b>	<b>54.8</b>	0.500	01/22/2020	ND	1.76	88.0	2.00	15.1	
<b>Ethylbenzene*</b>	<b>17.3</b>	0.500	01/22/2020	ND	1.81	90.6	2.00	14.8	
<b>Total Xylenes*</b>	<b>109</b>	1.50	01/22/2020	ND	5.23	87.2	6.00	14.9	
<b>Total BTEX</b>	<b>193</b>	3.00	01/22/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 121 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	01/22/2020	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10*</b>	<b>1360</b>	10.0	01/21/2020	ND	212	106	200	3.47		
<b>DRO &gt;C10-C28*</b>	<b>4500</b>	10.0	01/21/2020	ND	229	114	200	0.944		
<b>EXT DRO &gt;C28-C36</b>	<b>773</b>	10.0	01/21/2020	ND						

Surrogate: 1-Chlorooctane 151 % 41-142

Surrogate: 1-Chlorooctadecane 189 % 37.6-147

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received: 01/17/2020  
 Reported: 01/22/2020  
 Project Name: PLAINS  
 Project Number: PP-2008  
 Project Location: PLAINS - EDDY CO NM

Sampling Date: 01/15/2020  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: AH - 3 @ 7' R (H000181-05)**

TPH 8015M	mg/kg	Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>74.0</b>	10.0	01/21/2020	ND	212	106	200	3.47	
<b>DRO &gt;C10-C28*</b>	<b>573</b>	10.0	01/21/2020	ND	229	114	200	0.944	
<b>EXT DRO &gt;C28-C36</b>	<b>84.4</b>	10.0	01/21/2020	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>93.5 %</i>	<i>41-142</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>98.5 %</i>	<i>37.6-147</i>							

**Sample ID: AH - 3 @ 5' R (H000181-06)**

TPH 8015M	mg/kg	Analyzed By: MS								S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10*</b>	<b>743</b>	10.0	01/21/2020	ND	212	106	200	3.47		
<b>DRO &gt;C10-C28*</b>	<b>5430</b>	10.0	01/21/2020	ND	229	114	200	0.944		
<b>EXT DRO &gt;C28-C36</b>	<b>798</b>	10.0	01/21/2020	ND						
<i>Surrogate: 1-Chlorooctane</i>	<i>175 %</i>	<i>41-142</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>219 %</i>	<i>37.6-147</i>								

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	01/17/2020	Sampling Date:	01/15/2020
Reported:	01/22/2020	Sampling Type:	Soil
Project Name:	PLAINS	Sampling Condition:	Cool & Intact
Project Number:	PP-2008	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS - EDDY CO NM		

**Sample ID: AH - 5 @ 1' R (H000181-07)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/21/2020	ND	1.82	90.9	2.00	13.6	
Toluene*	<0.050	0.050	01/21/2020	ND	1.76	88.0	2.00	15.1	
Ethylbenzene*	<0.050	0.050	01/21/2020	ND	1.81	90.6	2.00	14.8	
<b>Total Xylenes*</b>	<b>0.189</b>	0.150	01/21/2020	ND	5.23	87.2	6.00	14.9	
Total BTEX	<0.300	0.300	01/21/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>128</b>	16.0	01/22/2020	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/21/2020	ND	212	106	200	3.47	
<b>DRO &gt;C10-C28*</b>	<b>178</b>	10.0	01/21/2020	ND	229	114	200	0.944	
<b>EXT DRO &gt;C28-C36</b>	<b>30.0</b>	10.0	01/21/2020	ND					

Surrogate: 1-Chlorooctane 91.1 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	01/17/2020	Sampling Date:	01/15/2020
Reported:	01/22/2020	Sampling Type:	Soil
Project Name:	PLAINS	Sampling Condition:	Cool & Intact
Project Number:	PP-2008	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS - EDDY CO NM		

**Sample ID: AH - 4 @ 1' R (H000181-08)**

BTEX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>35.9</b>	1.00	01/21/2020	ND	1.82	90.9	2.00	13.6	
<b>Toluene*</b>	<b>123</b>	1.00	01/21/2020	ND	1.76	88.0	2.00	15.1	
<b>Ethylbenzene*</b>	<b>30.3</b>	1.00	01/21/2020	ND	1.81	90.6	2.00	14.8	
<b>Total Xylenes*</b>	<b>253</b>	3.00	01/21/2020	ND	5.23	87.2	6.00	14.9	
<b>Total BTEX</b>	<b>442</b>	6.00	01/21/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 131 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	01/22/2020	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>2300</b>	10.0	01/21/2020	ND	212	106	200	3.47	
<b>DRO &gt;C10-C28*</b>	<b>5450</b>	10.0	01/21/2020	ND	229	114	200	0.944	
<b>EXT DRO &gt;C28-C36</b>	<b>680</b>	10.0	01/21/2020	ND					

Surrogate: 1-Chlorooctane 207 % 41-142

Surrogate: 1-Chlorooctadecane 188 % 37.6-147

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND Analyte NOT DETECTED at or above the reporting limit
RPD Relative Percent Difference
\*\* Samples not received at proper temperature of 6°C or below.
\*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

\*=Accredited Analyte

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Celestine Keene

Celey D. Keene, Lab Director/Quality Manager



syliwarienolds@deandigs.com  
 pheobennuneez@deandigs.com  
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101 East Marland, Hobbs, NM 88240  
 (575) 393-2326 FAX (575) 393-2476

PO # 2020-004

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

BILL TO ANALYSIS REQUEST

Company Name: Dean  
 Project Manager: Sylvia Reynolds  
 Address: 18500 W Co Rd 91  
 City: Midland State: TX Zip: 79707  
 Phone #: 439 999 8675 Fax #:   
 Project #: PP-2028 Project Owner:   
 Project Name: Plains  
 Project Location: Eddy Co NM  
 Sampler Name: Reynolds  
 P.O. #:   
 Company: Plains  
 Attn: Amber Graves  
 Address:   
 City:  State:  Zip:   
 Phone #: (575) 220-5517  
 Fax #:

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	ANALYSIS
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :			
H000181	AH-10 14R		6						11/10/20	9:50	Chloride EPA 3000	
	AH-30 34R		1						10/10	10:10	TPH 8015 Extended	
	AH-20 34R		1						10/10	10:50	BTEX 8021 B	
	AH-30 14R		1						11/10	11:10		
	AH-30 74R		1						11/30	11:30		
	AH-30 54R		1						11:50	11:50		
	AH-50 14R		1						12:20	12:20		
	AH-40 14R		1						12:40	12:40		

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Relinquished By: Reynolds  
 Date: 11/17/2020  
 Time: 9:30  
 Received By: Amber Graves  
 Date:   
 Time:

Delivered By: (Circle One)  
 Sampler - UPS - Bus - Other: #113 0.3c  
 Sample Condition  
 Cool  Intact   
 Pres Yes  No   
 Checked BY: AG

REMARKS: Analyze 1st sample for each AH. Do not analyze deeper sample if analyticals are less than 600 mg/kg and TPH (TPO+DOD) is less than 2,500 mg/kg

\* Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



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---

March 02, 2020

SYLWIA REYNOLDS

DEAN

12600 W. COUNTY ROAD 91

MIDLAND, TX 79707

RE: CRAIG ST 3 - 13H RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 02/25/20 11:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	02/25/2020	Sampling Date:	02/20/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	CRAIG ST 3 - 13H RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS PL - EDDY CO NM		

**Sample ID: BH - 1 @ 3' (H000587-01)**

BTEX 8021B		mg/kg		Analyzed By: CK				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.314</b>	0.050	02/27/2020	ND	1.97	98.6	2.00	4.38	
<b>Toluene*</b>	<b>1.92</b>	0.050	02/27/2020	ND	1.98	99.0	2.00	4.32	
<b>Ethylbenzene*</b>	<b>2.47</b>	0.050	02/27/2020	ND	1.98	98.9	2.00	3.92	
<b>Total Xylenes*</b>	<b>16.5</b>	0.150	02/27/2020	ND	5.81	96.8	6.00	3.91	
<b>Total BTEX</b>	<b>21.2</b>	0.300	02/27/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 143 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>16.0</b>	16.0	02/27/2020	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>231</b>	10.0	02/28/2020	ND	216	108	200	2.60	
<b>DRO &gt;C10-C28*</b>	<b>997</b>	10.0	02/28/2020	ND	241	121	200	10.8	
<b>EXT DRO &gt;C28-C36</b>	<b>111</b>	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 104 % 44.3-144

Surrogate: 1-Chlorooctadecane 122 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	02/25/2020	Sampling Date:	02/20/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	CRAIG ST 3 - 13H RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS PL - EDDY CO NM		

**Sample ID: BH - 2 @ 3' (H000587-02)**

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/27/2020	ND	1.97	98.6	2.00	4.38		
Toluene*	<0.050	0.050	02/27/2020	ND	1.98	99.0	2.00	4.32		
Ethylbenzene*	<0.050	0.050	02/27/2020	ND	1.98	98.9	2.00	3.92		
Total Xylenes*	<0.150	0.150	02/27/2020	ND	5.81	96.8	6.00	3.91		
Total BTEX	<0.300	0.300	02/27/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/27/2020	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	222	111	200	1.61		
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	248	124	200	6.02		
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND						

Surrogate: 1-Chlorooctane 101 % 44.3-144

Surrogate: 1-Chlorooctadecane 105 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	02/25/2020	Sampling Date:	02/20/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	CRAIG ST 3 - 13H RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS PL - EDDY CO NM		

**Sample ID: NORTH SW @ 2' (H000587-03)**

BTEX 8021B		mg/kg		Analyzed By: CK				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/27/2020	ND	1.97	98.6	2.00	4.38	
<b>Toluene*</b>	<b>0.213</b>	0.050	02/27/2020	ND	1.98	99.0	2.00	4.32	
<b>Ethylbenzene*</b>	<b>0.270</b>	0.050	02/27/2020	ND	1.98	98.9	2.00	3.92	
<b>Total Xylenes*</b>	<b>2.32</b>	0.150	02/27/2020	ND	5.81	96.8	6.00	3.91	
<b>Total BTEX</b>	<b>2.81</b>	0.300	02/27/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 135 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>32.0</b>	16.0	02/27/2020	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>34.1</b>	10.0	02/28/2020	ND	222	111	200	1.61	
<b>DRO &gt;C10-C28*</b>	<b>403</b>	10.0	02/28/2020	ND	248	124	200	6.02	
<b>EXT DRO &gt;C28-C36</b>	<b>48.5</b>	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 110 % 44.3-144

Surrogate: 1-Chlorooctadecane 113 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	02/25/2020	Sampling Date:	02/20/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	CRAIG ST 3 - 13H RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS PL - EDDY CO NM		

**Sample ID: EAST SW @ 2' (H000587-04)**

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/27/2020	ND	1.97	98.6	2.00	4.38	
<b>Toluene*</b>	<b>0.095</b>	0.050	02/27/2020	ND	1.98	99.0	2.00	4.32	
<b>Ethylbenzene*</b>	<b>0.088</b>	0.050	02/27/2020	ND	1.98	98.9	2.00	3.92	
<b>Total Xylenes*</b>	<b>0.730</b>	0.150	02/27/2020	ND	5.81	96.8	6.00	3.91	
<b>Total BTEX</b>	<b>0.914</b>	0.300	02/27/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>16.0</b>	16.0	02/27/2020	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	222	111	200	1.61	
<b>DRO &gt;C10-C28*</b>	<b>202</b>	10.0	02/28/2020	ND	248	124	200	6.02	
<b>EXT DRO &gt;C28-C36</b>	<b>37.8</b>	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 103 % 44.3-144

Surrogate: 1-Chlorooctadecane 111 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	02/25/2020	Sampling Date:	02/20/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	CRAIG ST 3 - 13H RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS PL - EDDY CO NM		

**Sample ID: SOUTH SW @ 2' (H000587-05)**

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/27/2020	ND	1.97	98.6	2.00	4.38	
<b>Toluene*</b>	<b>0.059</b>	0.050	02/27/2020	ND	1.98	99.0	2.00	4.32	
<b>Ethylbenzene*</b>	<b>0.282</b>	0.050	02/27/2020	ND	1.98	98.9	2.00	3.92	
<b>Total Xylenes*</b>	<b>1.27</b>	0.150	02/27/2020	ND	5.81	96.8	6.00	3.91	
<b>Total BTEX</b>	<b>1.61</b>	0.300	02/27/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 124 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>48.0</b>	16.0	02/27/2020	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>61.9</b>	10.0	02/28/2020	ND	222	111	200	1.61	
<b>DRO &gt;C10-C28*</b>	<b>447</b>	10.0	02/28/2020	ND	248	124	200	6.02	
<b>EXT DRO &gt;C28-C36</b>	<b>53.7</b>	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 106 % 44.3-144

Surrogate: 1-Chlorooctadecane 109 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

DEAN  
 SYLWIA REYNOLDS  
 12600 W. COUNTY ROAD 91  
 MIDLAND TX, 79707  
 Fax To:

Received:	02/25/2020	Sampling Date:	02/20/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	CRAIG ST 3 - 13H RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	PLAINS PL - EDDY CO NM		

**Sample ID: WEST SW @ 2' (H000587-06)**

BTEX 8021B		mg/kg		Analyzed By: CK				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Benzene*</b>	<b>2.02</b>	0.200	02/27/2020	ND	1.97	98.6	2.00	4.38		
<b>Toluene*</b>	<b>10.9</b>	0.200	02/27/2020	ND	1.98	99.0	2.00	4.32		
<b>Ethylbenzene*</b>	<b>5.71</b>	0.200	02/27/2020	ND	1.98	98.9	2.00	3.92		
<b>Total Xylenes*</b>	<b>47.8</b>	0.600	02/27/2020	ND	5.81	96.8	6.00	3.91		
<b>Total BTEX</b>	<b>66.4</b>	1.20	02/27/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 165 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>16.0</b>	16.0	02/27/2020	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: CK				S-04		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10*</b>	<b>1630</b>	10.0	02/28/2020	ND	222	111	200	1.61		
<b>DRO &gt;C10-C28*</b>	<b>5100</b>	10.0	02/28/2020	ND	248	124	200	6.02		
<b>EXT DRO &gt;C28-C36</b>	<b>775</b>	10.0	02/28/2020	ND						

Surrogate: 1-Chlorooctane 292 % 44.3-144

Surrogate: 1-Chlorooctadecane 247 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

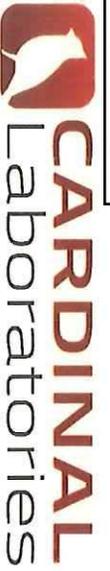
\*=Accredited Analyte

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*Celey D. Keene*

Celey D. Keene, Lab Director/Quality Manager

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101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Dean  
 Project Manager: Sylvia Reynolds  
 Address: 12600 WCR 91  
 City: Midland State: Zip:  
 Phone #: 432-999-8675 Fax #:  
 Project #: Project Owner:  
 Project Name: Craig St 3-13H Release  
 Project Location: Edgely County, NM  
 Sampler Name: Rick Penn  
 P.O. #: Company: Plains  
 Attn: Amber Groves  
 Address: City:  
 State: Zip:  
 Phone #: 575-200-5517  
 Fax #:

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	TPH 8015 M EXT	CHLORIDES	BTEX 8021 B
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :					
4000587	BH-1 @ 3ft	G	1	X						2/20/20	12:00	X	Y	Y
	BH-2 @ 2ft	G	1	X						2/20/20	13:05	X	Y	Y
	North SW @ 2ft	G	1	X						2/20/20	12:30	X	Y	Y
	East SW @ 2ft	G	1	X						2/20/20	12:45	X	Y	Y
	South SW @ 2ft	G	1	X						2/20/20	12:15	X	Y	Y
	West SW @ 2ft	G	1	X						2/20/20	13:15	X	Y	Y

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Relinquished By: *Sylvia Reynolds* Date: 2/25/20 Time: 9:52  
 Received By: *Jamara Clarke* Date: 2/25/20 Time: 8:25-30  
 Delivered By: (Circle One) Observed Temp. °C 0.4 Corrected Temp. °C  
 Sampler - UPS - Bus - Other: Corrected Temp. °C  
 Sample Condition Cool  Yes  No Intact  Yes  No  
 CHECKED BY: (Initials) *JTC*  
 Turnaround Time: Standard  Rush   
 Thermometer ID #97 Correction Factor + 0.4 °C  
 Bacteria (only) Sample Condition Cool  Intact  Observed Temp. °C  Yes  No Corrected Temp. °C  Yes  No  
 Vertical Result:  Yes  No Add'l Phone #:  
 All Results are emailed. Please provide Email address: *jeff.lindley@cardinalqs.com*  
 REMARKS: *Bill Plains*  
*alvarez@paalp.com, Reynolds@deanlqs.com*



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

March 11, 2020

SYLWIA REYNOLDS

DEAN

12600 W. COUNTY ROAD 91

MIDLAND, TX 79707

RE: CRAIG ST 3 - 13H RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 02/25/20 12:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN 12600 W. COUNTY ROAD 91 MIDLAND TX, 79707	Project: CRAIG ST 3 - 13H RELEASE Project Number: NONE GIVEN Project Manager: SYLWIA REYNOLDS Fax To:	Reported: 11-Mar-20 11:50
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WC - 1	H000588-01	Soil	20-Feb-20 13:20	25-Feb-20 12:50

Cardinal Laboratories

\*=Accredited Analyte

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**Analytical Results For:**

DEAN  
12600 W. COUNTY ROAD 91  
MIDLAND TX, 79707

Project: CRAIG ST 3 - 13H RELEASE  
Project Number: NONE GIVEN  
Project Manager: SYLWIA REYNOLDS  
Fax To:

Reported:  
11-Mar-20 11:50

**WC - 1****H000588-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

<b>Chloride</b>	<b>192</b>		16.0	mg/kg	4	0022621	AC	27-Feb-20	4500-Cl-B	
Ignitability	>140		50.0	°F	1	0022118	AC	02-Mar-20	ASTM D 93-80	
Paint Filter Test	FAIL			N/A	1	0030303	AC	03-Mar-20	9095	A-01
<b>pH*</b>	<b>7.42</b>		0.100	pH Units	1	0022608	GM	26-Feb-20	9045	
Reactive Cyanide	<0.100		0.100	mg/kg	1	0030912	AC	09-Mar-20	9010	
<b>Reactive Sulfide</b>	<b>0.0800</b>		0.0100	mg/kg	1	0030912	AC	09-Mar-20	9030	

**TCLP Volatile Organic Compounds by GCMS**

Benzene*	<0.0250		0.0250	mg/L	50	0022517	CK	29-Feb-20	1311/8260B	
Surrogate: Dibromofluoromethane			107 %	88.8-113		0022517	CK	29-Feb-20	1311/8260B	
Surrogate: Toluene-d8			102 %	83.1-119		0022517	CK	29-Feb-20	1311/8260B	
Surrogate: 4-Bromofluorobenzene			97.1 %	84.2-107		0022517	CK	29-Feb-20	1311/8260B	

**Petroleum Hydrocarbons by GC FID****S-04**

<b>GRO C6-C10*</b>	<b>367</b>		10.0	mg/kg	1	0022714	CK	28-Feb-20	8015B	
<b>DRO &gt;C10-C28*</b>	<b>2800</b>		10.0	mg/kg	1	0022714	CK	28-Feb-20	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>580</b>		10.0	mg/kg	1	0022714	CK	28-Feb-20	8015B	
Surrogate: 1-Chlorooctane			146 %	44.3-144		0022714	CK	28-Feb-20	8015B	
Surrogate: 1-Chlorooctadecane			182 %	42.2-156		0022714	CK	28-Feb-20	8015B	

**Green Analytical Laboratories****TCLP Metals by ICP (1311)**

Arsenic	<0.500		0.500	mg/L	5	B200318	AES	09-Mar-20	EPA200.7/13 11	
Barium	<0.250		0.250	mg/L	5	B200318	AES	09-Mar-20	EPA200.7/13 11	
Cadmium	<0.250		0.250	mg/L	5	B200318	AES	09-Mar-20	EPA200.7/13 11	

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**Analytical Results For:**

DEAN 12600 W. COUNTY ROAD 91 MIDLAND TX, 79707	Project: CRAIG ST 3 - 13H RELEASE Project Number: NONE GIVEN Project Manager: SYLWIA REYNOLDS Fax To:	Reported: 11-Mar-20 11:50
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**WC - 1**

**H000588-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Green Analytical Laboratories**

**TCLP Metals by ICP (1311)**

Chromium	<0.250		0.250	mg/L	5	B200318	AES	09-Mar-20	EPA200.7/13 11	
Lead	<0.500		0.500	mg/L	5	B200318	AES	09-Mar-20	EPA200.7/13 11	
Selenium	<0.500		0.500	mg/L	5	B200318	AES	09-Mar-20	EPA200.7/13 11	
Silver	<0.250		0.250	mg/L	5	B200318	AES	09-Mar-20	EPA200.7/13 11	

**TCLP Mercury by CVAA**

Mercury	<0.0002		0.0002	mg/L	1	B200309	LLG	05-Mar-20	EPA245.1	
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**Analytical Results For:**

DEAN  
12600 W. COUNTY ROAD 91  
MIDLAND TX, 79707

Project: CRAIG ST 3 - 13H RELEASE  
Project Number: NONE GIVEN  
Project Manager: SYLWIA REYNOLDS  
Fax To:

Reported:  
11-Mar-20 11:50

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 0022118 - General Prep - Wet Chem****LCS (0022118-BS1)**

Prepared: 26-Feb-20 Analyzed: 27-Feb-20

Ignitability	80.0		°F	80.0		100	97.5-105			
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**Duplicate (0022118-DUP1)**

Source: H000554-01

Prepared &amp; Analyzed: 27-Feb-20

Ignitability	44.0	50.0	°F		43.0			2.30	20	
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**Batch 0022608 - General Prep - Wet Chem****LCS (0022608-BS1)**

Prepared &amp; Analyzed: 26-Feb-20

pH	7.06		pH Units	7.00		101	90-110			
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**Duplicate (0022608-DUP1)**

Source: H000554-01

Prepared &amp; Analyzed: 26-Feb-20

pH	6.87	0.100	pH Units		6.84			0.438	20	
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**Batch 0022621 - 1:4 DI Water****Blank (0022621-BLK1)**

Prepared &amp; Analyzed: 26-Feb-20

Chloride	ND	16.0	mg/kg							
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**LCS (0022621-BS1)**

Prepared &amp; Analyzed: 26-Feb-20

Chloride	400	16.0	mg/kg	400		100	80-120			
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**LCS Dup (0022621-BSD1)**

Prepared &amp; Analyzed: 26-Feb-20

Chloride	416	16.0	mg/kg	400		104	80-120	3.92	20	
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**Batch 0030912 - General Prep - Wet Chem****Blank (0030912-BLK1)**

Prepared &amp; Analyzed: 09-Mar-20

Reactive Sulfide	ND	0.0100	mg/kg							
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Reactive Cyanide	ND	0.100	mg/kg							
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**Analytical Results For:**

DEAN 12600 W. COUNTY ROAD 91 MIDLAND TX, 79707	Project: CRAIG ST 3 - 13H RELEASE Project Number: NONE GIVEN Project Manager: SYLWIA REYNOLDS Fax To:	Reported: 11-Mar-20 11:50
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**Inorganic Compounds - Quality Control**

**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 0030912 - General Prep - Wet Chem**

Duplicate (0030912-DUP1)	Source: H000563-01			Prepared & Analyzed: 09-Mar-20						
Reactive Cyanide	ND	0.100	mg/kg		ND				20	
Reactive Sulfide	4.94	0.0100	mg/kg		5.63			13.1	20	

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**Analytical Results For:**

DEAN  
12600 W. COUNTY ROAD 91  
MIDLAND TX, 79707

Project: CRAIG ST 3 - 13H RELEASE  
Project Number: NONE GIVEN  
Project Manager: SYLWIA REYNOLDS  
Fax To:

Reported:  
11-Mar-20 11:50

**TCLP Volatile Organic Compounds by GCMS - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 0022517 - Volatiles****Blank (0022517-BLK1)**

Prepared: 25-Feb-20 Analyzed: 28-Feb-20

Benzene	ND	0.000500	mg/L							
Surrogate: Dibromofluoromethane	0.0256		mg/L	0.0250		103	88.8-113			
Surrogate: Toluene-d8	0.0259		mg/L	0.0250		104	83.1-119			
Surrogate: 4-Bromofluorobenzene	0.0243		mg/L	0.0250		97.3	84.2-107			

**LCS (0022517-BS1)**

Prepared: 25-Feb-20 Analyzed: 28-Feb-20

Benzene	0.0186	0.000500	mg/L	0.0200		92.8	86.6-116			
Surrogate: Dibromofluoromethane	0.0254		mg/L	0.0250		102	88.8-113			
Surrogate: Toluene-d8	0.0249		mg/L	0.0250		99.5	83.1-119			
Surrogate: 4-Bromofluorobenzene	0.0257		mg/L	0.0250		103	84.2-107			

**LCS Dup (0022517-BSD1)**

Prepared: 25-Feb-20 Analyzed: 28-Feb-20

Benzene	0.0179	0.000500	mg/L	0.0200		89.4	86.6-116	3.68	4.16	
Surrogate: Dibromofluoromethane	0.0254		mg/L	0.0250		101	88.8-113			
Surrogate: Toluene-d8	0.0249		mg/L	0.0250		99.7	83.1-119			
Surrogate: 4-Bromofluorobenzene	0.0255		mg/L	0.0250		102	84.2-107			

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**Analytical Results For:**

DEAN  
12600 W. COUNTY ROAD 91  
MIDLAND TX, 79707

Project: CRAIG ST 3 - 13H RELEASE  
Project Number: NONE GIVEN  
Project Manager: SYLWIA REYNOLDS  
Fax To:

Reported:  
11-Mar-20 11:50

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 0022714 - General Prep - Organics****Blank (0022714-BLK1)**

Prepared: 27-Feb-20 Analyzed: 28-Feb-20

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
<i>Surrogate: 1-Chlorooctane</i>	52.6		mg/kg	50.0		105	44.3-144			
<i>Surrogate: 1-Chlorooctadecane</i>	53.7		mg/kg	50.0		107	42.2-156			

**LCS (0022714-BS1)**

Prepared: 27-Feb-20 Analyzed: 28-Feb-20

GRO C6-C10	222	10.0	mg/kg	200		111	78.8-127			
DRO >C10-C28	248	10.0	mg/kg	200		124	80-132			
Total TPH C6-C28	470	10.0	mg/kg	400		117	81.3-128			
<i>Surrogate: 1-Chlorooctane</i>	59.8		mg/kg	50.0		120	44.3-144			
<i>Surrogate: 1-Chlorooctadecane</i>	57.4		mg/kg	50.0		115	42.2-156			

**LCS Dup (0022714-BSD1)**

Prepared: 27-Feb-20 Analyzed: 28-Feb-20

GRO C6-C10	225	10.0	mg/kg	200		113	78.8-127	1.61	15.1	
DRO >C10-C28	234	10.0	mg/kg	200		117	80-132	6.02	17.1	
Total TPH C6-C28	459	10.0	mg/kg	400		115	81.3-128	2.35	15	
<i>Surrogate: 1-Chlorooctane</i>	59.1		mg/kg	50.0		118	44.3-144			
<i>Surrogate: 1-Chlorooctadecane</i>	58.0		mg/kg	50.0		116	42.2-156			

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

DEAN 12600 W. COUNTY ROAD 91 MIDLAND TX, 79707	Project: CRAIG ST 3 - 13H RELEASE Project Number: NONE GIVEN Project Manager: SYLWIA REYNOLDS Fax To:	Reported: 11-Mar-20 11:50
------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	------------------------------

**TCLP Metals by ICP (1311) - Quality Control**

**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B200318 - EPA 1311**

**Blank (B200318-BLK1)**

Prepared: 05-Mar-20 Analyzed: 09-Mar-20

Cadmium	ND	0.250	mg/L							
Silver	ND	0.250	mg/L							
Selenium	ND	0.500	mg/L							
Lead	ND	0.500	mg/L							
Arsenic	ND	0.500	mg/L							
Chromium	ND	0.250	mg/L							
Barium	ND	0.250	mg/L							

**LCS (B200318-BS1)**

Prepared: 05-Mar-20 Analyzed: 09-Mar-20

Silver	0.489	0.250	mg/L	0.500		97.7	85-115			
Selenium	37.0	0.500	mg/L	40.0		92.5	85-115			
Lead	8.98	0.500	mg/L	10.0		89.8	85-115			
Chromium	9.26	0.250	mg/L	10.0		92.6	85-115			
Cadmium	8.87	0.250	mg/L	10.0		88.7	85-115			
Barium	9.27	0.250	mg/L	10.0		92.7	85-115			
Arsenic	19.2	0.500	mg/L	20.0		96.1	85-115			

**LCS Dup (B200318-BSD1)**

Prepared: 05-Mar-20 Analyzed: 09-Mar-20

Chromium	9.02	0.250	mg/L	10.0		90.2	85-115	2.58	20	
Barium	9.05	0.250	mg/L	10.0		90.5	85-115	2.44	20	
Lead	8.95	0.500	mg/L	10.0		89.5	85-115	0.243	20	
Arsenic	18.9	0.500	mg/L	20.0		94.4	85-115	1.82	20	
Selenium	36.2	0.500	mg/L	40.0		90.5	85-115	2.21	20	
Silver	0.487	0.250	mg/L	0.500		97.4	85-115	0.313	20	
Cadmium	8.70	0.250	mg/L	10.0		87.0	85-115	1.97	20	

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

DEAN 12600 W. COUNTY ROAD 91 MIDLAND TX, 79707	Project: CRAIG ST 3 - 13H RELEASE Project Number: NONE GIVEN Project Manager: SYLWIA REYNOLDS Fax To:	Reported: 11-Mar-20 11:50
------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	------------------------------

**TCLP Mercury by CVAA - Quality Control  
Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B200309 - EPA 245.1/7470</b>										
<b>Blank (B200309-BLK1)</b>										
				Prepared: 04-Mar-20 Analyzed: 05-Mar-20						
Mercury	ND	0.0002	mg/L							
<b>LCS (B200309-BS1)</b>										
				Prepared: 04-Mar-20 Analyzed: 05-Mar-20						
Mercury	0.0049	0.0002	mg/L	0.00500		97.9	85-115			
<b>LCS Dup (B200309-BSD1)</b>										
				Prepared: 04-Mar-20 Analyzed: 05-Mar-20						
Mercury	0.0050	0.0002	mg/L	0.00500		101	85-115	2.86	20	

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Notes and Definitions

- Z-01a FAIL
- Z-01 >140
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- A-01 Sample is dry soil with no visible liquid.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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*Celey D. Keene*

Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240  
 (575) 393-2326 FAX (575) 393-2476

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Dean  
 Project Manager: Sylvia Reynolds  
 Address: 12600 WCR 91  
 City: Midland State: Zip:  
 Phone #: 432-999-8675 Fax #: Project Owner:  
 Project #: Project Name: Craig St 3-13H Release  
 Project Location: Eddy County, NM  
 Sampler Name: Rick Pene  
 P.O. #: Company: Plains  
 Attn: Amber Groves  
 Address: City: State: Zip:  
 Phone #: 575-200-5517  
 Fax #:

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	TPH 8015 M EXT	CHLORIDES	BTEX 8021 B	RCI	NORM	TCLIP metals	TCUP Benzene	Paint filler
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :										
Hebbs 88	WOC-1	G	4	X	X	X	X	X	X	2/20/20	13:20	X	X	X	X	X	X	X	
		G	1	X	X	X	X	X	X			X	X	X	X	X	X	X	
		G	1	X	X	X	X	X	X			X	X	X	X	X	X	X	
		G	1	X	X	X	X	X	X			X	X	X	X	X	X	X	
		G	1	X	X	X	X	X	X			X	X	X	X	X	X	X	
		G	1	X	X	X	X	X	X			X	X	X	X	X	X	X	
		G	1	X	X	X	X	X	X			X	X	X	X	X	X	X	
		G	1	X	X	X	X	X	X			X	X	X	X	X	X	X	
		G	1	X	X	X	X	X	X			X	X	X	X	X	X	X	

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Relinquished By: *[Signature]* Date: 7/25/20 Time: 10:09  
 Received By: *[Signature]* Date: 7/25/20 Time: 1:50  
 Delivered By: (Circle One) Observed Temp. °C: 0.4 Corrected Temp. °C:   
 Sampler - UPS - Bus - Other: Sample Condition: Cool Intact  Yes  No  
 CHECKED BY: (Initials) *[Signature]*  
 Turnaround Time: Standard  Rush   
 Thermometer ID #97 Correction Factor + 0.4 °C Bacteria (only)  Sample Condition: Cool Intact  Observed Temp. °C: Corrected Temp. °C:

REMARKS: *Bill plains*  
 All Results are emailed. Please provide Email address: *jefflindley@deanlab.com*  
*alvarez@paap.com, mreynolds@deanlab.com*



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

March 19, 2020

SYLWIA REYNOLDS

DEAN

12600 W. COUNTY ROAD 91

MIDLAND, TX 79707

RE: CRAIG ST 3 - 13H RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 03/10/20 10:51.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

DEAN  
12600 W. COUNTY ROAD 91  
MIDLAND TX, 79707

Project: CRAIG ST 3 - 13H RELEASE  
Project Number: PLAINS - PP 9115  
Project Manager: SYLWIA REYNOLDS  
Fax To:

Reported:  
19-Mar-20 10:20

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WC - 1	H000746-01	Soil	06-Mar-20 10:30	10-Mar-20 10:51

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**Analytical Results For:**

DEAN 12600 W. COUNTY ROAD 91 MIDLAND TX, 79707	Project: CRAIG ST 3 - 13H RELEASE Project Number: PLAINS - PP 9115 Project Manager: SYLWIA REYNOLDS Fax To:	Reported: 19-Mar-20 10:20
------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------	------------------------------

**WC - 1**

**H000746-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	-----------------	-------	----------	-------	---------	----------	--------	-------

**Cardinal Laboratories**

<b>Radionuclides</b>										<b>SUB-RS</b>
<b>Radium-226</b>	<b>0.36 ± 0.04</b>			pCi/gram	1	0011619	CK	18-Mar-20	GammaRay HPGE	
<b>Radium-228</b>	<b>0.19 ± 0.02</b>			pCi/gram	1	0011619	CK	18-Mar-20	GammaRay HPGE	
<b>Total Radium</b>	<b>0.55 ± 0.04</b>			pCi/gram	1	0011619	CK	18-Mar-20	GammaRay HPGE	

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**Analytical Results For:**

DEAN 12600 W. COUNTY ROAD 91 MIDLAND TX, 79707	Project: CRAIG ST 3 - 13H RELEASE Project Number: PLAINS - PP 9115 Project Manager: SYLWIA REYNOLDS Fax To:	Reported: 19-Mar-20 10:20
------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------	------------------------------

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

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Notes and Definitions

- Z-01b            0.55 ± 0.04
- Z-01a            0.36 ± 0.04
- Z-01             0.19 ± 0.02
- SUB-RS           Analysis subcontracted to Radiation Safety Engineering, Inc.
- ND                Analyte NOT DETECTED at or above the reporting limit
- RPD               Relative Percent Difference
- \*\*                 Samples not received at proper temperature of 6°C or below.
- \*\*\*                Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

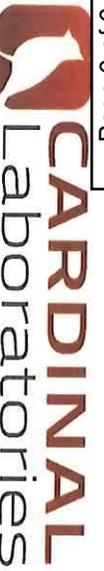
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Celey D. Keene, Lab Director/Quality Manager

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**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Dean  
 Project Manager: Sylvia Reynolds  
 Address: 12600 WCR 91  
 City: Midland St Tx Zip:  
 Phone #: 432-999-8675 Fax #:  
 Project #: PP-9115 Project Owner:  
 Project Name: Plains Craig St 3-13# Release  
 Project Location:  
 Sampler Name: Karleen Koenig  
 FOR LAB USE ONLY

P.O. #: Company: Plains  
 Attn: Amber Groves  
 Address:  
 City: State: Zip:  
 Phone #: 575-200-5517  
 Fax #:

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	TPH 8015 M EXT	CHLORIDES	BTEX 8021 B	RCI	TCLIP BENZENE	TCLIP METALS	NORM	PAINT FILTER
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :										
HOOD 746	WCC-1	G	4			X				03/6/20	10:30							X	

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Relinquished By: [Signature]  
 Date: 3/10/20  
 Time: 10:51  
 Received By: [Signature]  
 Date: [Signature]  
 Time: [Signature]

Delivered By: (Circle One) Observed Temp. °C: 8.7  
 Sampler - UPS - Bus - Other: Corrected Temp. °C: [Blank]  
 Sample Condition: Cool  Intact   
 CHECKED BY: [Signature] (Initials) [Signature]  
 Turnaround Time: [Blank] Standard  Rush   
 Thermometer ID #97 Correction Factor +0.4 °C  
 Bacteria (only) Sample Condition: Cool  Intact   
 Yes  No  Yes  No   
 Corrected Temp. °C: [Blank]

FORM-006 R.3.0 Cardinal cannot accept verbal changes. Please email changes to caley.keene@cardinallabsnm.com

**APPENDIX D**  
**PHOTOGRAPHIC DOCUMENTATION**

**Photograph No 1.**

Date: February 18, 2020

Direction: West

Description: View of excavation along southern part of release by LACT unit.



**Photograph No 2.**

Date: February 19, 2020

Direction: North

Description: View of excavation along east side of LACT unit.



**Photograph No 3.**

Date: February 20, 2020

Direction: West

Description: View of excavation along northern part of release by LACT unit.



**Photograph No 4.**

Date: February 20, 2020

Direction: South

Description: View of excavation along west side of LACT unit.



**Photograph No 5.**

Date: June 1, 2020

Direction: South

Description: View of backfilled excavation on east side of LACT unit.



**Photograph No 6.**

Date: June 1, 2020

Direction: Northeast

Description: View of excavation along south side of LACT unit.



**APPENDIX E**  
**MONITOR WELL LOG AND GROUNDWATER ANALYTICAL**  
**RESULTS**

**Memorandum No. 2 Concerning Magnesium Brine Wells  
of the Emro Corporation Near Carlsbad, New Mexico**

**By C. V. Theis and W. E. Hale**

**In cooperation with the Defense Plant Corporation**

**March 15, 1942**

As it now appears that the U.S. Geological Survey will be only casually connected with any further exploration of the magnesium brines in Red Bluff Draw, south of Carlsbad, New Mexico, it seems proper to record certain tentative hypotheses and tentative estimates of the reserve available arrived at as the result of the work already done. The hypotheses are based upon insufficient data and can only be said to be reasonable geologically and to fit the available data better than any others that have occurred to the writer. If the question of further exploration arises they may furnish a means of estimating the chances of success in finding a usable reserve of brine, and if further work is done they will furnish a rational background to guide the exploration.

**Nature of the Aquifer**

The materials penetrated by the drill in this area consist primarily of massive, selenitic, alabastine, and saccaroidal gypsum, with which is admixed some minor amount of clay and siltstone and some dolomite. Below the horizon of the brine some anhydrite is encountered. **The brine has been encountered at depths between 100 and 200 feet and is always under pressure, sufficient to result in flowing wells at the lower elevations.** No definite confining bed is present and there is no abrupt and definite change in material at any horizon. Gypsiferous water is found at shallow depths, between 14 and 52 feet in most of the holes and at a depth of 80 feet in Etz No. 1, also in gypsum apparently indistinguishable from the remainder of the gypsum. The material appears, therefore, to be heterogeneous in detail but rather uniform en masse and yet possesses sufficient bedding to give rise to porous zones and impervious confining beds over sufficient area to yield considerable pressure on the brine.

Two hypotheses have been proposed to explain the nature of the material in which the brine occurs. The first considers the gypsum a fill in an older valley excavated to a considerable depth below the present surface. The second, apparently originally proposed by Lang, considers the gypsum a weathering product of the anhydrite originally making up the Castile formation. The difficulties facing the acceptance of the fill hypothesis seem insurmountable. The valley must be filled with a gypsum debris to the almost entire exclusion of other material more resistant to abrasion and solution. The debris must be arranged in beds or perhaps shoe-string lenses that have continuous permeability over considerable distances and must be overlain by material, indistinguishable in drill cuttings from the porous material, that is impermeable over an area sufficient to give rise to considerable head in the underlying brine. These porous beds must be at various elevations but must also be to some degree interconnected. On the other hand, weathering commonly works down some beds at a faster rate than in adjacent more resistant beds. Given the thorough weathering of a thick mass of bedded anhydrite to gypsum it would be expected that certain beds would be opened up in a porous manner whereas others would be left impervious either because of less weathering or because of more weathering reducing the original beds to a mass of gypsum blocks embedded in a clayey residuum. Further the fact that the brine occurrences can be interpreted as

being in one or two beds, as will be shown later, is contributory evidence that we are dealing here with a weathered residuum.

The origin of the brine appears obscure. The process which gave rise to it must be one capable of giving a saturated solution of magnesium, sodium, and sulphate with a high boron content, with the almost complete exclusion of calcium, although it occurs in high-calcium rocks, and of chloride, the radical commonly accompanying sodium and magnesium in the Permian basin. The origin forms a very interesting problem for a physical chemist. The brine is apparently not connate because in the first place it seems difficult to produce a mother liquor of its composition by the processes of evaporation, although considering the complex chemistry of saline deposits it might not be impossible. Probably more conclusive evidence is found in the apparent fact that the brine occurs in weathered zones. The brine itself, being saturated, must insulate the rocks that it covers from weathering, and apparently the only way the rocks could be weathered would be by first diluting the brine. Lang has proposed that the constituents have been concentrated from minute quantities of the elements brought in from long distances and that the solutions because of their density have settled in the traps. This hypothesis may hold the nucleus of the truth but needs some amplification. The ground-water circulation must have been quite abnormal and the solutions must have been concentrated before they arrived at the traps. This would point to an extremely slow ground-water circulation.

The simplest hypothesis from the geological standpoint would be to consider the brines as a product of the weathering that converted the anhydrite to gypsum. The problem lies in the realm of physical chemistry. There are sources of magnesium present in the deposits themselves in the form of thin dolomite beds. Sources of sodium and boron are problematical but it would seem possible that they might be present in traces. Zeolitic minerals in the clay may possibly be a source of the sodium. It would seem probable that as weathering proceeded in these beds, concentrated solutions would be formed of the most soluble materials available because there would be a tendency for any increment of fresh water to be bound as water of crystallization as the anhydrite was changed to gypsum. There would be a multiple phase system of anhydrite, gypsum, and a concentrated solution of highly soluble salts. If such an hypothesis is acceptable to the physical chemist, it would probably be most acceptable to the geologist.

It may be noted that this hypothesis implies that the accumulations of brine are geologically temporary and that its quantity is limited. As the brine becomes saturated, weathering of the bed enclosing it is arrested. Fresher water added at the surface by rainfall infiltration weathers down the more resistant beds between the brine traps. As these are lowered the brine overflows its dams and joins the ground-water circulation.

Perhaps the simplest explanation of the brine from a geological standpoint would be to assume that there is or has been ground-water circulation along the strike of the beds. If the beds are assumed to have in themselves small amounts of sodium, magnesium, and boron, water seeping into the beds at a higher elevation and discharging at a lower would in one continuous process probably prepare the solution cavities and fill them with the concentrate. In the initial stages of solution the water would move from the higher level to the lower converting the anhydrite to gypsum and opening solution passages probably by a combination of physical disruption of the bed in the process of hydration and solution of gypsum. This process would begin at the surface and gradually work down the dip of the bed. Near the base of the weathered zone at any time the solutions would probably always be more

concentrated because they would travel more slowly thru the incipient openings they were in process of enlarging and perhaps also because some of the water would be bound in the gypsum molecule. In the initial stages this more highly mineralized water would be swept onward with the general circulation. As the action progressed, however, down the dip, the flow lines become more and more circuitous and longer giving additional opportunity for solution and concentration. A point would be reached where the density of the brine and the height it must be lifted from the base of the weathered zone to the outlet would be sufficient to balance the longer column of fresh water behind it. The heavier solution would remain in the aquifer and fresher water moving near the surface would override it. As the heavy brine accumulated it would fill part of the openings, thus restricting and slowing the flow of the fresher water and giving it more opportunity to pick up soluble salts. The brine trapped in the bed would probably approach or attain saturation. Eventually an equilibrium would be attained in which the top level of the brine extended nearly horizontally from the point of outflow.

Fortunately, all the questions about the origin of the brine do not have to be resolved before reaching some conclusions as to the probable amount of brine in the vicinity, although because the nature and occurrence are so intangible any evidence that makes more definite our concepts related to it helps also to make our estimates more valid.

#### Probable Structure of the Rocks in Which the Brine Occurs

The accompanying table gives the elevations of the piezometric surface at each of the wells and the elevations at which the brine was encountered. Wells Nos. 1 and 2 were pumped and the water levels in Nos. 5 and 7 were lowered, the latter conclusively as a result of pumping No. 2 and the former almost certainly so. It will be observed that the static water levels in Nos. 2 and 7 had almost exactly the same elevation before pumping, the small differences being probably the result of slightly different densities of the brine operative over columns about 100 feet long. The level of No. 5 could not be measured before pumping began but it is probable that its static level was also at about the same elevation within the differences resulting from different densities.

If we assume that these three occurrences of the brine known to be connected lie in the same bed and at the same horizon, the dip as shown in figure 1 (not found in archives) is about 90 feet to the mile north 30° east. This is about the same dip as noted by Lang in the beds of the reef in the Barrera del Guadalupe. Although the three wells lie too nearly on a straight line to sharply define the structure yet the brine occurrences at Nos. 3 and 6 lie also within a few feet of the plane containing the occurrences at Nos. 2, 5, and 7. Neither well 3 nor well 6 was affected by the pumping; the peizometric surface of No. 3 was a little higher than that of the three wells known to be connected, and that of No. 6 was about 10 feet higher. Hence there is definite evidence that Nos. 3 and 6 are not connected with Nos. 2, 5, and 7, at least in a direct manner. However, if the brines do occur in solution passages in a weathered bed it would seem altogether possible that there might be fairly independent systems of passages in beds at or near the same geologic horizon. It would seem therefore that the location of these brine occurrences apparently in or near the same plane that contains the others supports the conception that we are dealing with one bed or a thin series of beds, notwithstanding the fact that the occurrences have no direct connection.

A lower horizon of brine, 48 feet below the upper, was struck in well No. 5. The brine occurs in wells 4 and 1 at elevations respectively 60 and 35 feet below the supposed plane of the brine in the other wells. There is a suggestion that these also may be related to one bed but if so an explanation must be found for the fact that the static level of No. 1 is over 100 feet below that of No. 4.

#### Significance of Pumping Tests

The pumping test on well No. 1 did not yield data that are of particular significance in determining the nature of the aquifer. By its low yield and high drawdown it indicated that the aquifer near it is of comparatively low transmissibility. Its very low piezometric surface and the fact that no other wells reacted to its pumping indicates that the body of brine that furnishes it is probably of quite local extent.

The data on well 2 are more complete. It was pumped at practically a constant rate and an automatic record is available for the fluctuations of water level in well 7 during the time that well 2 was pumping. The rate of fall in well 7 indicates a transmissibility of around 15,000 and a coefficient of storage of the order of 0.0001. The zone in which the brine is found is thought to average about 3 feet thick, which thickness would make the coefficient of permeability about 5,000. The coefficient of storage represents the amount of water in cubic feet withdrawn from each column of the aquifer with base 1 foot square when the head is reduced 1 foot. This low coefficient of storage indicates that the aquifer is under artesian conditions and that there is for instance no significant seepage of liquid through the confining bed.

It was found that the drawdown curve of well 7 could be made to fit the type curves for withdrawal either from a point source, as for instance a well, or from a line, as for instance a trench. There was no difference in the order of the coefficients determined by the two methods. So far as this curve indicates the wells might be drawing from an areally extensive aquifer or from a trench-like aquifer. During the first 24 hours of recovery the rate of recovery in well 2 followed the rule for recovery of a well drawing from an aquifer extensive in all directions and for the next 10 days it appeared to follow that for recovery from a trench-like aquifer. This phenomenon could be explained as the effects produced in a linear aquifer bounded by more or less parallel impermeable walls. Under such an interpretation the early part of the recovery would cover the period before the readjustment of water pressure had reached the boundaries of the aquifer and the remainder of the recovery would represent the extension of the readjustment linearly along the aquifer.

### Monitor Well MW-1

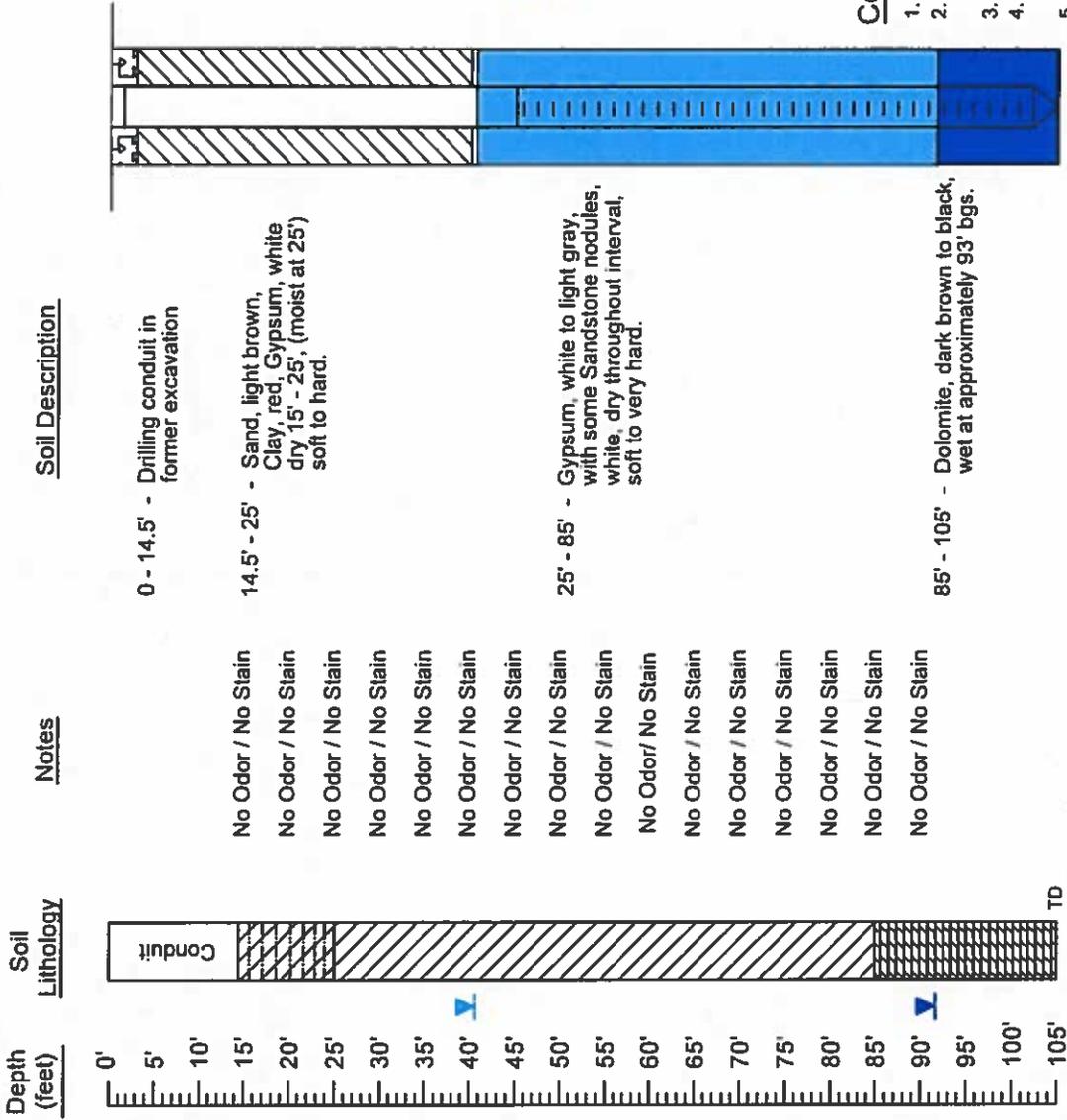
### Monitor Well Details

Date Drilled	September 20, 2018
Thickness of Bentonite Seal	3 ft
Length of PVC Well Screen	37 ft
Depth of PVC Well	105 ft
Depth of Exploratory Well	105 ft

-  Grout Surface Seal - 3' to Surface
-  Bentonite Pellet Seal - 40' to 3'
-  Sand Pack - 40' to 105'
-  Screen - 45' to 105"

 Indicates the ground water level measured on 9/20/2018.

 Indicates the ground water level measured on 9/29/2018.



### Completion Notes

1. The monitor well was installed on date using Air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is flush mount Style.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Scale:	None
CAD By:	CS
Checked By:	CS
Drawn:	October 21, 2018
Lat. N	32.039236°
Long. W	104.131222°
TRC Proj. No.	274959



Figure 3  
 MW-1 Boring Log And Monitor Well Details  
 Plains Pipeline, LP  
 Alpha Gathering Seg 3 LAT 6E Eddy County, NM

**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Screech Owl CTB  
Project Number: SRS# 2017-053

Location:

Lab Order Number: 8J09010



**NELAP/TCEQ # T104704516-17-8**

Report Date: 10/18/18

TRC Solutions- Midland, Texas 10 Desta Dr STE 150E Midland TX, 79705	Project: Screech Owl CTB Project Number: SRS# 2017-053 Project Manager: Curt Stanley	Fax: (432) 520-7701
----------------------------------------------------------------------------	--------------------------------------------------------------------------------------------	---------------------

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	8J09010-01	Water	10/08/18 14:50	10-09-2018 09:04

TRC Solutions- Midland, Texas 10 Desta Dr STE 150E Midland TX, 79705	Project: Screech Owl CTB Project Number: SRS# 2017-053 Project Manager: Curt Stanley	Fax: (432) 520-7701
----------------------------------------------------------------------------	--------------------------------------------------------------------------------------------	---------------------

**MW-1**  
**8J09010-01 (Water)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00100	mg/L	1	P8J1201	10/12/18	10/12/18	EPA 8021B	
Toluene	ND	0.0100	mg/L	1	P8J1201	10/12/18	10/12/18	EPA 8021B	
Ethylbenzene	ND	0.00500	mg/L	1	P8J1201	10/12/18	10/12/18	EPA 8021B	
Xylene (p/m)	ND	0.0200	mg/L	1	P8J1201	10/12/18	10/12/18	EPA 8021B	
Xylene (o)	ND	0.0100	mg/L	1	P8J1201	10/12/18	10/12/18	EPA 8021B	
Surrogate 4-Bromofluorobenzene		112 %	80-120		P8J1201	10/12/18	10/12/18	EPA 8021B	
Surrogate 1,4-Difluorobenzene		86.6 %	80-120		P8J1201	10/12/18	10/12/18	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>Total Dissolved Solids</b>	<b>485000</b>	<b>20.0</b>	<b>mg/L</b>	<b>1</b>	<b>P8J1504</b>	<b>10/15/18</b>	<b>10/16/18</b>	<b>EPA 160.1</b>	
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Permian Basin Environmental Lab, L.P.

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

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TRC Solutions- Midland, Texas 10 Desta Dr STE 150E Midland TX, 79705	Project: Screech Owl CTB Project Number: SRS# 2017-053 Project Manager: Curt Stanley	Fax (432) 520-7701
----------------------------------------------------------------------------	--------------------------------------------------------------------------------------------	--------------------

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P8J1201 - General Preparation (GC)</b>										
<b>Blank (P8J1201-BLK1) Prepared &amp; Analyzed: 10/12/18</b>										
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 4-Bromofluorobenzene	0.0642		"	0.0600		107	80-120			
Surrogate: 1,4-Difluorobenzene	0.0561		"	0.0600		93.4	80-120			
<b>LCS (P8J1201-BS1) Prepared &amp; Analyzed: 10/12/18</b>										
Benzene	0.102	0.00100	mg/L	0.100		102	80-120			
Toluene	0.109	0.0100	"	0.100		109	80-120			
Ethylbenzene	0.112	0.00500	"	0.100		112	80-120			
Xylene (p/m)	0.234	0.0200	"	0.200		117	80-120			
Xylene (o)	0.113	0.0100	"	0.100		113	80-120			
Surrogate: 4-Bromofluorobenzene	0.0641		"	0.0600		107	80-120			
Surrogate: 1,4-Difluorobenzene	0.0611		"	0.0600		102	80-120			
<b>LCS Dup (P8J1201-BSD1) Prepared &amp; Analyzed: 10/12/18</b>										
Benzene	0.0894	0.00100	mg/L	0.100		89.4	80-120	12.7	20	
Toluene	0.0957	0.0100	"	0.100		95.7	80-120	13.1	20	
Ethylbenzene	0.114	0.00500	"	0.100		114	80-120	1.70	20	
Xylene (p/m)	0.210	0.0200	"	0.200		105	80-120	10.7	20	
Xylene (o)	0.112	0.0100	"	0.100		112	80-120	1.31	20	
Surrogate: 4-Bromofluorobenzene	0.0648		"	0.0600		108	80-120			
Surrogate: 1,4-Difluorobenzene	0.0607		"	0.0600		101	80-120			
<b>Matrix Spike (P8J1201-MS1) Source: 8J09010-01 Prepared &amp; Analyzed: 10/12/18</b>										
Benzene	0.0954	0.00100	mg/L	0.100	ND	95.4	80-120			
Toluene	0.104	0.0100	"	0.100	ND	104	80-120			
Ethylbenzene	0.107	0.00500	"	0.100	ND	107	80-120			
Xylene (p/m)	0.221	0.0200	"	0.200	ND	111	80-120			
Xylene (o)	0.112	0.0100	"	0.100	ND	112	80-120			
Surrogate: 4-Bromofluorobenzene	0.0735		"	0.0600		123	80-120			S-GC
Surrogate: 1,4-Difluorobenzene	0.0671		"	0.0600		112	80-120			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas 10 Desta Dr STE 150E Midland TX, 79705	Project Screech Owl CTB Project Number: SRS# 2017-053 Project Manager: Curt Stanley	Fax: (432) 520-7701
----------------------------------------------------------------------------	-------------------------------------------------------------------------------------------	---------------------

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P8J1201 - General Preparation (GC)**

Matrix Spike Dup (P8J1201-MSD1)	Source: 8J09010-01			Prepared & Analyzed 10/12/18						
Benzene	0.0946	0.00100	mg/L	0.100	ND	94.6	80-120	0.863	20	
Toluene	0.105	0.0100	"	0.100	ND	105	80-120	0.730	20	
Ethylbenzene	0.115	0.00500	"	0.100	ND	115	80-120	6.67	20	
Xylene (p/m)	0.217	0.0200	"	0.200	ND	109	80-120	1.67	20	
Xylene (o)	0.112	0.0100	"	0.100	ND	112	80-120	0.00894	20	
Surrogate: 4-Bromofluorobenzene	0.0730		"	0.0600		122	80-120			S-GC
Surrogate: 1,4-Difluorobenzene	0.0635		"	0.0600		106	80-120			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas 10 Desta Dr STE 150E Midland TX, 79705	Project: Screech Owl CTB Project Number: SRS# 2017-053 Project Manager: Curt Stanley	Fax (432) 520-7701
----------------------------------------------------------------------------	--------------------------------------------------------------------------------------------	--------------------

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	Limit	Notes
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**Batch P8J1504 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P8J1504-BLK1)** Prepared: 10/15/18 Analyzed: 10/16/18

Total Dissolved Solids	ND	20.0	mg/L					
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**Duplicate (P8J1504-DUP1)** Source: 8J09011-02 Prepared: 10/15/18 Analyzed: 10/16/18

Total Dissolved Solids	250	20.0	mg/L		240		4.08	20
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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Screech Owl CTB  
Project Number: SRS# 2017-053  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Notes and Definitions**

- S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- LCS Laboratory Control Spike
- MS Matrix Spike
- Dup Duplicate

Report Approved By: Brent Barron Date: 10/18/2018

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

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**APPENDIX F**  
**NEW MEXICO OIL CONSERVATION DIVISION VARIANCE**  
**EMAIL APPROVAL**

**Jeff Kindley**

---

**From:** Amber L Groves <ALGroves@paalp.com>  
**Sent:** Thursday, April 9, 2020 9:49 AM  
**To:** Sylwia Reynolds; Jeff Kindley  
**Subject:** FW: NVV2003536983-Plains COG Craig State 3H Variance Request

Syl and Jeff,

Here is the variance approval for COG Craig from NMOCD.

Thank you,

Amber

**From:** Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>  
**Sent:** Tuesday, April 7, 2020 1:33 PM  
**To:** Amber L Groves <ALGroves@paalp.com>  
**Cc:** Camille J Bryant <CJBryant@paalp.com>  
**Subject:** RE: NVV2003536983-Plains COG Craig State 3H Variance Request [External]

04/07/2020

Camille Bryant – Plains  
Amber Groves – Plains

Re Variance Request for Final Vertical Delineation of TPH.

Variance for the following:

- 1) Approval of request to terminate via variance, for now, the requirement to evaluate TPH to 100 ppm, is approved. When site is cleared for additional work in future this will need to be accomplished. Allowable for now as depth to water is in the vicinity of 90 feet below ground surface, and infrastructure precludes drilling rig.
- 2) Excavate to 3 feet, deemed safe, relative to infrastructure is Approved. May eventually need to go full four feet.
- 3) The Oil Conservation Division (OCD) does not require a liner at bottom of excavation in this circumstance.

OCD anticipates a deferral request through the pay portal when work approved is finished, as more work will need to be accomplished in future.

Please keep a copy of this communication, as no paper copy will follow. OCD thanks you for your efforts.

Sincerely,

Bradford Billings  
EMNRD/OCD  
Albuquerque, NM

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

Liner, yes, no

Ex to 3 feet okay on depth to eval, even being high karst, too much infrastructure in the way

Expect a deferral for site on 141 through portal

**From:** Amber L Groves <[ALGroves@paalp.com](mailto:ALGroves@paalp.com)>  
**Sent:** Monday, April 6, 2020 2:59 PM  
**To:** Billings, Bradford, EMNRD <[Bradford.Billings@state.nm.us](mailto:Bradford.Billings@state.nm.us)>  
**Cc:** Camille J Bryant <[CJBryant@paalp.com](mailto:CJBryant@paalp.com)>  
**Subject:** [EXT] FW: NVV2003536983-Plains COG Craig State 3H Variance Request

Bradford,

Here is the variance request that I spoke to you about this afternoon. Hope things are going well up north!

Thank you,

Amber

**From:** Amber L Groves  
**Sent:** Tuesday, March 10, 2020 2:20 PM  
**To:** 'cristina.eads@state.nm.us' <[cristina.eads@state.nm.us](mailto:cristina.eads@state.nm.us)>; 'robert.hamlet@state.nm.us' <[robert.hamlet@state.nm.us](mailto:robert.hamlet@state.nm.us)>; 'victoria.venegas@state.nm.us' <[victoria.venegas@state.nm.us](mailto:victoria.venegas@state.nm.us)>  
**Cc:** 'mike.bratcher@state.nm.us' <[mike.bratcher@state.nm.us](mailto:mike.bratcher@state.nm.us)>; 'Bradford.Billings@state.nm.us' <[Bradford.Billings@state.nm.us](mailto:Bradford.Billings@state.nm.us)>; Camille J Bryant <[CJBryant@paalp.com](mailto:CJBryant@paalp.com)>  
**Subject:** NVV2003536983-Plains COG Craig State 3H Variance Request

Good Afternoon,

On January 11, 2020, Plains had a crude oil release of approximately 8 bbls at the COG Craig State 3H and the C-141 was filed with NMOCD on January 15, 2020. OCD assigned this release #NVV2003536983 on February 4, 2020. Initial delineation activities at the release site commenced on January 15, 2020. Soil sample results can be found in the attached Chemistry Table. Soil sample AH-3 was advanced to a terminal depth of approximately 7 ft, where resistance was met. The soil sample AH-3 @ 7' exhibited a TPH concentration of 731.4 mg/kg .

On September 20, 2018, Plains installed a monitor well approximately 3.42 miles southeast of the COG Craig State 3H at the COG Screech Owl CTB. Depth to water was determined to be approximately 93 feet bgs. A groundwater sample was collected on October 8, 2018 and analyzed for total dissolved solids (TDS). The analytical results indicated the TDS concentration was 485,000 mg/L. This result exceeds the NMOCD and New Mexico Water Quality Control Commission (NMWQCC) standard of 10,000 mg/L for abatable water. Please find attached the boring log and the analytical results

from the groundwater sample collected from the monitor well. Also attached is published /pertinent information regarding the groundwater in the area. While Plains acknowledges the site is located in a high karst area as shown on the attached map, we respectfully request a variance for vertical delineation based on the downward trend of TPH concentrations collected from soil samples AH-3 @1' through AH-3 @7', the impermeable layer and the close proximity of numerous structures, being sufficed at the 731.4 mg/kg TPH based on the provided information.

The majority of the release area is confined to Plains' LACT unit. Due to the nature of equipment and plethora of pipeline and conduit found in the release area, Plains is also requesting a variance to excavate to 3' bgs and install a 20-mil polyethylene liner. Please see attached photos showing the limited access in the LACT area.

Thank you and please feel free to give me a call at the number below should you have any questions.

*Amber L. Groves  
Remediation Coordinator  
Plains All American  
3112 W. US Hwy 82  
Lovington, NM 88260  
575-200-5517*

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