APPROVED
By Olivia Yu at 8:13 am, Aug 03, 2018

NMOCD approves of the delineation and remediation completed for 1RP-5035. Backfill approval is granted.

August 2, 2018

Reference No. 11157457

Ms. Olivia Yu
Environmental Specialist
NMOCD, District 1
1625 N. French Drive
Hobbs, NM 88240

VIA EMAIL ONLY
Olivia.Yu@state.nm.us
Christina.Hernandez@state.nm.us

Ms. Christina Hernandez
Environmental Specialist
NMOCD, District 1
1625 N. French Drive
Hobbs, NM 88240

Re: Crude Oil Release Excavation Backfill Request – NMOCD #1RP-5035
COG Fascinator Fee Com #2H LACT Unit
Date of Release – April 25, 2018
Lea County, New Mexico

Dear Ms. Yu and Ms. Hernandez:

1. Introduction

GHD Services, Inc. (GHD) was contracted by Plains All American Pipeline, LP (Plains) to oversee, prepare, and provide written documentation to the New Mexico Oil Conversation Division (NMOCD) on the nature, extent, and remediation of soils impacted with crude oil from a release within the firewall berm at the subject COG Fascinator Fee Com #2H Lease Automated Custody Transfer (LACT) Unit (the 'Site'). The NMOCD has assigned remediation permit #1RP-5035 to this incident. The Site is on privately owned land located in Section 30 (Unit O), Township 24S, Range 35E in Lea County, NM. The GPS coordinates for the Site are 32.1811° N and -103.4040° W. The Site location is depicted on Figure 1.

The COG Fascinator Fee Com #2H LACT Unit release occurred on a lease operated by COG Operating LLC (COG). Plains agreed to perform assessment and remediation activities in association with this release incident. GHD has prepared this Excavation Backfill Request on behalf of Plains for use in documenting closure activities and for NMOCD consideration and approval.

1.1 Background

On April 25, 2018, a release of 25 barrels of crude oil occurred due to a packing nut backing out which allowed oil to be 'gravity fed' onto the ground surface inside the LACT Unit firewall berm. The crude oil was contained within the berm. According to the initial NMOCD Form C-141, 6 barrels of crude oil were recovered and 19 barrels were unrecovered. Plains reported this release to the NMOCD District 1office in

Hobbs, NM on April 25, 2018. A copy of the NMOCD Initial Form C-141 for the reportable release is attached to this document as Attachment A.

2. Initial Site Assessment and Soil Sampling Activities

Initial site assessment and soil sampling activities were completed in accordance to the New Mexico Oil Conservation Division's (NMOCD's) guidance document Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. Section III (Site Assessment) of the 1993 guidance document provides three general characteristics (Depth to groundwater, Wellhead Protection Area, Distance to Nearest Surface Water Body) to "evaluate a sites' potential risk, the need for remedial action and the level of cleanup, if necessary, required at the Site." Section IV provides ranking criteria for each site-specific characteristic to determine their relative threat to the public, fresh waters and the environment. The sum of each individual characteristic equals the total ranking score. The total ranking score determines the recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (BTEX) and total petroleum hydrocarbons (TPH) in soil. In addition, the NMOCD's draft guidance document, Guidance for Release Reporting and Corrective Actions, dated September 30, 2011, was utilized for Chloride RRAL determination.

According to the Petroleum Recovery Research Center (PRRC) database, the depth to groundwater in the immediate area of the Site ranges from 219.2 to 107.8 feet below ground surface (bgs). Based on average depth to groundwater (>100 feet bgs), Wellhead Protection (water source <1,000 feet & <200 feet private) and surface body of water (>1000 feet) gives the Site a Total Ranking of 0. Based on the Site's Total Ranking, the RRALs were determined to be 10 ppm for benzene, 50 ppm for BTEX, 5000 ppm for TPH. The NMOCD's September 30, 2011 Guidance Document recommends a RRAL of 1,000 ppm for chloride based on the vertical separation from groundwater of greater than 100 feet.

On May 3, 2018, GHD mobilized to the Site for advancing hand auger borings and the collection of delineation soil samples for laboratory analysis. Hand auger activities for this initial sampling event targeted accessible areas within the LACT Unit containment. Selected areas exhibited the greatest volumes of visual staining. The objective of the sampling were to assess the nature and vertical extent of BTEX, TPH, and Chloride concentrations in the subsurface soils. GHD field personnel collected six delineation soil samples from six borings at a depth of 6-12 inches bgs. Collected samples (DS-1 through DS-6) were placed into containers supplied by the laboratory, packed on ice, and delivered to Xenco Laboratories in Midland, TX under proper chain-of-custody. Each soil sample was analyzed for BTEX by EPA Method 8021, TPH by Method SW8015 Modified, and Chloride by EPA Method 300/300.1. All six analyzed samples exhibited concentrations above the determined RRAL for either Benzene, Total BTEX, or TPH. No analyzed sample exhibited a Chloride concentration above the determined RRAL. Analytical results are summarized in Table 1 and the sample locations with analytical results are depicted on Figure 2.

3. Site Remediation and Confirmation Sampling

Initial Site soil remediation activities were overseen by GHD and performed by Superior Hydrovac Solutions, LLC (SHS) between May 3 and 11 of 2018. Activities included the removal of impacted soils using a hydrovac down to approximately 1-foot bgs. All impacted soil removed was directly placed within a constructed area lined with polyvinyl, bermed with caliche, and located on the well pad near the LACT Unit.

On May 22, 2018, seventeen additional delineation soil samples were collected from 1-foot (bottom of excavation), 2-feet, and 3-feet bgs. These samples were collected in the immediate areas of the previous six delineations samples (DS-1, DS-2, DS-3, DS-4, DS-5, and DS-6) collected on May 3, 2018. Analytical results indicated, the sample collected at 1-foot bgs, at DS-4, as having a TPH concentration above the determined RRAL and being below the RRAL for the samples collected at 2-feet and 3-feet bgs. For DS-5, analytical results indicated the sample collected at 1-foot bgs as having a TPH concentration above the RRAL, the 2-feet bgs sample as having Total BTEX and TPH concentrations above the RRALs, and the 3-feet bgs sample as having BTEX and TPH concentrations below the RRALs. For DS-6, analytical results indicated the samples collected at 1-foot, 2-feet, and 3-feet bgs as having Total BTEX and TPH concentrations above the RRALs. Analytical results of the additional delineation sampling are summarized in Table 1 and depicted on Figure 2.

On June 27, 2018, Gandy Corp (Gandy) field personnel performed subsequent soil removal operations using hand tools in impacted areas surrounding DS-4, DS-5, and DS-6. Visibly stained soil was hand dug to approximately 2.0-feet bgs in the area of DS-4, to approximately 3.0-feet bgs in the area of DS-5, and to approximately 3.5-feet in the area of DS 6 All soil dug by hand was shoveled into the bucket of a backhoe and transferred to the nearby stockpile containment area. Subsequent to the additional impacted soil removal, a confirmation soil sample, CS-1, was collected at 3.5-feet bgs in the same area as DS-6. Furthermore, six wall samples (WS-SWW, WS-WW, WS-NWW, WS-NEW, WS-EW, and WS-SEW) were collected. The objective of the wall sampling were to assess the nature and horizontal extent of the Benzene, Total BTEX, TPH, and Chloride concentrations. Analytical results depicts the Benzene, Total BTEX, TPH, and Chloride concentrations as being below the determined RRALs for all existing and deepest collected confirmation and wall samples. Analytical results of the confirmation sampling are summarized in Table 1 and depicted on Figure 2.

4. Excavation Backfill Request – NMOCD 1RP-5035

The New Mexico Oil Conservation Division's (NMOCD's) guidance document Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993, and the NMOCD's draft guidance document, Guidance for Release Reporting and Corrective Actions, dated September 30, 2011, were followed in management of this release. Approximately 35 cubic yards of impacted soil were removed and stockpiled directly within an area lined with polyvinyl, bermed with caliche, and located on the well pad near the LACT Unit. Thirty delineation, confirmation, and wall samples were analyzed to evaluate the

nature and extent of the crude oil release that was contained inside the LACT Unit firewall. Laboratory analytical results indicates existing Benzene, Total BTEX, TPH, and Chloride concentrations in bottom and sidewall samples are below the determined RRALs. As a result, GHD, on behalf of Plains, respectfully requests NMOCD approval to backfill the LACT Unit's excavated area.

Sincerely,

GHD

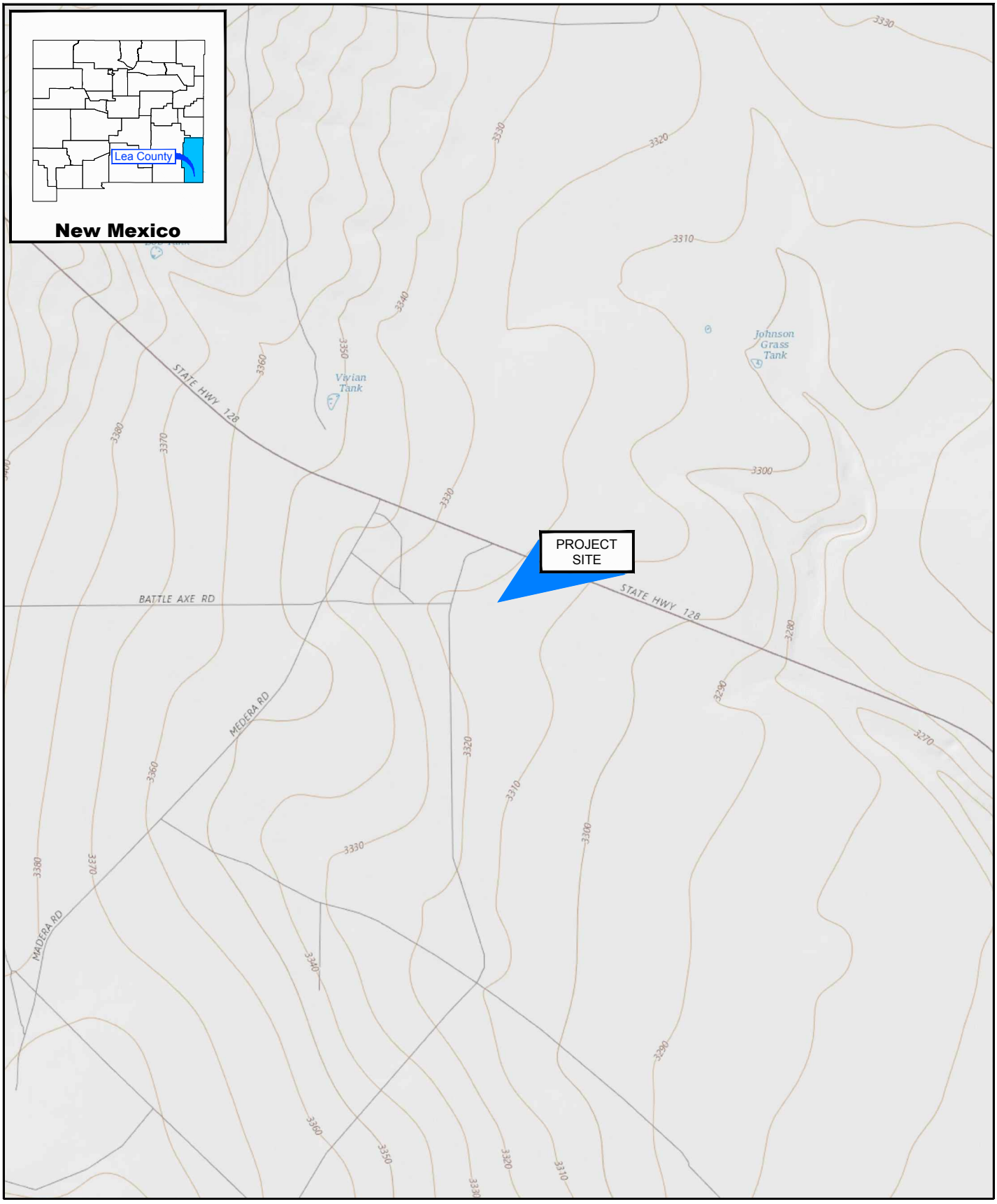
John Fergerson, PG
Senior Project Manager

Thomas C. Larson, PG
Midland Operations Manager

JF/tc/1

Attachments: Figure 1: Site Location Map
Figure 2: Site Detail and Analytical Data Map
Table 1: Soil Analytical Summary
Attachment A: NMOCD Form C-141(Initial)

cc: Amber Groves, Remediation Coordinator, Plains



Source: USGS 7.5 Minute Quad "Woodley Flat and Custer Mountain, New Mexico"

Lat/Long: 32.181210° North, 103.404034° West

0 1000 2000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

PLAINS ALL AMERICAN PIPELINE, LP
LEA COUNTY, NEW MEXICO
COG FASCINATOR FEE COM #2H LACT UNIT RELEASE

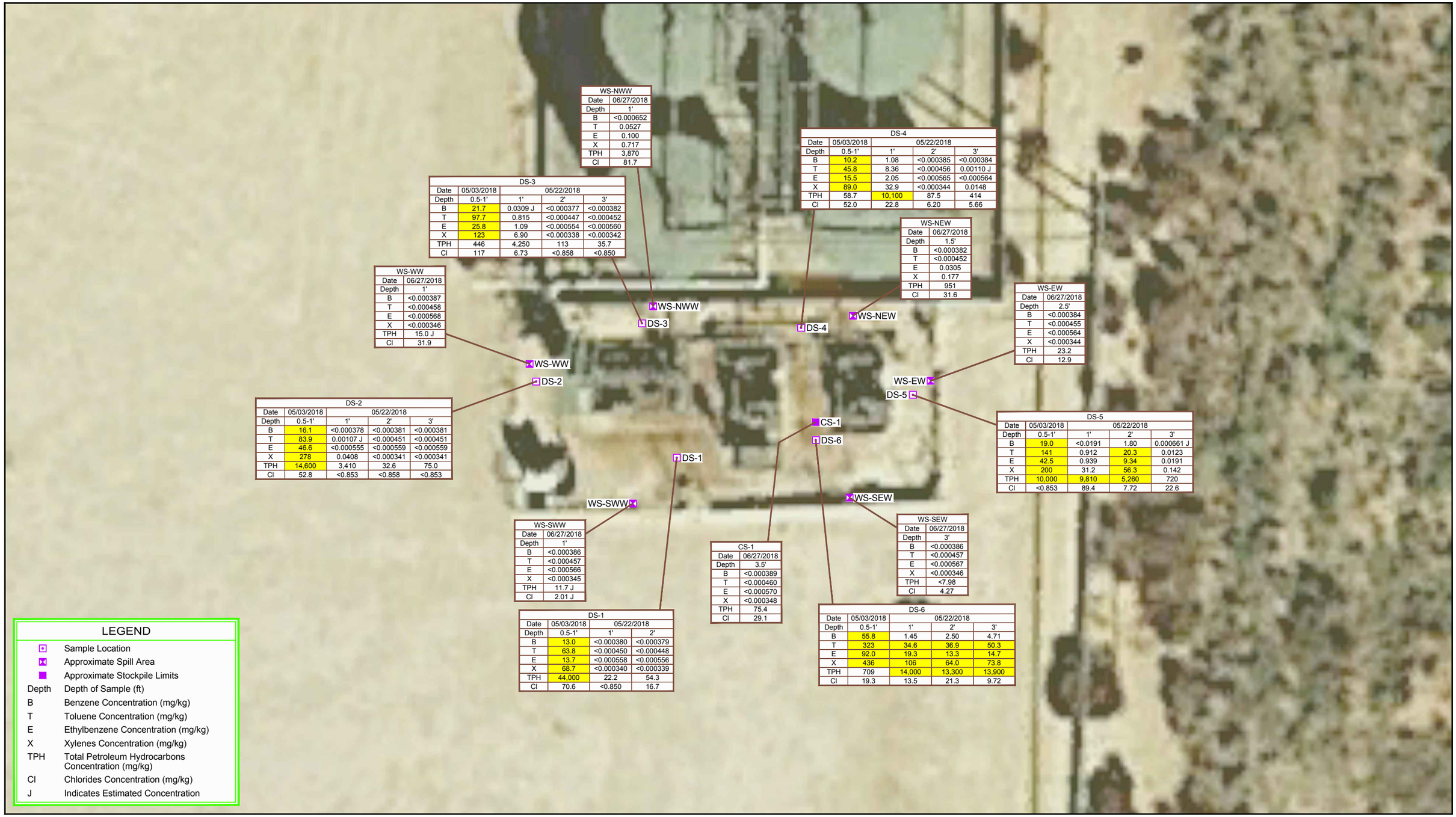
11157457-00

Jul 20, 2018

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1115----\11157457-Plains-COG Fascinator Release\11157457-00(000)GN-DL001.dwg



Source: Image © 2018 Google - Imagery Date: November 2, 2017

Lat/Long: 32.181210° North, 103.404034° West

0 5 10ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

NOTES:

1. Soil concentrations presented in milligrams per kilogram (mg/kg).
2. Yellow shaded cells indicate exceedance.

PLAINS ALL AMERICAN PIPELINE, LP
LEA COUNTY, NEW MEXICO
COG FASCINATOR FEE COM #2H LACT UNIT RELEASE

11157457-00

Jul 20, 2018

SITE DETAIL AND ANALYTICAL RESULTS MAP

FIGURE 2

CAD File: I:\CAD\Files\Eight Digit Job Numbers\11115----\11157457-Plains-COG Fascinator Release\11157457-00(000)GN-DL001.dwg

TABLE I
PLAINS ALL AMERICAN PIPELINE, LP
COG FASCINATOR FEE COM #2H LACT UNIT RELEASE
SOIL ANALYTICAL SUMMARY
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Depth (inches & feet bgs)	Benzene	Toluene	Ethyl- Benzene	Xylenes	BTEX	TPH				Chloride
								GRO(C6-C10)	DRO(C10-C28)	ORO (C28-C35)	Total (GRO/DRO/ORO)	
			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
			1993 NMOCD Soil Delineation & Recommended Remediation Action Levels (RRAL) Ranking Score = 0									
			10 mg/Kg	---	---	---	50 mg/Kg	---	---	---	5000 mg/Kg	1000 mg/Kg
DELINEATION SAMPLE RESULTS												
DS-1	05/3/18	6-12"	**13.0**	**63.8**	**13.7**	**68.7**	**159**	**201 J**	**42,300**	**1,490**	**44,000**	**70.6**
	5/22/18	1.0'	<0.000380	<0.000450	<0.000558	<0.000340	<0.000340	<7.99	**22.2**	<8.11	**22.2**	<0.850
	5/22/18	2.0'	<0.000379	<0.000448	<0.000556	<0.000339	<0.000339	<7.99	**45.3**	**9.02**	**54.3**	**16.7**
DS-2	5/3/18	6-12"	**16.1**	**83.9**	**46.6**	**278**	**424**	**<4,000**	**14,600**	**<4,060**	**14,600**	**52.8**
	5/22/18	1.0'	<0.000378	**0.00107 J**	<0.000555	**0.0408**	**0.0419**	**134**	**3,190**	**84.0**	**3,410**	<0.853
	5/22/18	2.0'	<0.000381	<0.000451	<0.000559	<0.000341	<0.000341	<7.98	**32.6**	<8.10	**32.6**	<0.858
	5/22/18	3.0'	<0.000381	<0.000451	<0.000559	<0.000341	<0.000341	<7.99	**64.8**	**10.2 J**	**75.0**	<0.853
DS-3	5/3/18	6-12"	**21.7**	**97.7**	**25.8**	**123**	**268**	<8.00	**397**	**48.6**	**446**	**117**
	5/22/18	1.0'	**0.0309 J**	**0.815**	**1.09**	**6.90**	**8.84**	**484**	**3,690**	**77.0**	**4,250**	**6.73**
	5/22/18	2.0'	<0.000377	<0.000447	<0.000554	<0.000338	<0.000338	**9.08 J**	**91.1**	**13.2 J**	**113**	<0.858
	5/22/18	3.0'	<0.000382	<0.000452	<0.000560	<0.000342	<0.000342	<7.99	**35.7**	<8.11	**35.7**	<0.850
DS-4	5/3/18	6-12"	**10.2**	**45.8**	**15.5**	**89.0**	**161**	<7.98	**47.6**	**11.1 J**	**58.7**	**52.0**
	5/22/18	1.0'	**1.08**	**8.36**	**2.05**	**32.9**	**44.4**	**1,620**	**8,090**	**384**	**10,100**	**22.8**
	5/22/18	2.0'	<0.000385	<0.000456	<0.000565	<0.000344	<0.000344	**11.7 J**	**75.8**	<8.10	**87.5**	**6.20**
	5/22/18	3.0'	<0.000384	**0.00110 J**	<0.000564	**0.0148**	**0.0159**	**23.4**	**353**	**37.4**	**414**	**5.66**
DS-5	5/3/18	6-12"	**19.0**	**141**	**42.5**	**200**	**403**	**87.9**	**9,640**	**283**	**10,000**	<0.853
	5/22/18	1.0'	<0.0191	**0.912**	**0.939**	**31.2**	**33.0**	**1,340**	**7,950**	**520**	**9,810**	**89.4**
	5/22/18	2.0'	**1.80**	**20.3**	**9.34**	**56.3**	**87.7**	**1,490**	**3,720**	**51.2**	**5,260**	**7.72**
	5/22/18	3.0'	**0.000661 J**	**0.0123**	**0.0191**	**0.223**	**0.255**	**47.5**	**608**	**64.9**	**720**	**22.6**
DS-6	5/3/18	6-12"	**55.8**	**323**	**92.0**	**436**	**907**	**40.3**	**608**	**60.2**	**709**	**19.3**
	5/22/18	1.0'	**1.45**	**34.6**	**19.3**	**106**	**161**	**3,390**	**10,300**	**273**	**14,000**	**13.5**
	5/22/18	2.0'	**2.50**	**36.9**	**13.3**	**64.0**	**117**	**2,360**	**10,700**	**195**	**13,300**	**21.3**
	5/22/18	3.0'	**4.71**	**50.3**	**14.7**	**73.8**	**144**	**2,910**	**10,700**	**288**	**13,900**	**9.72**
CONFIRMATION SAMPLE RESULTS												
CS-1	06/27/18	3.5'	<0.000389	<0.000460	<0.000570	<0.000348	<0.000348	**10.4 J**	**65.0**	<8.10	**75.4**	**29.1**
CONFIRMATION SIDEWALL SAMPLE RESULTS												
WS-SWW	6/27/18	1.0'	<0.000386	<0.000457	<0.000566	<0.000345	<0.000345	<7.99	**11.7 J**	<8.11	**11.7 J**	**2.01**
WS-WW	6/27/18	1.0'	<0.000387	<0.000458	<0.000568	<0.000346	<0.000346	<7.99	**15.0 J**	<8.11	**15.0 J**	**31.9**
WS-NWW	6/27/18	1.0'	<0.000652	**0.0527**	**0.100**	**0.717**	**0.870**	**281**	**3,560**	**30.0**	**3,870**	**81.7**
WS-NEW	6/27/18	1.5'	<0.000382	<0.000452	**0.0305**	**0.117**	**0.147**	**45.5**	**870**	**35.8**	**951**	**31.6**
WS-EW	6/27/18	2.5'	<0.000384	<0.000455	<0.000564	<0.000344	<0.000344	**9.82 J**	**13.4 J**	<8.12	**23.2**	**12.9**
WS-SEW	6/27/18	3.0'	<0.000386	<0.000457	<0.000567	<0.000346	<0.000346	<7.98	<8.10	<8.10	<7.98	**4.27**

1. Values reported in mg/Kg.
2. < = Value Less than Reporting Limit (RL)
3. Bold Indicates Analyte Detected
4. **Bold & Highlighted Excedes the 1993 NMOCD Guidance Document Recommended Remediation Action Level (RRAL)**
5. "J" indicates the target analyte was positively identified below the quantitation limit and above the detection limit
6. BTEX analyses by EPA Method SW 8021B.
7. TPH analyses by EPA Method SW 8015 Mod.
8. GRO/DRO/ORO = Gasoline/Diesel/Oil
9. Chloride anlaysis by EPA Method 300/300.1

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

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Plains Pipeline	Contact Amber Groves
Address 1911 Connie Rd, Carlsbad NM 88220	Telephone No. (575)200-5517
Facility Name COG Fascinator Fee Com #2H	Facility Type Tank Battery

Surface Owner Bert Madera	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	30	24S	35E					Lea

location verified based on survey info

Latitude 32.1811 **Longitude** -103.4040 NAD83

NATURE OF RELEASE

Type of Release Crude Oil	Volume of Release 25 bbls	Volume Recovered 6 bbls
Source of Release Packing nut	Date and Hour of Occurrence 4/25/2018 @ 9:45 AM	Date and Hour of Discovery 4/25/2018 @ 9:45 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Voicemail to Olivia Yu	
By Whom? Amber Groves	Date and Hour 4/25/2018 @ 2:50 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

REVISED
3:24 pm, May 04, 2018

RECEIVED
By Olivia Yu at 3:32 pm, Apr 27, 2018

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Packing failure due to the packing nut backing out.

Describe Area Affected and Cleanup Action Taken.*
Release is confined to the containment area of the lact unit. All areas will be remediated as per current NMOCD guidelines.

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

Signature: Amber Groves

Printed Name: Amber Groves

Title: Remediation Coordinator

E-mail Address: algroves@paalp.com

Date: 4/25/2018 Phone: 575-200-5517

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: BY

Approval Date: 4/27/2018 Expiration Date:

Conditions of Approval: see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

1RP-5035 nOY1811757152

pOY1812147105 fOY1811756997