Basin Environmental Service Technologies, LLC

Environmental Site Summary & Spill Remediation Plan

Company: Plains All American Pipeline, LP **Address:** 2530 State Highway 214; Denver City, TX 79323 **Telephone #:** (806)592-2555

Site Name: Palladium 7-1 4-Inch Poly **NMOCD Reference#:**

Land Owner: US Bureau of Land Management **Address:** 620 E. Greene St., Carlsbad, NM 88220-6292

Unit Letter: "C" (NE/NW) **Section:** 5 **Township:** 24S **Range:** 31E **County:** Eddy **GPS Coordinates:** 32.251960 **N** -103.800570 **W**

Depth to Ground Water: ≈ 285' - 290' **Distance to Surface Water Body:** ☐ **<200'** ☐ **200' - 1,000'** ☑ **>1,000'**

Wellhead Protection Area: <1,000' from Water Source or <200' from Domestic Water Source? ☐ **Y** ☑ **N**

NMOCD Ranking Score: 0 **Soil Remediation Levels (mg/kg): Benzene:** 10 **BTEX:** 50 **TPH:** ☐ **100** ☐ **1,000** ☒ **5,000** **Chloride:** ☐ **100** ☐ **500** ☒ **1,000**

Date/Time of Release: 3/1/2013 **Type of Release:** Crude Oil **Approximate Volume of Release:** ≥ 5 bbls

Background Information:

On March 1, 2013, Plains All American Pipeline, LP (Plains), discovered a release on its Palladium 7-1 pipeline. The release was attributed to a manufacturing defect, which caused a pinhole leak to develop in the four-inch (4"), polyethylene pipeline. The release was initially estimated to be approximately one-half of a barrel (0.5 bbl) of crude oil. However, delineation activities conducted in April 2015 indicated the size of the release was greater than or equal to five barrels (≥5 bbls). The release was subsequently reported to the New Mexico Oil Conservation Division's (NMOCD) Artesia District Office and the United States Department of the Interior - Bureau of Land Management's (BLM) Carlsbad Field Office. The "Release Notification & Corrective Action" (Form C-141) indicated the release impacted an area of pastureland measuring approximately one hundred feet (100') in length and sixty feet (60') in width. The Form C-141 is provided as Attachment #1. A "Site Location Map" is provided as Attachment #2. General photographs of the release site are provided in Attachment #5.

Summary of Field Activities:

On April 16, 2015, Basin Environmental commenced delineation activities at the site. A hand-augered soil boring (HA-1) was advanced near the release point to investigate the vertical extent of impacted soil. The soil boring was advanced in six-inch (6") to one-foot (1') intervals to approximately seven and one-half feet (7.5') below ground surface (bgs). Soil samples were field-screened with a photo-ionization detector (PID), and representative confirmation samples were submitted to Xenco Laboratories in Odessa, Texas, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons (TPH) concentrations using Environmental Protection Agency (EPA) Methods SW 846-8021b and SW 846-8015M, respectively. Laboratory analytical results indicated additional vertical delineation of the release was required.

On April 29, 2015, a series of five (5) delineation trenches (TT-1, N, S, E, and W) were advanced to further investigate the horizontal and vertical extent of impacted soil. Trench TT-1 was advanced in the area represented by hand-augered soil boring HA-1. Trenches N, S, E, and W were advanced near the north, south, east, and west boundaries, respectively, of the visibly impacted area. The trenches were advanced in one-foot (1') to three-foot (3') intervals to total depths ranging from approximately five feet (5') bgs in trenches N, S, E, and W to approximately twenty feet (20') bgs in trench TT-1. Soil samples were field-screened with a PID, and confirmation samples were submitted to the laboratory for analysis of TPH and/or BTEX concentrations. Sample TT-1 @ 20' was also analyzed for chloride using EPA Method 300.1.

Laboratory analytical results indicate vertical delineation was not achieved in trenches TT-1 and S. Additional vertical delineation is required in the areas represented by these trenches. Horizontal and vertical delineation to the north, east, and west of the release point was achieved.

Locations of the hand-augered soil boring, delineation trenches, and soil samples are depicted in Attachment #3, "Site & Sample Location Map". Laboratory analytical results are summarized in Attachment #4, "Concentrations of Benzene, BTEX, TPH & Chloride in Soil", and analytical reports are provided in Attachment #6.

Proposed Activities:

• The area around delineation trench TT-1 will be excavated to approximately five feet (5') bgs to allow access for heavy equipment to further advance the trench. The trench will be advanced to the extent practicable. Soil samples will be collected at one (1) to two-foot (2') vertical intervals and field-screened with a PID. A representative selection of samples will be submitted to the laboratory for confirmatory analyses of BTEX, TPH, and/or chloride concentrations using the EPA laboratory analytical methods described above. If vertical delineation cannot be achieved via trenching, a drilling rig will be employed to advance one (1) soil boring (SB-1) in the area of trench TT-1.

• The horizontal limits of the excavation will be determined by field-screening using a PID and/or visual/olfactory senses. Confirmation soil samples will be collected at approximately fifty-foot (50') horizontal intervals and submitted to the laboratory for analysis of BTEX, TPH, and/or chloride concentrations.

• Due to safety and environmental concerns, the vertical extent of the excavation will be limited to a maximum depth of ten feet (10') bgs, and the walls of the excavation will be benched to prevent collapse. The eastern extent of the excavation will be limited by the presence of an eight-inch (8"), steel natural gas pipeline adjacent to the release site. In addition, the excavation will be fenced off during periods of inactivity to prevent injury to oilfield personnel, livestock, and wildlife.

• Excavated soil will be stockpiled on-site on six (6) mil polypropylene plastic, pending transfer to an NMOCD-permitted facility for disposal.

• In areas exhibiting contaminant concentrations above the NMOCD recommended remediation action levels at ten feet (10') bgs, the floor of the excavation will be fitted with a twenty (20) mil, impermeable, polyethylene plastic liner. A cushion of sand will be installed approximately six inches (6") both above and below the liner to protect it during installation and backfilling activities. This engineered control will serve to inhibit vertical migration of contaminants both upward to the vegetative zone and downward to the underlying groundwater. The remaining portion of the excavation will be backfilled with locally purchased, non-impacted material, compacted, and contoured to fit the surrounding topography.

• Following the proposed remediation activities, the disturbed area will be seeded with a BLM-approved seed mix.

Attachments:

Attachment #1: Release Notification & Corrective Action (Form C-141)
Attachment #2: Site Location Map
Attachment #3: Site & Sample Location Map
Attachment #4: Concentrations of Benzene, BTEX, TPH & Chloride in Soil
Attachment #5: Photographs
Attachment #6: Laboratory Analytical Reports

5/8/2015
Ben J. Arguijo
Project Manager

Attachment #1

Release Notification &

Corrective Action (Form C-141)

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

AMENDED

OPERATOR

☒ Initial Report ☐ Final Repor

Name of Company	Plains Pipeline, LP	Contact	Camille Bryant
Address	2530 State Hwy. 214, Denver City, TX 79323	Telephone No.	(575) 441-1099
Facility Name	Palladium 7-1 4-Inch Poly	Facility Type	4-Inch Poly Pipeline

Surface Owner	Mineral Owner	Lease No.
BLM		

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	5	24S	31E					Eddy

Latitude N 32.2519600° Longitude W 103.800570°

NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: >5 bbls	Volume Recovered: 0 bbls
Source of Release: 4-Inch Poly Pipeline	Date and Hour of Occurrence: 03/01/2013 @ 10:51	Date and Hour of Discovery: 03/01/2013 @ 10:51
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

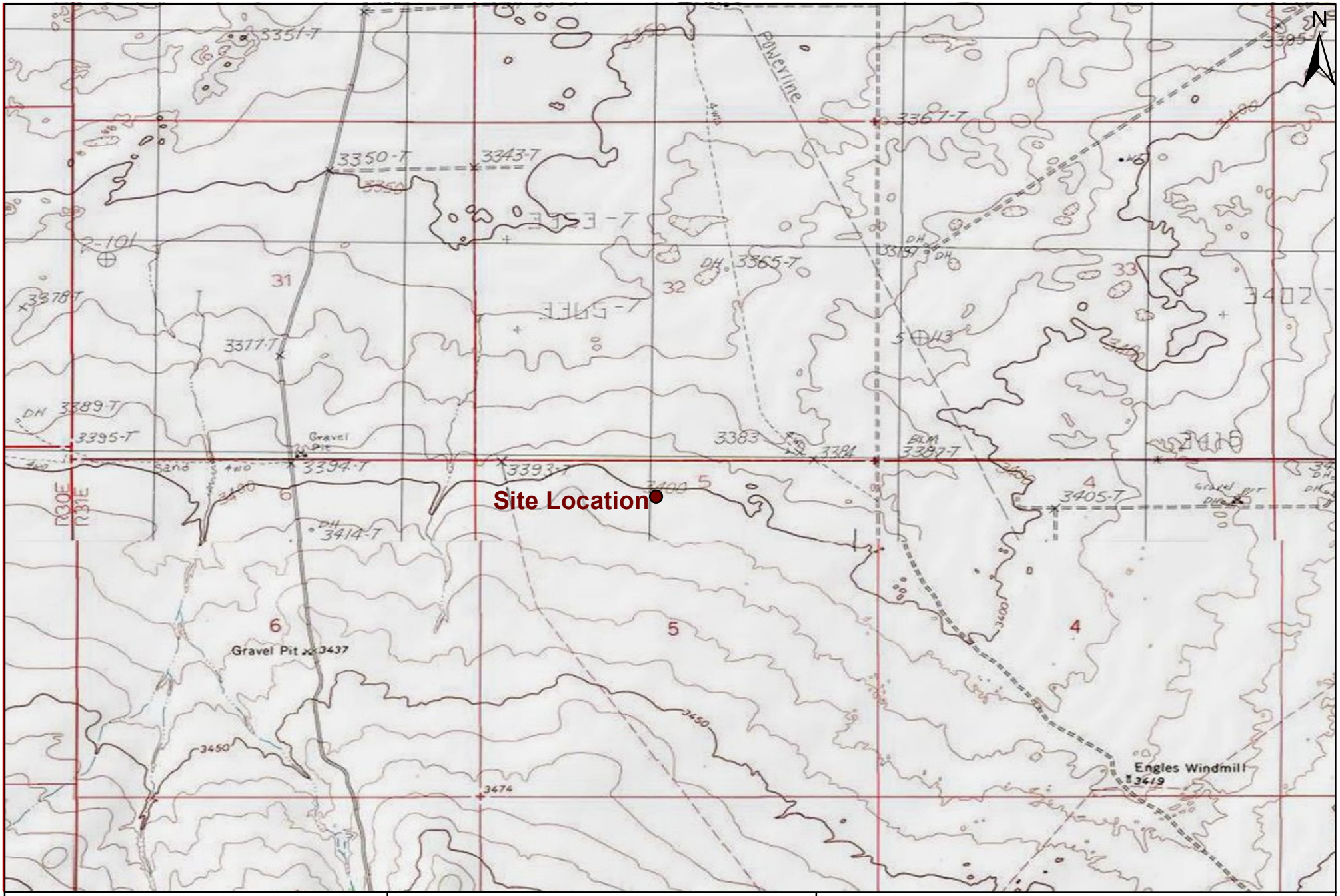
Describe Cause of Problem and Remedial Action Taken.* Pinhole developed in 4-inch poly pipeline. The pipeline was de-oiled and the damaged portion of the pipeline was replaced.

Describe Area Affected and Cleanup Action Taken. The release was initially believed to be 0.5 barrel; however, on delineation activities the release was amended to greater than five barrels and reported to the NMOCD and BLM. The visually impacted area measured approximately 100' x 60'.The impacted area will be remediated as per applicable 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: Camille Bryant	OIL CONSERVATION DIVISION
Printed Name: Camille Bryant	Approved by District Supervisor:
Title: Remediation Coordinator	Approval Date: / Expiration Date:
E-mail Address: cjbryant@paalp.com	Conditions of Approval: / Attached ☐
Date: 5/6/2015 Phone: (575) 441-1099	

* Attach Additional Sheets If Necessary



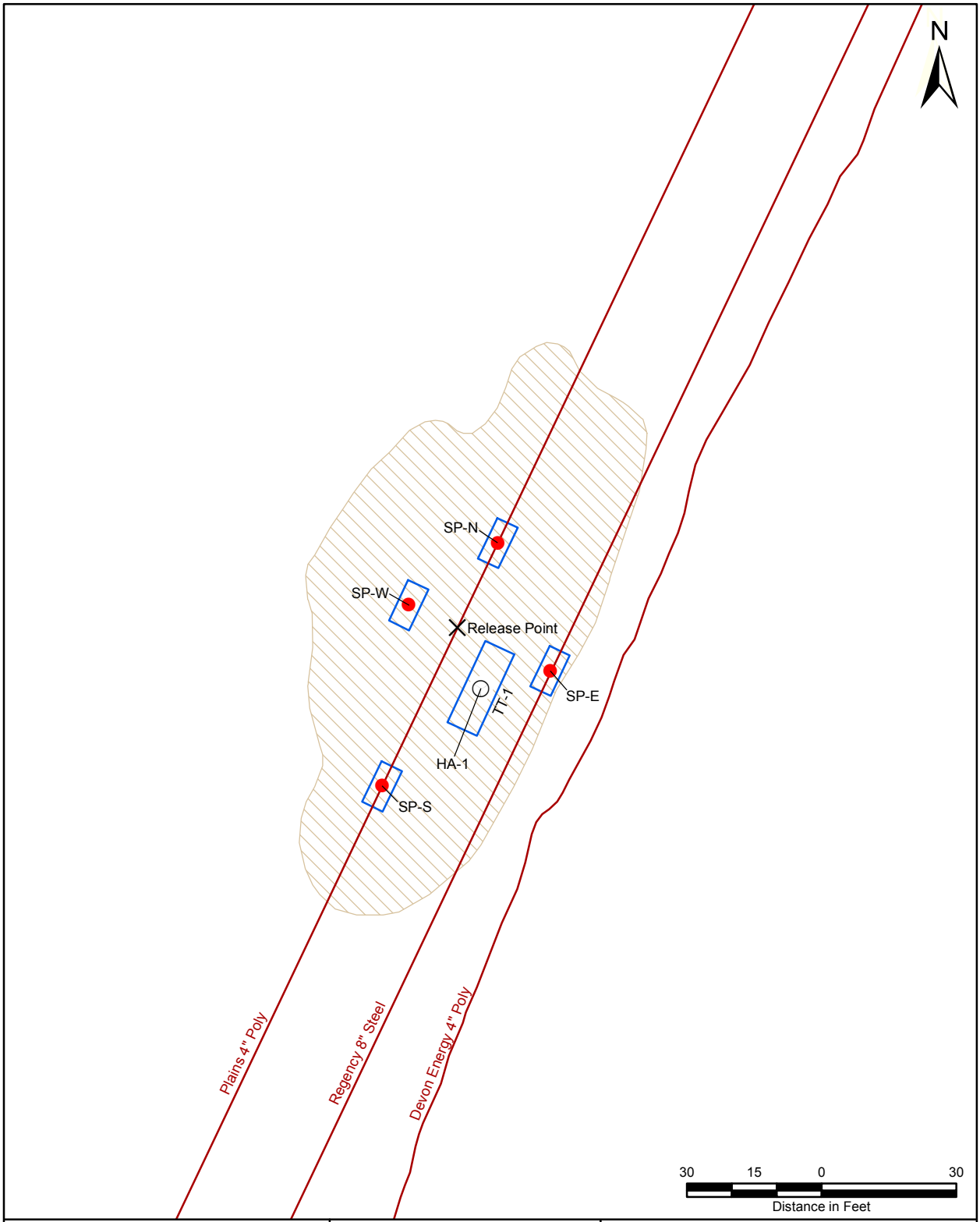
1,000 500 0 1,000 2,000

Distance in Feet

Attachment #2
Site Location Map
Plains Pipeline, LP
Palladium 7-1 4-Inch Poly
Eddy County, New Mexico
Plains SRS #: 2013-044

Basin Environmental Service Technologies, LLC
3100 Plains Hwy.
Lovington, NM 88260

Drawn By: BJA	Checked By: BRB
May 8, 2015	Scale: 1" = 2,000'



Legend

- Delineation Trench
- Pipeline
- Impacted Area
- Release Point
- Sample Location

Attachment #3
Site & Sample Location Map
Plains Pipeline, LP
Palladium 7-1 4-Inch Poly
Eddy County, New Mexico
Plains SRS #: 2013-044

Basin Environmental Service Technologies
3100 Plains Hwy.
Lovington, NM 88260

Drawn By: BJA	Checked By: BRB
May 8, 2015	Scale: 1" = 30'

ATTACHMENT #4
CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL

PLAINS ALL AMERICAN PIPELINE, LP
PALLADIUM 7-1 4-INCH POLY
EDDY COUNTY, NEW MEXICO
PLAINS SRS #: 2013-044

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030							METHOD: 8015M			TPH C_6-C_{35} (mg/Kg)	4500 Cl-B
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	M.P. - XYLENES (mg/Kg)	O-XYLENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C_6-C_{12} (mg/Kg)	DRO C_{12}-C_{28} (mg/Kg)	ORO C_{28}-C_{35} (mg/Kg)		CHLORIDE (mg/Kg)
HA-1 @ 0.5'	0.5'	4/16/2015	In-Situ	0.122	0.387	0.0531	0.184	0.0486	0.233	0.795	740	10,600	286	**11,600**	-
HA-1 @ 1'	1'	4/16/2015	In-Situ	0.0377	0.204	0.0512	0.179	0.0361	0.215	0.508	742	5,990	213	**6,950**	-
HA-1 @ 3'	3'	4/16/2015	In-Situ	-	-	-			-	-	552	3,680	102	4,330	-
HA-1 @ 5'	5'	4/16/2015	In-Situ	-	-	-			-	-	852	4,100	105	**5,060**	-
HA-1 @ 7.5'	7.5'	4/16/2015	In-Situ	-	-	-			-	-	6,380	14,800	376	**21,600**	-
TT-1 @ 13'	13'	4/29/2015	In-Situ	<0.0540	6.12	4.54	15.7	5.56	21.3	31.9	3,470	8,460	260	**12,200**	-
TT-1 @ 20'	20'	4/29/2015	In-Situ	<0.107	16.4	13.7	45.8	17.0	62.8	**92.9**	1,750	5,330	167	**7,250**	3.57
SP-N	4.5'	4/29/2015	In-Situ	-	-	-	-	-	-	-	30.2	1,600	55.6	1,690	-
SP-S	4.5'	4/29/2015	In-Situ	-	-	-	-	-	-	-	337	4,660	226	**5,220**	-
SP-E	5'	4/29/2015	In-Situ	-	-	-	-	-	-	-	<15.5	66.6	<15.5	66.6	-
SP-W	5'	4/29/2015	In-Situ	-	-	-	-	-	-	-	<17.0	108	<17.0	108	-
NMOCD Recommended Remediation Action Level				**10**						**50**				**5,000**	**1,000**

- = Not analyzed.

Attachment #5

Photographs

Palladium 7-1 4-Inch Poly - Release Site Aerial

Palladium 7-1 4-Inch Poly – Advancement of Delineation Trench TT-1

Palladium 7-1 4-Inch Poly – Delineation Trench TT-1
(Staining Visible on Wall of Trench)

Attachment #6

Laboratory Analytical Reports

Analytical Report 506301 & 506397

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

Palladium 7-1 4-Inch Poly

SRS#2013-044

24-APR-15

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-18), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

24-APR-15

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

Reference: XENCO Report No(s): **506301, 506397**
Palladium 7-1 4-Inch Poly
Project Address:

Ben Arguijo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 506301. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 506301 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 506301, 506397

PLAINS ALL AMERICAN EH&S, Midland, TX

Palladium 7-1 4-Inch Poly

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
HA-1 @0.5'	S	04-16-15 09:30	- .5 ft	506301-001
HA-1 @ 1'	S	04-16-15 09:45	- 1 ft	506301-002
HA-1 @ 3'	S	04-16-15 10:15	- 3 ft	506397-001
HA-1 @ 5'	S	04-16-15 10:45	- 5 ft	506397-002
HA-1 @ 7' 6"	S	04-16-15 11:35	7 - 6" ft	506397-003

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 506301

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Palladium 7-1 4-Inch Poly

Project Id: SRS#2013-044
Contact: Ben Arguijo
Project Location:

Date Received in Lab: Sat Apr-18-15 01:45 pm
Report Date: 24-APR-15
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	506301-001		506301-002					
	Field Id:	HA-1 @0.5'		HA-1 @ 1'					
	Depth:	.5 ft		1 ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Apr-16-15 09:30		Apr-16-15 09:45					
BTEX by EPA 8021	***Extracted:***	Apr-20-15 16:00		Apr-20-15 16:00					
	Analyzed:	Apr-21-15 06:23		Apr-21-15 06:06					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		0.122	0.00100	0.0377	0.00101				
Toluene		0.387	0.00201	0.204	0.00202				
Ethylbenzene		0.0531	0.00100	0.0512	0.00101				
m_p-Xylenes		0.184	0.00201	0.179	0.00202				
o-Xylene		0.0486	0.00100	0.0361	0.00101				
Xylenes, Total		0.233	0.00100	0.215	0.00101				
Total BTEX		0.795	0.00100	0.508	0.00101				
Percent Moisture	***Extracted:***								
	Analyzed:	Apr-20-15 17:00		Apr-20-15 17:00					
	Units/RL:	%	RL	%	RL				
Percent Moisture		1.00	1.00	1.61	1.00				
TPH by SW8015 Mod	***Extracted:***	Apr-20-15 15:00		Apr-20-15 15:00					
	Analyzed:	Apr-21-15 08:25		Apr-21-15 09:08					
	Units/RL:	mg/kg	RL	mg/kg	RL				
C6-C12 Gasoline Range Hydrocarbons		740	75.8	742	76.1				
C12-C28 Diesel Range Hydrocarbons		10600	75.8	5990	76.1				
C28-C35 Oil Range Hydrocarbons		286	75.8	213	76.1				
Total TPH		11600	75.8	6950	76.1				

Certificate of Analysis Summary 506397

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Palladium 7-1 4-Inch Poly

Project Id: SRS#2013-044
Contact: Ben Arguijo
Project Location:

Date Received in Lab: Tue Apr-21-15 09:45 am
Report Date: 22-APR-15
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	506397-001		506397-002		506397-003			
	Field Id:	HA-1 @ 3'		HA-1 @ 5'		HA-1 @ 7' 6"			
	Depth:	3 ft		5 ft		7-6" ft			
	Matrix:	SOIL		SOIL		SOIL			
	Sampled:	Apr-16-15 10:15		Apr-16-15 10:45		Apr-16-15 11:35			
Percent Moisture	***Extracted:***								
	Analyzed:	Apr-21-15 17:00		Apr-21-15 17:00		Apr-21-15 17:00			
	Units/RL:	%	RL	%	RL	%	RL		
Percent Moisture		4.18	1.00	10.5	1.00	14.1	1.00		
TPH by SW8015 Mod	***Extracted:***	Apr-21-15 13:00		Apr-21-15 13:00		Apr-21-15 13:00			
	Analyzed:	Apr-21-15 17:22		Apr-21-15 17:44		Apr-21-15 18:06			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
C6-C12 Gasoline Range Hydrocarbons		552	15.6	852	16.7	6380	86.9		
C12-C28 Diesel Range Hydrocarbons		3680	15.6	4100	16.7	14800	86.9		
C28-C35 Oil Range Hydrocarbons		102	15.6	105	16.7	376	86.9		
Total TPH		4330	15.6	5060	16.7	21600	86.9		

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Orders : 506301,506397 **Project ID:** SRS#2013-044

Lab Batch #: 966421 **Sample:** 506301-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/15 06:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0300	0.0300	100	80-120	

Lab Batch #: 966421 **Sample:** 506301-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/15 06:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	80-120	
4-Bromofluorobenzene	0.0241	0.0300	80	80-120	

Lab Batch #: 966445 **Sample:** 506301-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/15 08:25

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	100	111	70-135	
o-Terphenyl	63.9	50.0	128	70-135	

Lab Batch #: 966445 **Sample:** 506301-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/15 09:08

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.8	101	70-135	
o-Terphenyl	61.7	49.9	124	70-135	

Lab Batch #: 966445 **Sample:** 691502-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/20/15 22:58

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.7	100	97	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Orders : 506301,506397 **Project ID:** SRS#2013-044

Lab Batch #: 966421 **Sample:** 691490-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/15 00:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

Lab Batch #: 966445 **Sample:** 691502-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/20/15 23:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	54.3	50.0	109	70-135	

Lab Batch #: 966421 **Sample:** 691490-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/15 00:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0333	0.0300	111	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 966445 **Sample:** 691502-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/20/15 23:44

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	54.6	50.0	109	70-135	

Lab Batch #: 966421 **Sample:** 691490-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/15 01:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0330	0.0300	110	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Orders : 506301,506397 **Project ID:** SRS#2013-044

Lab Batch #: 966421 **Sample:** 506270-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/15 01:29

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0350	0.0300	117	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

Lab Batch #: 966445 **Sample:** 506270-010 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/15 03:53

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	99.9	124	70-135	
o-Terphenyl	38.4	50.0	77	70-135	

Lab Batch #: 966421 **Sample:** 506270-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/15 01:45

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0330	0.0300	110	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 966445 **Sample:** 506270-010 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/15 04:16

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	99.8	124	70-135	
o-Terphenyl	36.9	49.9	74	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Order #: 506301,506397 **Project ID:** SRS#2013-044

Analyst: ARM **Date Prepared:** 04/20/2015 **Date Analyzed:** 04/21/2015

Lab Batch ID: 966421 **Sample:** 691490-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00100	0.100	0.0953	95	0.100	0.0962	96	1	70-130	35	
Toluene	<0.00200	0.100	0.0975	98	0.100	0.0980	98	1	70-130	35	
Ethylbenzene	<0.00100	0.100	0.101	101	0.100	0.101	101	0	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.202	101	0.200	0.201	101	0	70-135	35	
o-Xylene	<0.00100	0.100	0.101	101	0.100	0.101	101	0	71-133	35	

Analyst: ARM **Date Prepared:** 04/20/2015 **Date Analyzed:** 04/20/2015

Lab Batch ID: 966445 **Sample:** 691502-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	1060	106	1000	1010	101	5	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1010	101	1000	1000	100	1	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Order # : 506301,506397 **Project ID:** SRS#2013-044

Lab Batch ID: 966421 **QC- Sample ID:** 506270-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/21/2015 **Date Prepared:** 04/20/2015 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00128	0.128	0.127	99	0.127	0.113	89	12	70-130	35	
Toluene	<0.00255	0.128	0.111	87	0.127	0.103	81	7	70-130	35	
Ethylbenzene	<0.00128	0.128	0.117	91	0.127	0.107	84	9	71-129	35	
m_p-Xylenes	<0.00255	0.255	0.225	88	0.255	0.209	82	7	70-135	35	
o-Xylene	<0.00128	0.128	0.128	100	0.127	0.113	89	12	71-133	35	

Lab Batch ID: 966445 **QC- Sample ID:** 506270-010 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/21/2015 **Date Prepared:** 04/20/2015 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<16.3	1090	1130	104	1090	1100	101	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.3	1090	1240	114	1090	1300	119	5	70-135	35	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: Palladium 7-1 4-Inch Poly

Work Order #: 506301,506397

Lab Batch #: 966423 **Project ID:** SRS#2013-044

Date Analyzed: 04/20/2015 17:00 **Date Prepared:** 04/20/2015 **Analyst:** WRU

QC- Sample ID: 506293-021 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	9.56	9.94	4	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit

Version: 1.%

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 04/18/2015 01:45:00 PM

Work Order #: 506301,506397

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	5
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6 *Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 04/20/2015

Checklist reviewed by: Date: 04/20/2015

CHAIN OF CUSTODY RECORD

XENCO Laboratories — Environmental Asbestos Radiochemistry

Houston: 4143 Greenbriar Dr. Stafford, TX 77477 (281)240-4200 Odessa: 12600 West I-20 East Odessa, TX 79765 (432)563-1800

;roool-c

Page 1 of 1

LAB W.O #: 500301

Field billable Hrs :

Company:	Basin Environmental Service Technologies, LLC	Phone:	(575)396-2378
Address:	3100 Plains Hwy.	Fax:	(575)396-1429
City:	Lovington	State: NM	Zip: 88260
PM/Attn:	Ben J. Arguijo	Email:	bjarguijo@basinenv.com
Project ID:	Palladium 7-1 4-Inch Poly SRS #: 2013-044	PO#:	PAA-C. Bryant
Invoice To:	Camille Bryant Plains All American	Quote #:	

TAT Work Days = D Need results by:_____ Time: _____

Std (5-7D) 5Hrs 1D 2D 3D 4D **5D 7D** 10D 14D Other_____

Sampler Name: Steve Taylor

Circle One Event: Daily Weekly Monthly Quartely Semi-Annual Annual N/A

ANALYSES REQUESTED

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code ^	Field Filtered	Integrity OK (Y/N)	Total # of containers	Cont Type * VC	Example Volatiles by 8260	TPH	BTEX	Chloride							Hold Sample (CALL ___) Run PAH on Highest TPH ___ Only if
								Pres Type**		I	I	I							
								# Cont	Lab Only:										
1	HA-1 @ 0.5'	4/16/2015	0930	S			1			X	X								
2	HA-1 @ 1'	4/16/2015	0945	S			1			X	X	X 4/21/15							
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

* Container Type Codes

VA	Vial Amber	ES	Encore Sampler
VC	Vial Clear	TS	TerraCore Sampler
VP	Vial Pre-preserved	AC	Air Canister
GA	Glass Amber	TB	Tedlar Bag
GC	Glass Clear	ZB	Zip Lock Bag
PA	Plastic Amber	PC	Plastic Clear
PC	Plastic Clear		

Other _____

Size(s): 2oz, 4oz, 8oz, 16oz, 32oz , 1Gal 40ml, 125 ml, 250 ml, 500 ml, 1L, Other _____

** Preservative Type Codes

A. None E. HCL I. Ice
B. HNO_3 F. MeOH J. MCAA C.
H_2SO_4 G. $Na_2S_2O_3$ K. ZnAc&NaOH
D. NaOH H. $NaHSO_4$ L Asbc Acid&NaOH
O. _____

^ Matrix Type Codes

GW	Ground Water	S	Soil/Sediment/Solid
WW	Waste Water	W	Wipe
DW	Drinking Water	A	Air
SW	Surface Water	O	Oil
OW	Ocean/Sea Water	T	Tissue
PL	Product-Liquid	U	Urine
PS	Product-Solid	B	Blood
SL	Sludge		

Other _____

REMARKS

Reg. Program / Clean-up Std	STATE for Certs & Regs	QA/QC Level & Certification	EDDs	COC & Labels	Coolers Temp °C
CTLs TRRP DW NPDES LPST DryCln Other:	FL TX GA NC SC NJ PA OK LA AL NM Other:	1 **2** 3 4 CLP AFCEE QAPP NELAC DoD-ELAP Other:	ADaPT SEDD ERPIMS XLS Other:	Match Incomplete Absent Unclear	1 2.5°C 2 3

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1		Basin Env	4/16/15	4:55pm		MS	4/16/15	455
2					Julian M	Xenco	4-18-15	13:45
3								
4								

Lab Use Only	YES	NO	N/A
Non-Conformances found?			
Samples intact upon arrival?			
Received on Wet Ice?			
Labeled with proper preservatives?			
Received within holding time?			
Custody seals intact?			
VOCs rec'd w/o headspace?			
Proper containers used?			
pH verified-acceptable, excl VOCs?			
Received on time to meet HTs?			

B&A Laboratories: Hobbs 575-392-7550 Dallas 214-902-0300 Houston 281-242-4200 Odessa 432-563-1800 San Antonio 210-509-3334 Phoenix 602-437-0330

FTS Service Centers: Atlanta 770-449-8800 Lakeland 863-646-8526 Tampa 803-543-8099 Philadelphia 610-955-5649 South Carolina 803-543-8099

C.O.C. Serial #

 Revision Date: Nov 12, 2009

CHAIN OF CUSTODY RECORD

XENCO Laboratories — Environmental Asbestos Radiochemistry

Houston: 4143 Greenbriar Dr. Stafford, TX 77477 (281)240-4200 Odessa: 12600 West I-20 East Odessa, TX 79765 (432)563-1800

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Page 1 of 1

LAB W.O #: 506397

Field billable Hrs :

Company:	Basin Environmental Service Technologies, LLC	Phone:	(575)396-2378
Address:	3100 Plains Hwy.	Fax:	(575)396-1429
City:	Lovington	State: NM	Zip: 88260
PM/Attn:	Ben Arguijo	Email:	bjarguijo@basinenv.com
Project ID:	Palladium 7-1 4-inch Poly SRS #: 2013-044	PO#:	PAA-C. Bryant
Invoice To:	Camille Bryant Plains All American	Quote #:	

TAT Work Days = D Need results by:_____ Time: _____

Std (5-7D) 5Hrs 1D 2D 3D 4D 5D 7D 10D 14D Other_____

Sampler Name: Steve Taylor

Circle One Event: Daily Weekly Monthly Quartely Semi-Annual Annual N/A

ANALYSES REQUESTED

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code ^	Field Filtered	Integrity OK (Y/N)	Total # of containers	Cont Type * VC	Pres Type**	Example Volatiles by 8260	TPH	BTEX	Chloride							Hold Sample (CALL ___) Run PAH on Highest TPH ___ Only if
								# Cont	Lab Only:											
1	HA-1@3'	4/16/2015	1015	S			1			X										
2	HA-1@5'	4/16/2015	1045	S			1			X										
3	HA-1@7' 6"	4/16/2015	1135	S			1			X										
4																				
5																				
6																				
7																				
8																				
9																				
0																				

HOLD

* Container Type Codes

VA	Vial Amber	ES	Encore Sampler
VC	Vial Clear	TS	TerraCore Sampler
VP	Vial Pre-preserved	AC	Air Canister
GA	Glass Amber	TB	Tedlar Bag
GC	Glass Clear	ZB	Zip Lock Bag
PA	Plastic Amber	PC	Plastic Clear
PC	Plastic Clear		

Other _____

Size(s): 2oz, 4oz, 8oz, 16oz, 32oz , 1Gal 40ml, 125 ml, 250 ml, 500 ml, 1L, Other _____

** Preservative Type Codes

A. None E. HCL I. Ice
B. HNO_3 F. MeOH J. MCAA C.
H_2SO_4 G. $Na_2S_2O_3$ K. ZnAc&NaOH
D. NaOH H. $NaHSO_4$ L Asbc Acid&NaOH
O. _____

^ Matrix Type Codes

GW	Ground Water	S	Soil/Sediment/Solid
WW	Waste Water	W	Wipe
DW	Drinking Water	A	Air
SW	Surface Water	O	Oil
OW	Ocean/Sea Water	T	Tissue
PL	Product-Liquid	U	Urine
PS	Product-Solid	B	Blood
SL	Sludge		

Other _____

REMARKS

****RUSH TPH on Surface Samples****

Reg. Program / Clean-up Std	STATE for Certs & Regs	QA/QC Level & Certification	EDDs	COC & Labels	Coolers Temp °C
CTLs TRRP DW NPDES LPST DryCln Other:	FL TX GA NC SC NJ PA OK LA AL NM Other:	1 2 3 4 CLP AFCEE QAPP NELAC DoD-ELAP Other:	ADaPT SEDD ERPIMS XLS Other:	Match Incomplete Absent Unclear	1 5 2 3

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	Steve Taylor	Basin Env	4/17/15	5:00	S Butler	MS	4/17/15	5:00
2					B Rahman	Xenco	4/21/15	09:45
3								
4								

Lab Use Only	YES	NO	N/A
Non-Conformances found?			
Samples intact upon arrival?			
Received on Wet Ice?			
Labeled with proper preservatives?			
Received within holding time?			
Custody seals intact?			
VOCs rec'd w/o headspace?			
Proper containers used?			
pH verified-acceptable, excl VOCs?			
Received on time to meet HTs?			

C.O.C. Serial #

 Revision Date: Nov 12, 2009

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 04/18/2015 01:45:00 PM

Work Order #: 506301, 506397

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	5
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6 *Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 04/20/2015

Checklist reviewed by: Date: 04/20/2015

Analytical Report 507094

for

PLAINS ALL AMERICAN EH&S

Project Manager: Ben Arguijo

Palladium 7-1 4-Inch Poly

SRS#2013-044

08-MAY-15

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-18), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

08-MAY-15

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

Reference: XENCO Report No(s): **507094**
Palladium 7-1 4-Inch Poly
Project Address:

Ben Arguijo:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 507094. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 507094 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
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Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America

Sample Cross Reference 507094

PLAINS ALL AMERICAN EH&S, Midland, TX

Palladium 7-1 4-Inch Poly

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
TT-1 @13'	S	04-29-15 11:49		507094-001
TT-1 @20'	S	04-29-15 13:00		507094-002
SP-N	S	04-29-15 14:15		507094-003
SP-S	S	04-29-15 14:05		507094-004
SP-E	S	04-29-15 14:00		507094-005
SP-W	S	04-29-15 14:10		507094-006

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Hits Summary 507094

PLAINS ALL AMERICAN EH&S, Midland, TX

Palladium 7-1 4-Inch Poly

Sample Id : **TT-1 @13'**
Lab Sample Id : 507094-001

Matrix : Soil
Date Collected : 04.29.15 11.49
Date Received : 05.01.15 12.00

% Moisture : 7.49
Basis : Dry Weight

Analytical Method : BTEX by EPA 8021
Seq Number 967656

Prep Method: SW5030B
Date Prep: 05.06.15 16.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Toluene	108-88-3	6.12	mg/kg	05.07.15 15.57		50
Ethylbenzene	100-41-4	4.54	mg/kg	05.07.15 15.57		50
m_p-Xylenes	179601-23-1	15.7	mg/kg	05.07.15 15.57		50
o-Xylene	95-47-6	5.56	mg/kg	05.07.15 15.57		50
Xylenes, Total	1330-20-7	21.3	mg/kg	05.07.15 15.57		50
Total BTEX		31.9	mg/kg	05.07.15 15.57		50

Analytical Method : TPH by SW8015 Mod
Seq Number 967301

Prep Method: TX1005P
Date Prep: 05.01.15 16.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	3470	mg/kg	05.02.15 11.14		5
C12-C28 Diesel Range Hydrocarbons	PHCG1028	8460	mg/kg	05.02.15 11.14		5
C28-C35 Oil Range Hydrocarbons	PHCG2835	260	mg/kg	05.02.15 11.14		5
Total TPH	PHC635	12200	mg/kg	05.02.15 11.14		5

Hits Summary 507094

PLAINS ALL AMERICAN EH&S, Midland, TX

Palladium 7-1 4-Inch Poly

Sample Id : **TT-1 @20'**
Lab Sample Id : 507094-002

Matrix : Soil
Date Collected : 04.29.15 13.00
Date Received : 05.01.15 12.00

% Moisture : 6.6
Basis : Dry Weight

Analytical Method : BTEX by EPA 8021
Seq Number 967656

Prep Method: SW5030B
Date Prep: 05.06.15 16.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Toluene	108-88-3	16.4	mg/kg	05.07.15 16.14		100
Ethylbenzene	100-41-4	13.7	mg/kg	05.07.15 16.14		100
m_p-Xylenes	179601-23-1	45.8	mg/kg	05.07.15 16.14		100
o-Xylene	95-47-6	17.0	mg/kg	05.07.15 16.14		100
Xylenes, Total	1330-20-7	62.8	mg/kg	05.07.15 16.14		100
Total BTEX		92.9	mg/kg	05.07.15 16.14		100

Analytical Method : Inorganic Anions by EPA 300/300.1
Seq Number 967292

Prep Method: E300P
Date Prep: 05.01.15 15.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3.57	mg/kg	05.02.15 03.37		1

Analytical Method : TPH by SW8015 Mod
Seq Number 967301

Prep Method: TX1005P
Date Prep: 05.01.15 16.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	1750	mg/kg	05.02.15 11.35		5
C12-C28 Diesel Range Hydrocarbons	PHCG1028	5330	mg/kg	05.02.15 11.35		5
C28-C35 Oil Range Hydrocarbons	PHCG2835	167	mg/kg	05.02.15 11.35		5
Total TPH	PHC635	7250	mg/kg	05.02.15 11.35		5

Sample Id : **SP-N**
Lab Sample Id : 507094-003

Matrix : Soil
Date Collected : 04.29.15 14.15
Date Received : 05.01.15 12.00

% Moisture : 6.06
Basis : Dry Weight

Analytical Method : TPH by SW8015 Mod
Seq Number 967301

Prep Method: TX1005P
Date Prep: 05.01.15 16.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	30.2	mg/kg	05.02.15 11.56		1
C12-C28 Diesel Range Hydrocarbons	PHCG1028	1600	mg/kg	05.02.15 11.56		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	55.6	mg/kg	05.02.15 11.56		1
Total TPH	PHC635	1690	mg/kg	05.02.15 11.56		1

Hits Summary 507094

PLAINS ALL AMERICAN EH&S, Midland, TX

Palladium 7-1 4-Inch Poly

Sample Id : **SP-S**
Lab Sample Id : 507094-004
Matrix : Soil
Date Collected : 04.29.15 14.05
Date Received : 05.01.15 12.00
% Moisture : 2.4
Basis : Dry Weight

Analytical Method : TPH by SW8015 Mod
Seq Number 967301
Prep Method: TX1005P
Date Prep: 05.01.15 16.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	337	mg/kg	05.02.15 13.00		1
C12-C28 Diesel Range Hydrocarbons	PHCG1028	4660	mg/kg	05.02.15 13.00		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	226	mg/kg	05.02.15 13.00		1
Total TPH	PHC635	5220	mg/kg	05.02.15 13.00		1

Sample Id : **SP-E**
Lab Sample Id : 507094-005
Matrix : Soil
Date Collected : 04.29.15 14.00
Date Received : 05.01.15 12.00
% Moisture : 3.62
Basis : Dry Weight

Analytical Method : TPH by SW8015 Mod
Seq Number 967301
Prep Method: TX1005P
Date Prep: 05.01.15 16.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C12-C28 Diesel Range Hydrocarbons	PHCG1028	66.6	mg/kg	05.02.15 13.21		1
Total TPH	PHC635	66.6	mg/kg	05.02.15 13.21		1

Sample Id : **SP-W**
Lab Sample Id : 507094-006
Matrix : Soil
Date Collected : 04.29.15 14.10
Date Received : 05.01.15 12.00
% Moisture : 11.88
Basis : Dry Weight

Analytical Method : TPH by SW8015 Mod
Seq Number 967301
Prep Method: TX1005P
Date Prep: 05.01.15 16.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C12-C28 Diesel Range Hydrocarbons	PHCG1028	108	mg/kg	05.02.15 13.43		1
Total TPH	PHC635	108	mg/kg	05.02.15 13.43		1

Certificate of Analysis Summary 507094

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Palladium 7-1 4-Inch Poly

Project Id: SRS#2013-044
Contact: Ben Arguijo
Project Location:

Date Received in Lab: Fri May-01-15 12:00 pm
Report Date: 08-MAY-15
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	507094-001		507094-002		507094-003		507094-004		507094-005		507094-006	
	Field Id:	TT-1 @13'		TT-1 @20'		SP-N		SP-S		SP-E		SP-W	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-29-15 11:49		Apr-29-15 13:00		Apr-29-15 14:15		Apr-29-15 14:05		Apr-29-15 14:00		Apr-29-15 14:10	
BTEX by EPA 8021	***Extracted:***	May-06-15 16:00		May-06-15 16:00									
	Analyzed:	May-07-15 15:57		May-07-15 16:14									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		ND	0.0540	ND	0.107								
Toluene		6.12	0.108	16.4	0.214								
Ethylbenzene		4.54	0.0540	13.7	0.107								
m_p-Xylenes		15.7	0.108	45.8	0.214								
o-Xylene		5.56	0.0540	17.0	0.107								
Xylenes, Total		21.3	0.0540	62.8	0.107								
Total BTEX		31.9	0.0540	92.9	0.107								
Inorganic Anions by EPA 300/300.1	***Extracted:***			May-01-15 15:00									
	Analyzed:			May-02-15 03:37									
	Units/RL:			mg/kg	RL								
Chloride				3.57	2.14								
Percent Moisture	***Extracted:***												
	Analyzed:	May-01-15 17:00		May-01-15 17:00		May-01-15 17:00		May-01-15 17:00		May-01-15 17:00		May-01-15 17:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		7.49	1.00	6.60	1.00	6.06	1.00	2.40	1.00	3.62	1.00	11.9	1.00
TPH by SW8015 Mod	***Extracted:***	May-01-15 16:00		May-01-15 16:00		May-01-15 16:00		May-01-15 16:00		May-01-15 16:00		May-01-15 16:00	
	Analyzed:	May-02-15 11:14		May-02-15 11:35		May-02-15 11:56		May-02-15 13:00		May-02-15 13:21		May-02-15 13:43	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C12 Gasoline Range Hydrocarbons		3470	80.7	1750	80.0	30.2	15.9	337	15.4	ND	15.5	ND	17.0
C12-C28 Diesel Range Hydrocarbons		8460	80.7	5330	80.0	1600	15.9	4660	15.4	66.6	15.5	108	17.0
C28-C35 Oil Range Hydrocarbons		260	80.7	167	80.0	55.6	15.9	226	15.4	ND	15.5	ND	17.0
Total TPH		12200	80.7	7250	80.0	1690	15.9	5220	15.4	66.6	15.5	108	17.0

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Orders : 507094,

Project ID: SRS#2013-044

Lab Batch #: 967301 **Sample:** 507094-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/15 11:14

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	125	99.6	126	70-135	
o-Terphenyl	50.1	49.8	101	70-135	

Lab Batch #: 967301 **Sample:** 507094-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/15 11:35

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	99.6	118	70-135	
o-Terphenyl	49.9	49.8	100	70-135	

Lab Batch #: 967301 **Sample:** 507094-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/15 11:56

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	99.8	112	70-135	
o-Terphenyl	57.9	49.9	116	70-135	

Lab Batch #: 967301 **Sample:** 507094-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/15 13:00

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.9	111	70-135	
o-Terphenyl	55.1	50.0	110	70-135	

Lab Batch #: 967301 **Sample:** 507094-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/15 13:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.8	109	70-135	
o-Terphenyl	54.0	49.9	108	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Orders : 507094,

Project ID: SRS#2013-044

Lab Batch #: 967301 **Sample:** 507094-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/15 13:43

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	99.7	113	70-135	
o-Terphenyl	57.1	49.9	114	70-135	

Lab Batch #: 967656 **Sample:** 507094-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/07/15 15:57

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0315	0.0300	105	80-120	
4-Bromofluorobenzene	0.0300	0.0300	100	80-120	

Lab Batch #: 967656 **Sample:** 507094-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/07/15 16:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0328	0.0300	109	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Lab Batch #: 967301 **Sample:** 692051-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/02/15 04:26

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	52.8	50.0	106	70-135	

Lab Batch #: 967656 **Sample:** 692215-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/07/15 06:05

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0313	0.0300	104	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Orders : 507094,

Project ID: SRS#2013-044

Lab Batch #: 967301 **Sample:** 692051-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/02/15 04:50

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	100	113	70-135	
o-Terphenyl	48.7	50.0	97	70-135	

Lab Batch #: 967656 **Sample:** 692215-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/07/15 06:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0321	0.0300	107	80-120	
4-Bromofluorobenzene	0.0319	0.0300	106	80-120	

Lab Batch #: 967301 **Sample:** 692051-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/02/15 05:13

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	100	110	70-135	
o-Terphenyl	50.1	50.0	100	70-135	

Lab Batch #: 967656 **Sample:** 692215-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/07/15 06:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0323	0.0300	108	80-120	
4-Bromofluorobenzene	0.0313	0.0300	104	80-120	

Lab Batch #: 967301 **Sample:** 507062-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/15 06:20

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	99.7	121	70-135	
o-Terphenyl	63.0	49.9	126	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Orders : 507094, **Project ID:** SRS#2013-044

Lab Batch #: 967656 **Sample:** 507210-003 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/07/15 06:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0314	0.0300	105	80-120	
4-Bromofluorobenzene	0.0337	0.0300	112	80-120	

Lab Batch #: 967301 **Sample:** 507062-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/15 06:43

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.8	111	70-135	
o-Terphenyl	48.2	49.9	97	70-135	

Lab Batch #: 967656 **Sample:** 507210-003 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/07/15 07:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0333	0.0300	111	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Order #: 507094 **Project ID:** SRS#2013-044

Analyst: ARM **Date Prepared:** 05/06/2015 **Date Analyzed:** 05/07/2015

Lab Batch ID: 967656 **Sample:** 692215-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00100	0.100	0.0974	97	0.100	0.0977	98	0	70-130	35	
Toluene	<0.00200	0.100	0.101	101	0.100	0.101	101	0	70-130	35	
Ethylbenzene	<0.00100	0.100	0.104	104	0.100	0.104	104	0	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.209	105	0.200	0.208	104	0	70-135	35	
o-Xylene	<0.00100	0.100	0.105	105	0.100	0.105	105	0	71-133	35	

Analyst: JUM **Date Prepared:** 05/01/2015 **Date Analyzed:** 05/01/2015

Lab Batch ID: 967292 **Sample:** 692038-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<2.00	50.0	52.9	106	50.0	53.2	106	1	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Order #: 507094 **Project ID:** SRS#2013-044

Analyst: ARM **Date Prepared:** 05/01/2015 **Date Analyzed:** 05/02/2015

Lab Batch ID: 967301 **Sample:** 692051-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	905	91	1000	915	92	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	963	96	1000	964	96	0	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Order #: 507094

Lab Batch #: 967292 **Project ID:** SRS#2013-044

Date Analyzed: 05/01/2015 **Date Prepared:** 05/01/2015 **Analyst:** JUM

QC- Sample ID: 506833-011 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	<2.06	51.5	56.2	109	80-120	

Lab Batch #: 967292

Date Analyzed: 05/01/2015 **Date Prepared:** 05/01/2015 **Analyst:** JUM

QC- Sample ID: 506903-001 S **Batch #:** 1 **Matrix:** Solid

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	23.8	299	308	95	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: Palladium 7-1 4-Inch Poly

Work Order # : 507094 **Project ID:** SRS#2013-044

Lab Batch ID: 967656 **QC- Sample ID:** 507210-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/07/2015 **Date Prepared:** 05/06/2015 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00115	0.115	0.105	91	0.116	0.103	89	2	70-130	35	
Toluene	<0.00231	0.115	0.102	89	0.116	0.103	89	1	70-130	35	
Ethylbenzene	<0.00115	0.115	0.107	93	0.116	0.107	92	0	71-129	35	
m_p-Xylenes	<0.00231	0.231	0.208	90	0.231	0.207	90	0	70-135	35	
o-Xylene	<0.00115	0.115	0.112	97	0.116	0.112	97	0	71-133	35	

Lab Batch ID: 967301 **QC- Sample ID:** 507062-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/02/2015 **Date Prepared:** 05/01/2015 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<16.7	1110	1030	93	1110	995	90	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	494	1110	1690	108	1110	1470	88	14	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: Palladium 7-1 4-Inch Poly

Work Order #: 507094

Lab Batch #: 967296 **Project ID:** SRS#2013-044

Date Analyzed: 05/01/2015 17:00 **Date Prepared:** 05/01/2015 **Analyst:** WRU

QC- Sample ID: 507031-033 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	16.6	17.4	5	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 05/01/2015 12:00:00 PM

Work Order #: 507094

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6 *Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 05/01/2015

Checklist reviewed by: Julian Martinez Date: 05/01/2015

CHAIN OF CUSTODY RECORD

XENCO Laboratories — Environmental Asbestos Radiochemistry

Houston: 4143 Greenbriar Dr. Stafford, TX 77477 (281)240-4200 Odessa: 12600 West I-20 East Odessa, TX 79765 (432)563-1800

;roool-c

Page 1 of 1

LAB W.O#: 405701

Field billable Hrs :

Company:	Basin Environmental Service Technologies, LLC	Phone:	(575)396-2378
Address:	3100 Plains Hwy.	Fax:	(575)396-1429
City:	Lovington	State: NM	Zip: 88260
PM/Attn:	Ben J. Arguijo	Email:	bjarguijo@basinenv.com
Project ID:	Palladium 7-1 4-Inch Poly SRS #: 2013-044	PO#:	PAA-C. Bryant
Invoice To:	Camille Bryant Plains All American	Quote #:	

TAT Work Days = D Need results by: _____ Time: _____

Std (5-7D) 5Hrs 1D 2D 3D 4D 5D 7D 10D 14D Other _____

Sampler Name: Matt Taylor

Circle One Event: Daily Weekly Monthly Quarterly Semi-Annual Annual N/A

ANALYSES REQUESTED

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code ^	Field Filtered	Integrity OK (Y/N)	Total # of containers	Cont Type * VC	Example Volatiles by 8260	GC TPH	GC Chloride	GC BTEX								Hold Sample (CALL ___) on Highest TPH ___ Run PAH Only if
								Pres Type**		I	I	I								
								# Cont	Lab Only:											
1	TT-1 @ 13'	4/29/2015	1149	S			1			X		HOLD								
2	TT-1 @ 20'	4/29/2015	1300	S			1			X	X									
3	SP-N	4/29/2015	1415	S			1			X										
4	SP-S	4/29/2015	1405	S			1			X										
5	SP-E	4/29/2015	1400	S			1			X										
6	SP-W	4/29/2015	1410	S			1			X										
7																				
8																				
9																				
0																				

* Container Type Codes

VA Vial Amber, VC Vial Clear, VP Vial Pre-preserved, GA Glass Amber, GC Glass Clear, PA Plastic Amber, PC Plastic Clear, ES Encore Sampler, TS TerraCore Sampler, AC Air Canister, TB Tedlar Bag, ZB Zip Lock Bag, PC Plastic Clear

Other _____

Size(s): 2oz, 4oz, 8oz, 16oz, 32oz 1Gal 40ml, 125 ml, 250 ml, 500 ml, 1L, Other _____

** Preservative Type Codes

A. None, E. HCL, I. Ice, B. HNO_3, F. MeOH, J. MCAA, C. H_2SO_4, G. $Na_2S_2O_3$, K. ZnAc&NaOH, D. NaOH, H. $NaHSO_4$, L Asbc Acid&NaOH, O. _____

^ Matrix Type Codes

GW Ground Water, WW Waste Water, DW Drinking Water, SW Surface Water, OW Ocean/Sea Water, PL Product-Liquid, PS Product-Solid, SL Sludge, S Soil/Sediment/Solid, W Wipe, A Air, O Oil, T Tissue, U Urine, B Blood, Other _____

REMARKS

Need TPH results by 5/1.

****RUSH****

Reg. Program / Clean-up Std	STATE for Certs & Regs	QA/QC Level & Certification	EDDs	COC & Labels	Coolers Temp °C
CTLs TRRP DW NPDES LPST DryCln Other:	FL TX GA NC SC NJ PA OK LA AL NM Other:	1 2 3 4 CLP AFCEE QAPP NELAC DoD-ELAP Other:	ADaPT SEDD ERPIMS XLS Other:	Match Incomplete Absent Unclear	1 1.4 2 3

	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
1	Matt Taylor	BasinENV	4/29/15	1700		BasinEnv.	4/29/15	1700
2		BasinEnv.	4/30/15	1345				
3	Thomas Runyan	BasinENV	4-30-15	1:45		XENCO	5/1/15	1000
4	Thomas Runyan	BASINENV	4:30:15	3:46		MS	4/30	2440

Lab Use Only	YES	NO	N/A
Non-Conformances found?			
Samples intact upon arrival?			
Received on Wet Ice?			
Labeled with proper preservatives?			
Received within holding time?			
Custody seals intact?			
VOCs rec'd w/o headspace?			
Proper containers used?			
pH verified-acceptable, excl VOCs?			
Received on time to meet HTs?			

C.O.C. Serial #

B&A Laboratories: Hobbs 575-392-7550 Dallas 214-902-0300 Houston 281-242-4200 Odessa 432-563-1800 San Antonio 210-509-3334 Phoenix 602-437-0330

FTS Service Centers: Atlanta 770-449-8800 Lakeland 863-646-8526 Tampa 803-543-8099 Philadelphia 610-955-5649 South Carolina 803-543-8099

 Revision Date: Nov 12, 2009

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

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Analyst:

PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 05/01/2015

Checklist reviewed by: Julian Martinez Date: 05/01/2015