Larson & Associates, Inc.
Environmental Consultants

RECEIVED
By OCD District 1 at 8:02 am, Jul 14, 2015

APPROVED
By OCD District 1 at 8:02 am, Jul 14, 2015

June 29, 2015

VIA EMAIL: Kellie.Jones@state.nm.us

Ms. Kellie Jones
Environmental Specialist
New Mexico Oil Conservation Division
1625 N. French Drive
Hobbs, New Mexico 88240

Re: 1RP-3594 – Final Report, Paladin Energy Corp. State BT "D" Well No. 003, Lea County, New Mexico

Dear Ms. Jones:

Larson & Associates, Inc. (LAI), on behalf of Paladin Energy Corp. (Paladin), submits this final report to the New Mexico Oil Conservation Division (OCD) to present the investigation and remediation of a produced water spill at the State BT "D" Well No. 003 (Site). The extent of release was determined by two (2) additional borings (SB-2 and SB-3) and collection and analysis of a groundwater sample southeast (down gradient) from the spill. A poly liner (20 mil thickness) was installed in the bottom of the excavation. Paladin respectfully requests your approval for no further action for the spill. Please contact Mickey Horn with Paladin at (432) 522-2162 or me at (432) 687-0901.
Sincerely,

Larson & Associates, Inc.

Mark J. Larson, P.G.

President/Sr. Project Manager

mark@laenvironmental.com

cc: Mickey Horn – Paladin Energy Corp.

Encl.

1RP-3594
FINAL REPORT
STATE BT "D" WELL NO. 003
LEA COUNTY, NEW MEXICO

LAI Project No. 15-0130-02

June 26, 2015

Prepared for:

Paladin Energy Corp.

10290 Monroe Drive, Suite 301

Fort Worth, Texas 75229

Prepared by:

Larson & Associates, Inc.

507 North Marienfeld Street, Suite 205

Midland, TX 79701

Mark J. Larson

Certified Professional Geologist No. 10490

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1.0 EXECUTIVE SUMMARY

This final report is submitted to the New Mexico Oil Conservation Division (OCD) District 1, on behalf of Paladin Energy Corp (Paladin), to present the investigation and remediation for a produced water spill at the State BT "D" Well No. 003 (Site) located in Lea County, New Mexico. The legal description is Unit P (SE/4, SE/4), Section 35, Township 11 South and Range 33 East. The geodetic position is 32° 19' 00.340" north and 103° 34' 41.390" west.

The spill was discovered by an OCD inspector, on March 31, 2015. A letter of violation was issued to Paladin on April 1, 2015. Corrective actions included excavating soil to caliche about 1 foot below ground surface (bgs) and disposing at the Gandy Marley land fill located west of Tatum, New Mexico. Remediation project (RP) number 1RP-3594 was issued for the release. Groundwater occurs at about 42 feet bgs.

Personnel from Larson & Associates, Inc. (LAI) collected a composite sample (Comp A) from the bottom of the excavation on April 7, 2015. Permian Basin Environmental Lab (PBELAB), in Midland, Texas, reported benzene below the method reporting limit (RL) and total BTEX (sum of benzene, toluene, ethylbenzene and xylenes) below the OCD recommended remediation action level (RRAL) of 50 milligrams per kilogram (mg/Kg). Total petroleum hydrocarbons (TPH) by EPA SW-846 method 8021B and chloride by EPA method 300 were 2,728.68 mg/Kg and 10,200 mg/Kg, respectively. TPH exceeded the RRAL (100 mg/Kg).

On April 21, 2015, LAI personnel supervised drilling and sample collection from a boring (SB-1) that was drilled near the center of the spill. The boring was drilled with an air rotary rig to about 35 feet bgs and samples were collected every five (5) feet using a jam tube sampler. Benzene, total BTEX and TPH were below the method reporting limits in all samples. Chloride was 3,270 mg/Kg at 1 foot bgs and decreased to 169 mg/Kg at 5 feet bgs. A boring was drilled to groundwater about 70 feet southeast (down gradient) of the spill and a sample was collected for laboratory analysis. The laboratory reported BTEX below the analytical method RL and chloride at 221 mg/L. The chloride concentration is below the New Mexico Water Quality Control Commission (WQCC) domestic water quality standard of 250 mg/L.

On May 26, 2015, LAI personnel supervised drilling and sample collection from two (2) additional borings (SB-2 and SB-3) at locations approved by the OCD. The borings were drilled to about 25 feet bgs and samples were collected every five (5) feet. Field headspace readings were less than 100 parts per million (ppm) therefore no BTEX analysis was performed. TPH exceeded the RRAL in the sample from 1 foot bgs in boring SB-2 (458.9 mg/Kg) and was below the analytical method RL in samples from 10 and 15 feet (SB-2) and 5, 10 and 15 feet (SB-3). Chloride decreased to less than 250 mg/Kg in samples from 25 feet in borings SB-2 (2015 mg/Kg) and SB-3 (139 mg/Kg). Based on these findings OCD approved installing a liner in the excavation and backfilling with clean soil.

On June 22, 2015, Paladin installed a 20 mil thickness liner in the bottom of the excavation and backfilled with clean soil.

Paladin respectfully requests no further action for the spill.

2.0 INTRODUCTION

Larson & Associates, Inc. (LAI) submits this final report to the New Mexico Oil Conservation Division (OCD) on behalf of Paladin Energy Corp (Paladin), to present the investigation and remediation of a produced water spill at the State BT "D" Well No. 003 (Site). The Site is located in Unit P (SE/4, SE/4), Section 35, Township 11 South, Range 33 east, in Lea County, New Mexico. The geodetic position is north 33° 19' 00.340" and west 103° 34' 41.390". Figure 1 presents a location and topographic map. Figure 2 presents an aerial map.

2.1 Background and Initial Response

On March 31, 2015, an inspector with OCD District 1, in Hobbs, New Mexico, discovered the spill. On April 1, 2015, OCD issued a letter of violation to Paladin requiring, among other things, filing form C-141 and performing corrective action by May 29, 2015.

The spill occurred from failure of a stuffing box that released about 4 barrels (bbl) of oil and 2 bbl of water. The spill followed the surface topography and flowed east about 20 feet and south about 40 feet south. No fluid was recovered. On April 2, 2015, Paladin initiated corrective actions that included excavating visually contaminated soil. The contaminated soil was hauled to the Gandy Marley landfill (NM1-19-0) located west of Tatum, New Mexico. The initial C-141 was submitted to the OCD on April 6, 2015. Remediation project (RP) number 1RP-3594 was issued by OCD.

2.2 Initial Investigation

On April 7, 2015, personnel from LAI collected a 5-spot composite sample (Comp A) from the excavated spill area. The sample was analyzed by Permian Basin Environmental Lab (PBELAB), located in Midland, Texas and reported benzene by EPA SW-846 method 8021B at less than the method reporting limit (RL) and total BTEX (sum of benzene, toluene, ethylbenzene and xylenes) below the OCD recommended remediation action level (RRAL) of 50 milligrams per kilogram (mg/Kg). Total petroleum hydrocarbons (TPH) by EPA S-846 method 8015M, as the combined fraction of gasoline range (GRO) and diesel range (DRO) organics, was 2,729.68 milligrams per kilogram (mg/Kg) and above the RRAL of 100 mg/Kg. Chloride by EPA method 300 was 10,200 mg/Kg.

On April 21, 2015, an air rotary rig was used to drill a boring (SB-1) near the center of the spill. Soil samples were collected about every 5 feet to 35 feet bgs. Headspace analysis of samples reported a maximum total organic vapor concentration of 119.4 parts per million (ppm). This sample reported benzene and total BTEX below the method RL. The samples reported TPH below the RL. Chloride ranged from 3,270 mg/Kg in the sample from 1 foot bgs to 67.9 mg/Kg in the sample from 35 feet bgs.

On April 21, 2015, a boring was advanced to groundwater about 75 feet southeast (down gradient) of the spill. Depth to groundwater was measured 41.72 feet bgs. A clean polyethylene bailer was used to collect the groundwater sample which was analyzed for BTEX by EPA SW-846 method 8021B and chloride by EPA method 300.0. The laboratory reported BTEX below the RL and WQCC human health standards. Chloride was 221 milligrams per liter (mg/L).

The results of the initial investigations were compiled in a report titled, "*1RP-3594 Spill Investigation Report, State BT "D" Well No. 003, Lea County, New Mexico May 11, 2015*" that was submitted to the OCD on May 13, 2015.

3.0 REMEDIATION

On May 21, 2015 and June 15, 2015, OCD District 1 approved the remediation plan with the following conditions:

1. Drop two additional soil borings
2. Show location of soil boring and composite samples on map
3. Take ground water sample

Appendix A presents the OCD correspondence.

On May 26, 2015, two (2) borings (SB-2 and SB-3) were drilled at the approximate locations shown on Figure 3. The borings were drilled with an air rotary rig to about 25 feet bgs and soil samples were collected every five (5) feet with a jam tube sampler. The headspace analysis reported a maximum organic vapor concentration of 4 pm therefore no samples were analyzed for BTEX. The maximum TPH concentration was 458.9 mg/Kg in sample SB-2, 1 foot bgs. The TPH concentration decreased to 86.1 mg/Kg at 5 feet bgs. TPH was below the RL in samples from 10 and 15 feet bgs. The maximum TPH concentration in samples from boring SB-3 was 41.5 mg/Kg at 1 foot bgs. TPH was below the RL in samples from 5, 10 and 15 feet, in boring SB-3. Chloride decreased below 250 mg/Kg at25 feet bgs in borings SB-2 (215 mg/Kg) and SB-3 (139 mg/Kg). Table 1 presents the field and laboratory analytical data summary. Figure 3 presents the boring locations. Appendix B presents the laboratory report. Appendix C presents the boring logs.

Figure 3 shows the locations for discrete samples that were composited into a single sample and analyzed for BTEX, TPH and chloride.

On April 21, 2015, a groundwater sample was collected from a boring drilled about 70 feet southeast (down gradient) of the spill. Groundwater was measured at about 41.72 feet bgs. The groundwater sample was analyzed for BTEX and chloride by EPA SW-846 methods 8021B and 300, respectively. BTEX was not reported above the RL and chloride was 221 mg/L and below the New Mexico Water Quality Control Commission (WQCC) domestic water quality standard of 250 mg/L. Figure 3 presents the groundwater sample location. Table 2 presents the laboratory analytical data summary. Appendix B presents the laboratory report.

On June 22, 2015, Paladin installed a 20 mil thickness liner in the bottom of the excavation. Between June 23 and 25, 2015, the excavation was filled with clean soil. Appendix D presents photographs.

4.0 CONCLUSIONS

The following conclusions are based on the investigation results:

- TPH in the two borings (SB-2 and SB-3) was below the analytical method RL in samples from 10 and 15 feet bgs (SB-2) and 5, 10 and 15 feet bgs (SB-3).

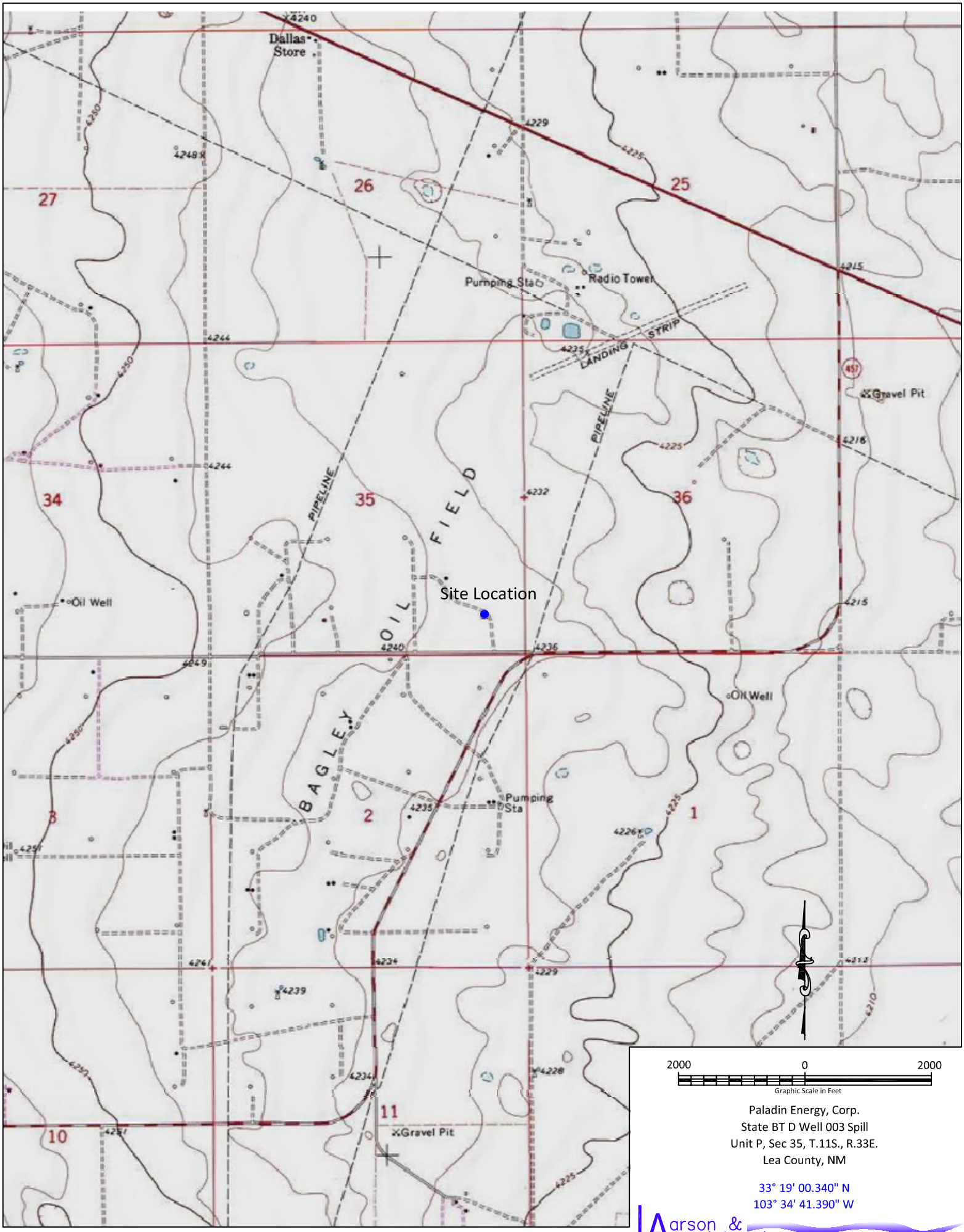
- Chloride decreased below 250 mg/Kg in samples from 25 feet in borings SB-2 (215 mg/Kg) and SB-3 (139 mg/Kg);

- A groundwater sample collected about 70 feet southeast (down gradient) from the spill did not report BTEX above the analytical method RL. Chloride was 221 mg/L and below the WQCC domestic water quality standard (250 mg/L).

5.0 RECDOMMENDATION

Paladin respectfully requests no further action for the spill. Appendix E presents the initial and final C-141.

FIGURES



Paladin Energy, Corp.
State BT D Well 003 Spill
Unit P, Sec 35, T.11S., R.33E.
Lea County, NM

33° 19' 00.340" N
103° 34' 41.390" W

Larson & Associates, Inc.
Environmental Consultants

Figure 1 - Topographic Map

Figure 2 - Aerial Map

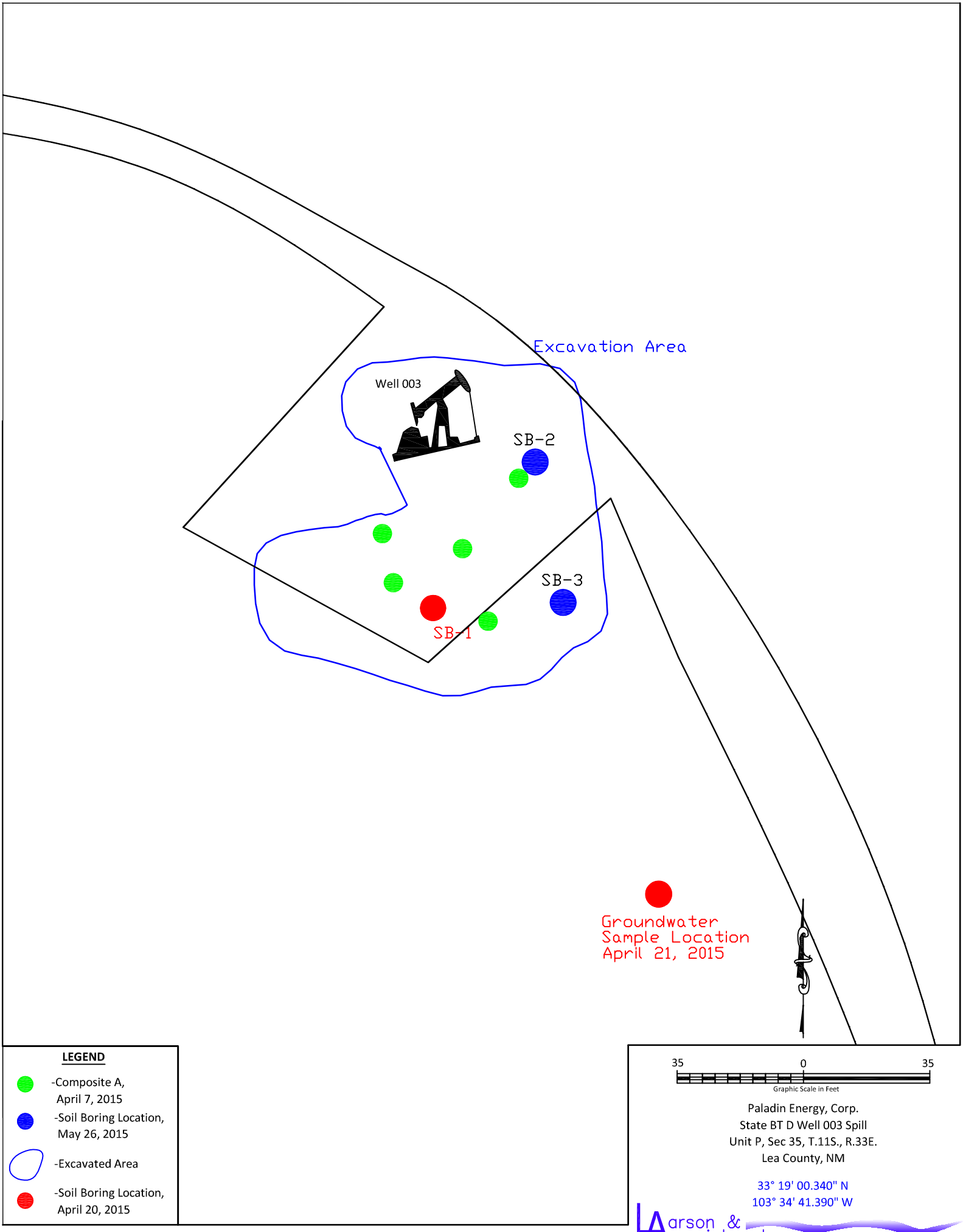


Figure 3 - Site Map

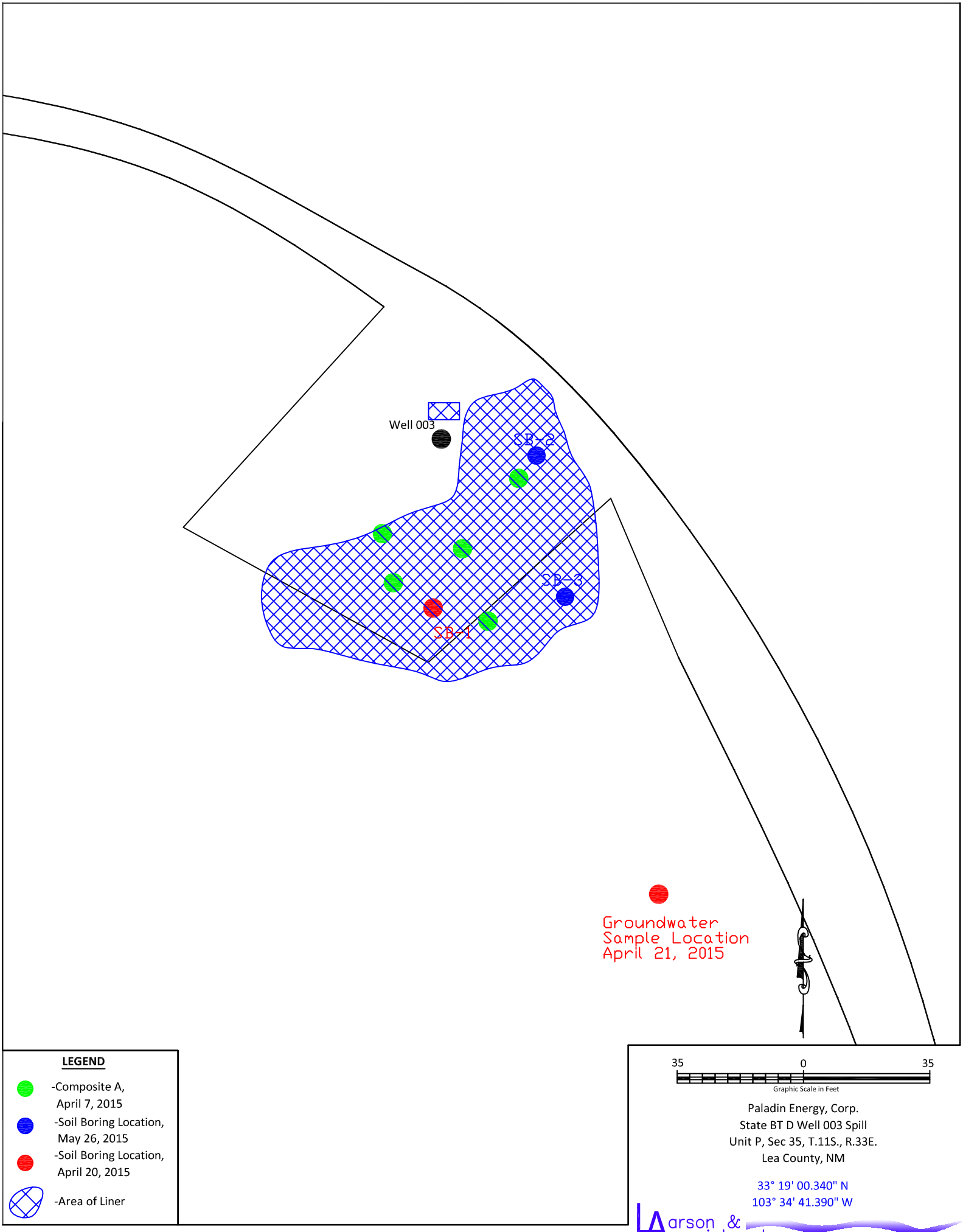


Figure 4 - Remediation Area Map

TABLES

Table 1
Soil Boring Analytical Data Summary
Paladin Energy Corp., State BT "D" Well No. 003
Lea County, New Mexico
1RP-3594

Sample	Depth (Feet)	Collection Date	PID (ppm)	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	>C12 - C28 (mg/Kg)	>C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
OCD RRAL:				**10**	**50**				**100**	
SB-1	1	4/20/2015	0.0	--	--	<36.8	<36.8	<36.8	<36.8	**3,270**
	5		0.0	--	--	<35.2	<35.2	<35.2	<35.2	**169**
	10		0.0	--	--	<30.9	<30.9	<30.9	<30.9	**18**
	15		119.4	<0.00122	<0.0414.8	<30.5	<30.5	<30.5	<30.5	**107**
	20		38.0	--	--	<26.9	<26.9	<26.9	<26.9	**22.4**
	25		6.0	--	--	--	--	--	--	<1.37
	30		2.4	--	--	--	--	--	--	**1.54**
	35		0.8	--	--	--	--	--	--	**67.9**
SB-2	1	5/26/2015	0.0	--	--	<25.0	382	76.9	**458.9**	**3,530**
	5		4.0	--	--	<26.6	86.1	<26.6	**86.1**	**11,000**
	10		4.0	--	--	<25.8	<25.8	<25.8	<25.8	**633**
	15		0.0	--	--	<26.0	<26.0	<26.0	<26.0	**565**
	20		0.0	--	--	--	--	--	--	**391**
	25		6.0	--	--	--	--	--	--	**215**
SB-3	1	5/26/2015	0.0	--	--	<26.9	41.5	<26.9	**41.5**	**10,600**
	5		0.0	--	--	<27.8	<27.8	<27.8	<27.8	**6,100**
	10		0.0	--	--	<27.5	<27.5	<27.5	<27.5	**8,840**
	15		0.0	--	--	<26.9	<26.9	<26.9	<26.9	**1,020**
	20		0.0	--	--	--	--	--	--	**391**
	25		0.0	--	--	--	--	--	--	**139**

Notes: Laboratory analysis performed by Permian Basin Environmental Lab, Midland, Texas.
BTEX performed by laboratory method SW-8021B
TPH performed by laboratory method SW-846-8015
Chloride performed by laboratory method 300.0
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
Bold and highlighted denotes concentration exceeds remedaition action level (RRAL)

Table 2
Groundwater Analytical Data Summary
Paladin Energy Corp., State BT "D" Well No. 003
Lea County, New Mexico
1RP-3594

Sample ID	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Chlorides
WQCC Limit:		**0.01**	**0.8**	**0.75**	**0.62**	**250**
TMW-1	4/21/2015	<0.00100	<0.00100	<0.00100	<0.00300	**221**

Notes: Analysis performed by Permian Basin Environmental Lab (PBELAB), Midland, Texas
Analysis performed by EPA method SW-846-8021B (BTEX) and 300.0 (chloride)
All values reported in milligrams per liter (mg/L) equivelent to parts per million (ppm)
Bold indicates analyte was detected above reporting limit (RL) but below the regulatory limit

APPENDIX A

OCD Correspondence

Mark Larson

From: Jones, Kellie, EMNRD [Kellie.Jones@state.nm.us]
Sent: Thursday, May 21, 2015 8:24 AM
To: Mark Larson
Cc: paladinmid@suddenlink.net; Oberding, Tomas, EMNRD
Subject: RE: 1RP-3593 and 1RP-3594, Paladin Energy Corp., State BT "C"No.003 Tank Battery and State BT "D" Well No. 003

Mark,

Per our conversation on 20 May 2015, the work plans are conditionally approved, with the following conditions:

1RP-3593

1. Ensure there are two sample points on SB-3 that are below regulated limits
2. Show locations of composite samples on map
3. Investigate possibility of adding liner in the SB-3, SE corner
4. Take ground water sample

1RP-3594

1. Drop two additional soil borings
2. Show location of soil boring and composite samples on map
3. Take ground water sample

It was brought up during our conversation that some of the additional data was already at the lab, but just needed to be processed.

If you have any questions, please feel free to contact me. I do appreciate your time and assistance in this matter.

Thanks,

Kellie Jones
Environmental Specialist, District 1
Oil Conservation Division, EMNRD
(575) 393-6161 ext. 111
575-370-3180 (emergency-cell)
E-Mail: kellie.jones@state.nm.us

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

Please note:
-The OCD is no longer granting "risk-based," or standard closure of events/RPs with remediation deferred to site abandonment/sale/closure. The RP will remain open until such time as historic contamination is addressed.
-Photographic documentation is stipulated for all events involving liquids.

If you have any questions or concerns, and for notification, please contact me.

From: Mark Larson [mailto:Mark@laenvironmental.com]
Sent: Thursday, May 14, 2015 7:27 AM
To: Oberding, Tomas, EMNRD; Jones, Kellie, EMNRD
Cc: paladinmid@suddenlink.net
Subject: Re: 1RP-3593 and 1RP-3594, Paladin Energy Corp., State BT "C" No.003 Tank Battery and State BT "D" Well No. 003

Dear Dr. Oberding and Ms. Jones,
Please use the link below to download electronic version of the above-referenced report. The report are submitted on behalf of Paladin Energy Corp. (Paladin) and present the investigation and remediation results for spills reported at the State BT "C" No.003 Tank Battery (1RP-3593) and State BT "D" Well No.003 (1RP-3594). Please contact Mickey Horn with Paladin at (432) 634-6599 or me at (432) 687-0901, with any questions you may have or if you cannot open the weblink.
Sincerely,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 200
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

Directly below is the link to the remediation report for 15-0130-01, State BT "C". Transmittal letter is included.

https://files.acrobat.com/a/preview/ac86bb6b-08b2-41ef-b26b-0c5a01a13824

Directly below is the link to the remediation report for 15-0130-02, State BT "D". Transmittal letter is included.

https://files.acrobat.com/a/preview/9ff4fe2c-921f-4eb7-89f3-8193ad7389d9

--

Mark Larson

From: michael [paladinmid@suddenlink.net]
Sent: Monday, June 15, 2015 5:05 PM
To: Mark Larson
Subject: FW: 1RP-3594, Paladin Energy Corp., State BT State BT "D" Well No. 003

From: Jones, Kellie, EMNRD [mailto:Kellie.Jones@state.nm.us]
Sent: Monday, June 15, 2015 11:30 AM
To: Mark Larson
Cc: paladinmid@suddenlink.net
Subject: RE: 1RP-3594, Paladin Energy Corp., State BT State BT "D" Well No. 003

Mark,

I am agreeable to the proposed action. Please submit the final C141 with the final report, the one submitted today will not be processed until then.

If you have any questions, please feel free to contact me.

Thank you,

Kellie Jones
Environmental Specialist, District 1
Oil Conservation Division, EMNRD
(575) 393-6161 ext. 111
575-370-3180 (emergency-cell)
E-Mail: kellie.jones@state.nm.us

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

Please note:
-The OCD is no longer granting "risk-based," or standard closure of events/RPs with remediation deferred to site abandonment/sale/closure. The RP will remain open until such time as historic contamination is addressed.
-Photographic documentation is stipulated for all events involving liquids.

If you have any questions or concerns, and for notification, please contact me.

From: Mark Larson [mailto:Mark@laenvironmental.com]
Sent: Wednesday, June 10, 2015 10:47 AM
To: Jones, Kellie, EMNRD
Cc: paladinmid@suddenlink.net
Subject: RE: 1RP-3594, Paladin Energy Corp., State BT State BT "D" Well No. 003

Kellie:

The following is in response to your approval for the Paladin Energy Corp. State BT "D" Well No. 003 spill (1RP-3594):

1RP-3594

1. Drop two additional soil borings
   Response: Two borings (SB-2 and SB-3) were drilled on May 26, 2015. TPH was detected at 458.9 mg/Kg in sample SB-2, 1 foot bgs. The remaining samples from boring SB-2 (5, 10 and 15 feet) and boring SB-3 (1, 5, 10 and 15 feet) were below the RRAL (100 mg/Kg) or analytical method reporting limit (RL). Chloride decreased below 250 mg/Kg in samples from 25 feet. Table 2 presents the laboratory analytical data summary.
2. Show location of soil boring and composite samples on map
   Response: Figure 3 presents the locations the composite (discrete) samples and boring locations.
3. Take ground water sample
   Response: A groundwater samples was collected about 70 feet southeast (down gradient) from the spill, on April 21, 2015. Table 3 presents the analytical data summary which shows chloride at 221 mg/L and below the WQCC domestic drinking water standard (250 m/L). Figure 3 shows the groundwater sample location.

Proposed Action:
Paladin will install a 20 mil liner in the area shown on Figure 4. The liner will be installed in the bottom of the excavation at the same time a liner will be installed at the State BT "C" tank battery. The excavations will be filled with clean soil/caliche. A final report will be submitted to OCD upon completion of the work which will be photo documented. The final C-141 is attached.

Your approval of this request is greatly appreciated. Please contact me if you have questions.
Sincerely,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 200
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

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APPENDIX B

Laboratory Reports

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: Paladin/State BT "D" Well #003 Battery

Project Number: 15-0130-02

Location:

Lab Order Number: 5D22007

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-13-3

Report Date: 05/08/15

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well #003 Battery
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-1 1'	5D22007-01	Soil	04/21/15 13:35	04-22-2015 10:21
SB-1 5'	5D22007-02	Soil	04/21/15 13:50	04-22-2015 10:21
SB-1 10'	5D22007-03	Soil	04/21/15 13:58	04-22-2015 10:21
SB-1 15'	5D22007-04	Soil	04/21/15 14:05	04-22-2015 10:21
SB-1 20'	5D22007-05	Soil	04/21/15 14:10	04-22-2015 10:21
SB-1 25'	5D22007-06	Soil	04/21/15 14:25	04-22-2015 10:21
SB-1 30'	5D22007-07	Soil	04/21/15 14:35	04-22-2015 10:21
SB-1 35'	5D22007-08	Soil	04/21/15 14:43	04-22-2015 10:21

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 1'

5D22007-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3270**	14.7	mg/kg dry	10	P5E0502	04/30/15	05/05/15	EPA 300.0	
% Moisture	**32.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	36.8	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	ND	36.8	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	ND	36.8	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*76.6 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*89.8 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	36.8	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 5'

5D22007-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**169**	1.41	mg/kg dry	1	P5E0502	04/30/15	05/05/15	EPA 300.0	
% Moisture	**29.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	35.2	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	ND	35.2	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	ND	35.2	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*68.0 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*79.8 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	35.2	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 10'

5D22007-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**18.0**	1.23	mg/kg dry	1	P5E0502	04/30/15	05/05/15	EPA 300.0	
% Moisture	**19.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.9	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	ND	30.9	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	ND	30.9	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*67.0 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*78.8 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	30.9	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 15'

5D22007-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00122	mg/kg dry	1	P5D3008	04/27/15	04/27/15	EPA 8021B	
Toluene	ND	0.00244	mg/kg dry	1	P5D3008	04/27/15	04/27/15	EPA 8021B	
Ethylbenzene	ND	0.00122	mg/kg dry	1	P5D3008	04/27/15	04/27/15	EPA 8021B	
Xylene (p/m)	ND	0.00244	mg/kg dry	1	P5D3008	04/27/15	04/27/15	EPA 8021B	
Xylene (o)	ND	0.00122	mg/kg dry	1	P5D3008	04/27/15	04/27/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*79.0 %*	*75-125*		*P5D3008*	*04/27/15*	*04/27/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*125 %*	*75-125*		*P5D3008*	*04/27/15*	*04/27/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**107**	1.22	mg/kg dry	1	P5E0502	04/30/15	05/05/15	EPA 300.0	
% Moisture	**18.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.5	mg/kg dry	1	P5E0513	04/28/15	05/07/15	TPH 8015M	
>C12-C28	ND	30.5	mg/kg dry	1	P5E0513	04/28/15	05/07/15	TPH 8015M	
>C28-C35	ND	30.5	mg/kg dry	1	P5E0513	04/28/15	05/07/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*86.3 %*	*70-130*		*P5E0513*	*04/28/15*	*05/07/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P5E0513*	*04/28/15*	*05/07/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	30.5	mg/kg dry	1	[CALC]	04/28/15	05/07/15	calc	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 20'

5D22007-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**22.4**	1.08	mg/kg dry	1	P5E0502	04/30/15	05/05/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P5D3003	04/27/15	04/28/15	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P5D3003	04/27/15	04/28/15	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P5D3003	04/27/15	04/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*77.8 %*	*70-130*		*P5D3003*	*04/27/15*	*04/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*88.4 %*	*70-130*		*P5D3003*	*04/27/15*	*04/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	04/27/15	04/28/15	calc	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 25'

5D22007-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.37	mg/kg dry	1	P5E0502	04/30/15	05/05/15	EPA 300.0	
% Moisture	**27.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 30'

5D22007-07 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**1.54**	1.35	mg/kg dry	1	P5E0502	04/30/15	05/05/15	EPA 300.0	
% Moisture	**26.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 35'

5D22007-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**67.9**	1.06	mg/kg dry	1	P5E0502	04/30/15	05/05/15	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P5D3003	04/27/15	04/28/15	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P5D3003	04/27/15	04/28/15	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P5D3003	04/27/15	04/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*77.6 %*	*70-130*		*P5D3003*	*04/27/15*	*04/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*90.0 %*	*70-130*		*P5D3003*	*04/27/15*	*04/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	04/27/15	04/28/15	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well #003 Battery
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D3008 - General Preparation (GC)										
Blank (P5D3008-BLK1)				Prepared & Analyzed: 04/27/15						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	*0.0713*		*"*	*0.0600*		*119*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0513*		*"*	*0.0600*		*85.5*	*75-125*			
LCS (P5D3008-BS1)				Prepared & Analyzed: 04/27/15						
Benzene	0.0935	0.00100	mg/kg wet	0.100		93.5	70-130			
Toluene	0.103	0.00200	"	0.100		103	70-130			
Ethylbenzene	0.112	0.00100	"	0.100		112	70-130			
Xylene (p/m)	0.227	0.00200	"	0.200		113	70-130			
Xylene (o)	0.119	0.00100	"	0.100		119	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0723*		*"*	*0.0600*		*120*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0476*		*"*	*0.0600*		*79.4*	*75-125*			
LCS Dup (P5D3008-BSD1)				Prepared & Analyzed: 04/27/15						
Benzene	0.0938	0.00100	mg/kg wet	0.100		93.8	70-130	0.320	20	
Toluene	0.104	0.00200	"	0.100		104	70-130	0.397	20	
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130	4.43	20	
Xylene (p/m)	0.233	0.00200	"	0.200		117	70-130	2.83	20	
Xylene (o)	0.114	0.00100	"	0.100		114	70-130	3.96	20	
Surrogate: 1,4-Difluorobenzene	*0.0524*		*"*	*0.0600*		*87.3*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0707*		*"*	*0.0600*		*118*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well #003 Battery
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D2705 - * DEFAULT PREP *** **										
Blank (P5D2705-BLK1)				Prepared & Analyzed: 04/27/15						
% Moisture	ND	0.1	%							
Duplicate (P5D2705-DUP1)		**Source: 5D24002-01**		Prepared & Analyzed: 04/27/15						
% Moisture	10.0	0.1	%		11.0			9.52	20	
Duplicate (P5D2705-DUP2)		**Source: 5D24003-01**		Prepared & Analyzed: 04/27/15						
% Moisture	2.0	0.1	%		2.0			0.00	20	
Batch P5E0502 - * DEFAULT PREP *** **										
Blank (P5E0502-BLK1)				Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5E0502-BS1)				Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	105	1.00	mg/kg wet	100		105	80-120			
LCS Dup (P5E0502-BSD1)				Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	106	1.00	mg/kg wet	100		106	80-120	1.20	20	
Duplicate (P5E0502-DUP1)		**Source: 5D22007-01**		Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	3320	14.7	mg/kg dry		3270			1.72	20	
Duplicate (P5E0502-DUP2)		**Source: 5D27006-03**		Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	36.9	1.06	mg/kg dry		41.2			11.0	20	
Matrix Spike (P5E0502-MS1)		**Source: 5D22007-01**		Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	4200	14.7	mg/kg dry	1100	3270	84.4	80-120			

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D3003 - TX 1005										
Blank (P5D3003-BLK1)				Prepared & Analyzed: 04/27/15						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*65.6*		*"*	*100*		*65.6*	*70-130*			*S-GC*
Surrogate: o-Terphenyl	*38.6*		*"*	*50.0*		*77.2*	*70-130*			
LCS (P5D3003-BS1)				Prepared & Analyzed: 04/27/15						
C6-C12	894	25.0	mg/kg wet	1000		89.4	75-125			
>C12-C28	1080	25.0	"	1000		108	75-125			
Surrogate: 1-Chlorooctane	*88.6*		*"*	*100*		*88.6*	*70-130*			
Surrogate: o-Terphenyl	*43.8*		*"*	*50.0*		*87.6*	*70-130*			
LCS Dup (P5D3003-BSD1)				Prepared & Analyzed: 04/27/15						
C6-C12	986	25.0	mg/kg wet	1000		98.6	75-125	9.85	20	
>C12-C28	1150	25.0	"	1000		115	75-125	6.17	20	
Surrogate: 1-Chlorooctane	*87.7*		*"*	*100*		*87.7*	*70-130*			
Surrogate: o-Terphenyl	*40.7*		*"*	*50.0*		*81.5*	*70-130*			
Duplicate (P5D3003-DUP1)	**Source: 5D27003-01**			Prepared: 04/27/15 Analyzed: 04/28/15						
C6-C12	2740	439	mg/kg dry		2900			5.86	20	
>C12-C28	22400	439	"		23700			5.82	20	
Surrogate: 1-Chlorooctane	*147*		*"*	*175*		*83.7*	*70-130*			
Surrogate: o-Terphenyl	*91.1*		*"*	*87.7*		*104*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well #003 Battery
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

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

Report Approved By: Brent Barron Date: 5/8/2015

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 4-20-2015 PAGE 1 OF 1
PO #: LAB WORK ORDER #: 5D22007
PROJECT LOCATION OR NAME: Paladin/State BT "D" Well #3
LAI PROJECT #: 15-0130-02 COLLECTOR: ML

TRRP report? ☐ Yes ☑ No
TIME ZONE: Time zone/State: Mtn/NM

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

5D22007

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
SB-1, 1'	01	4/20/15	13:35	S	1				✓				✓	✓													✓		
SB-1, 5'	02		13:50	S	1				✓				✓	✓													✓		
SB-1, 10'	03		13:58	S	1				✓				✓	✓													✓		
SB-1, 15'	04		14:05	S	1				✓		✓		✓	✓													✓		
SB-1, 20'	05		14:10	S	1				✓				✓	✓													✓		
SB-1, 25'	06		14:25	S	1				✓																		✓		
SB-1, 30'	07		14:35	S	1				✓																		✓		
SB-1, 35'	08		14:43	S	1				✓				✓	✓													✓		
~~SB-1~~		~~4/21/15~~																											
TOTAL																													

RELINQUISHED BY:(Signature) DATE/TIME 4/22/10:21 RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

Permian Basin Env. Lab
Midland, TX

TURN AROUND TIME
NORMAL ☑
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 1.6 THERM #:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☑ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: Paladin/State BT "D" Well No. 003

Project Number: 15-0130-02

Location: New Mexico

Lab Order Number: 5D22009

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-13-3

Report Date: 05/26/15

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well No. 003
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TMW-1	5D22009-01	Water	04/21/15 14:40	04-22-2015 10:21

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well No. 003
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

TMW-1

5D22009-01 (Water)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*87.7 %*		*80-120*	*P5E0511*	*05/01/15*	*05/04/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*104 %*		*80-120*	*P5E0511*	*05/01/15*	*05/04/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**221**	12.5	mg/L	25	P5E0808	05/07/15	05/08/15	EPA 300.0	

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5E0511 - General Preparation (GC)										
Blank (P5E0511-BLK1)				Prepared: 05/01/15 Analyzed: 05/04/15						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	*52.4*		*ug/l*	*60.0*		*87.3*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*63.6*		*"*	*60.0*		*106*	*80-120*			
LCS (P5E0511-BS1)				Prepared: 05/01/15 Analyzed: 05/04/15						
Benzene	0.0924	0.00100	mg/L	0.100		92.4	80-120			
Toluene	0.101	0.00100	"	0.100		101	80-120			
Ethylbenzene	0.114	0.00100	"	0.100		114	80-120			
Xylene (p/m)	0.227	0.00200	"	0.200		114	80-120			
Xylene (o)	0.112	0.00100	"	0.100		112	80-120			
Surrogate: 4-Bromofluorobenzene	*62.6*		*ug/l*	*60.0*		*104*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*55.9*		*"*	*60.0*		*93.1*	*80-120*			
Duplicate (P5E0511-DUP1)	**Source: 5D22010-01**			Prepared: 05/01/15 Analyzed: 05/04/15						
Benzene	0.00187	0.00100	mg/L		0.00227			19.3	20	
Toluene	ND	0.00100	"		ND				20	
Ethylbenzene	ND	0.00100	"		ND				20	
Xylene (p/m)	ND	0.00200	"		ND				20	
Xylene (o)	ND	0.00100	"		ND				20	
Surrogate: 4-Bromofluorobenzene	*60.3*		*ug/l*	*60.0*		*101*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*49.4*		*"*	*60.0*		*82.4*	*80-120*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well No. 003
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5E0808 - * DEFAULT PREP *** **										
Blank (P5E0808-BLK1)				Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	ND	0.500	mg/L							
LCS (P5E0808-BS1)				Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	10.3	0.500	mg/L	10.0		103	80-120			
LCS Dup (P5E0808-BSD1)				Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	10.3	0.500	mg/L	10.0		103	80-120	0.475	20	
Duplicate (P5E0808-DUP1)		**Source: 5D22008-01**		Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	38.4	5.00	mg/L		40.4			5.20	20	
Matrix Spike (P5E0808-MS1)		**Source: 5D22008-01**		Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	147	5.00	mg/L	100	40.4	107	80-120			

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Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 5/26/2015

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTOD

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 4-21-2015 PAGE 1 OF 1

PO #: LAB WORK ORDER #: 5D22008

PROJECT LOCATION OR NAME: Paladin/State BT "D" Well

LAI PROJECT #: 15-0130-02 COLLECTOR: TUL

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: Mtn/NM

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

5PD22008

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
TMW-1	-01	4/21/15	08:25	W	3	✓			✓		✓	

ANALYSES: BTEX ☑ MTBE ☐; TRPH 418.1 ☐; TPH 1005 ☐; TPH 1006 ☐; GASOLINE MOD 8015 ☐; DIESEL - MOD 8015 ☐; VOC 8260 ☐; SVOC 8270 ☐; PAH 8270 ☐; HOLDPAH ☐; 8081 PESTICIDES ☐; 8151 HERBICIDES ☐; 8082 PCBS ☐; TCLP - METALS (RCRA) ☐; TCLP VOC ☐; TCLP - PEST ☐; HERB ☐; Semi-VOC ☐; TOTAL METALS (RCRA) ☐; OTHER LIST ☐; LEAD - TOTAL ☐; D.W. 200.8 ☐; TCLP ☐; RCI ☐; TOX ☐; FLASHPOINT ☐; TDS ☑; TSS ☐; % MOISTURE ☐; CYANIDE ☐; pH ☐; HEXAVALENT CHROMIUM ☐; EXPLOSIVES ☐; PECHLORATE ☐; CHLORIDES ☑; ANIONS ☑; ALKALINITY ☑; Sulfate; Chloride

TOTAL

RELINQUISHED BY:(Signature) DATE/TIME 4/22/15 10:21 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

Permian Basin Env. Lab

TURN AROUND TIME
NORMAL ☑
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 2.2 THERM #: NCF LA1
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: Paladin/State BT "D" Well No. 003

Project Number: 15-0130-02

Location: New Mexico

Lab Order Number: 5E26006

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-13-3

Report Date: 06/02/15

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well No. 003
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-2 1FT	5E26006-01	Soil	05/26/15 09:55	05-26-2015 15:45
SB-2 5FT	5E26006-02	Soil	05/26/15 10:04	05-26-2015 15:45
SB-2 10FT	5E26006-03	Soil	05/26/15 10:08	05-26-2015 15:45
SB-2 15FT	5E26006-04	Soil	05/26/15 10:12	05-26-2015 15:45
SB-2 20FT	5E26006-05	Soil	05/26/15 10:13	05-26-2015 15:45
SB-2 25FT	5E26006-06	Soil	05/26/15 10:18	05-26-2015 15:45
SB-3 1FT	5E26006-07	Soil	05/26/15 10:27	05-26-2015 15:45
SB-3 5FT	5E26006-08	Soil	05/26/15 10:38	05-26-2015 15:45
SB-3 10FT	5E26006-09	Soil	05/26/15 10:43	05-26-2015 15:45
SB-3 15FT	5E26006-10	Soil	05/26/15 10:45	05-26-2015 15:45
SB-3 20FT	5E26006-11	Soil	05/26/15 10:47	05-26-2015 15:45
SB-3 25FT	5E26006-12	Soil	05/26/15 10:52	05-26-2015 15:45

SB-2 1FT

5E26006-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3530**	25.0	mg/kg dry	25	P5E2806	05/27/15	05/27/15	EPA 300.0	
% Moisture	ND	0.1	%	1	P5E2804	05/28/15	05/28/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.0	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C12-C28	**382**	25.0	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C28-C35	**76.9**	25.0	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*64.6 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*76.3 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**459**	25.0	mg/kg dry	1	[CALC]	05/27/15	05/28/15	calc	

SB-2 5FT

5E26006-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**11000**	53.2	mg/kg dry	50	P5E2806	05/27/15	05/27/15	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P5E2804	05/28/15	05/28/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C12-C28	**86.1**	26.6	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*78.2 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*95.6 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**86.1**	26.6	mg/kg dry	1	[CALC]	05/27/15	05/28/15	calc	

SB-2 10FT

5E26006-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**633**	1.03	mg/kg dry	1	P5E2806	05/27/15	05/27/15	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P5E2804	05/28/15	05/28/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*71.8 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*88.0 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	05/27/15	05/28/15	calc	

SB-2 15FT

5E26006-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**565**	1.04	mg/kg dry	1	P5E2806	05/27/15	05/27/15	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P5E2804	05/28/15	05/28/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*71.2 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*86.8 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	05/27/15	05/28/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-2 20FT

5E26006-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**391**	1.04	mg/kg dry	1	P5F0203	06/01/15	06/02/15	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P5F0204	06/02/15	06/02/15	% calculation	

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P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-2 25FT

5E26006-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**215**	1.03	mg/kg dry	1	P5F0203	06/01/15	06/02/15	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P5F0204	06/02/15	06/02/15	% calculation	

SB-3 1FT

5E26006-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**10600**	53.8	mg/kg dry	50	P5E2806	05/27/15	05/27/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5E2804	05/28/15	05/28/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C12-C28	**41.5**	26.9	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P5E2809	05/27/15	05/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*72.2 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*88.6 %*	*70-130*		*P5E2809*	*05/27/15*	*05/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**41.5**	26.9	mg/kg dry	1	[CALC]	05/27/15	05/28/15	calc	

SB-3 5FT

5E26006-08 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**6100**	27.8	mg/kg dry	25	P5E2806	05/27/15	05/27/15	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P5E2804	05/28/15	05/28/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*85.3 %*	*70-130*		*P5E2810*	*05/28/15*	*05/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P5E2810*	*05/28/15*	*05/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	05/28/15	05/28/15	calc	

SB-3 10FT

5E26006-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**8840**	27.5	mg/kg dry	25	P5E2806	05/27/15	05/27/15	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P5E2804	05/28/15	05/28/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*86.6 %*	*70-130*		*P5E2810*	*05/28/15*	*05/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P5E2810*	*05/28/15*	*05/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	05/28/15	05/28/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-3 15FT

5E26006-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1020**	1.08	mg/kg dry	1	P5E2806	05/27/15	05/27/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5E2804	05/28/15	05/28/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P5E2810	05/28/15	05/28/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*78.1 %*	*70-130*		*P5E2810*	*05/28/15*	*05/28/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*96.3 %*	*70-130*		*P5E2810*	*05/28/15*	*05/28/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	05/28/15	05/28/15	calc	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well No. 003	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-3 20FT

5E26006-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**391**	1.05	mg/kg dry	1	P5F0203	06/01/15	06/02/15	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P5F0204	06/02/15	06/02/15	% calculation	

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well No. 003	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

SB-3 25FT

5E26006-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**139**	1.03	mg/kg dry	1	P5F0203	06/01/15	06/02/15	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P5F0204	06/02/15	06/02/15	% calculation	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5E2804 - * DEFAULT PREP *** **										
Blank (P5E2804-BLK1)				Prepared & Analyzed: 05/28/15						
% Moisture	ND	0.1	%							
Duplicate (P5E2804-DUP1)		**Source: 5E26003-04**		Prepared & Analyzed: 05/28/15						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Duplicate (P5E2804-DUP2)		**Source: 5E27001-08**		Prepared & Analyzed: 05/28/15						
% Moisture	8.0	0.1	%		8.0			0.00	20	
Batch P5E2806 - * DEFAULT PREP *** **										
Blank (P5E2806-BLK1)				Prepared & Analyzed: 05/27/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5E2806-BS1)				Prepared & Analyzed: 05/27/15						
Chloride	103	1.00	mg/kg wet	125		82.0	80-120			
LCS Dup (P5E2806-BSD1)				Prepared & Analyzed: 05/27/15						
Chloride	102	1.00	mg/kg wet	125		81.5	80-120	0.655	20	
Duplicate (P5E2806-DUP1)		**Source: 5E27003-01**		Prepared & Analyzed: 05/27/15						
Chloride	2950	28.4	mg/kg dry		2970			0.374	20	
Duplicate (P5E2806-DUP2)		**Source: 5E26006-10**		Prepared & Analyzed: 05/27/15						
Chloride	1030	1.08	mg/kg dry		1020			0.506	20	
Matrix Spike (P5E2806-MS1)		**Source: 5E27003-01**		Prepared & Analyzed: 05/27/15						
Chloride	5440	28.4	mg/kg dry	2840	2970	87.1	80-120			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5F0203 - * DEFAULT PREP *** **										
Blank (P5F0203-BLK1)				Prepared: 06/01/15 Analyzed: 06/02/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5F0203-BS1)				Prepared: 06/01/15 Analyzed: 06/02/15						
Chloride	111	1.00	mg/kg wet	125		88.8	80-120			
LCS Dup (P5F0203-BSD1)				Prepared: 06/01/15 Analyzed: 06/02/15						
Chloride	114	1.00	mg/kg wet	125		90.8	80-120	2.23	20	
Duplicate (P5F0203-DUP1)		**Source: 5E26006-05**		Prepared: 06/01/15 Analyzed: 06/02/15						
Chloride	370	1.04	mg/kg dry		391			5.48	20	
Matrix Spike (P5F0203-MS1)		**Source: 5E26006-05**		Prepared: 06/01/15 Analyzed: 06/02/15						
Chloride	472	1.04	mg/kg dry	65.1	391	125	80-120			QM-05
Batch P5F0204 - * DEFAULT PREP *** **										
Blank (P5F0204-BLK1)				Prepared & Analyzed: 06/02/15						
% Moisture	ND	0.1	%							
Duplicate (P5F0204-DUP1)		**Source: 5E26006-05**		Prepared & Analyzed: 06/02/15						
% Moisture	4.0	0.1	%		4.0			0.00	20	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5E2809 - TX 1005										
Blank (P5E2809-BLK1)				Prepared: 05/27/15 Analyzed: 05/28/15						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*80.3*		*"*	*100*		*80.3*	*70-130*			
Surrogate: o-Terphenyl	*48.7*		*"*	*50.0*		*97.4*	*70-130*			
LCS (P5E2809-BS1)				Prepared & Analyzed: 05/27/15						
C6-C12	781	25.0	mg/kg wet	1000		78.1	75-125			
>C12-C28	834	25.0	"	1000		83.4	75-125			
Surrogate: 1-Chlorooctane	*106*		*"*	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*49.4*		*"*	*50.0*		*98.8*	*70-130*			
LCS Dup (P5E2809-BSD1)				Prepared: 05/27/15 Analyzed: 05/28/15						
C6-C12	763	25.0	mg/kg wet	1000		76.3	75-125	2.30	20	
>C12-C28	820	25.0	"	1000		82.0	75-125	1.61	20	
Surrogate: 1-Chlorooctane	*103*		*"*	*100*		*103*	*70-130*			
Surrogate: o-Terphenyl	*48.2*		*"*	*50.0*		*96.4*	*70-130*			

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 6/2/2015

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 5-26-15 PAGE 1 OF 1

PO #: LAB WORK ORDER #:

PROJECT LOCATION OR NAME: Paladin / State BT "D" Well #3

LAI PROJECT #: 15-0130-02 COLLECTOR: K Hurkaba

TRRP report? ☐ Yes ☐ No

TIME ZONE: Time zone/State: NM

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

SE 260026

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 | DIESEL - MOD 8015 | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ANIONS ☐ ALKALINITY ☐ | HOLD

	Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015	DIESEL - MOD 8015	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ANIONS ☐ ALKALINITY ☐	HOLD	FIELD NOTES
01	SB-2 1FT		5-26-15	955	S	1				X				X	X														X				
02	SB-2 5FT			1004										X	X														X				
03	SB-2 10FT			1008										X	X														X				
04	SB-2 15FT			1012										X	X														X				
05	SB-2 20FT			1013																										X			
06	SB-2 25FT			1018																										X			
07	SB-3 1FT			1027										X	X														X				
08	SB-3 5FT			1038										X	X														X				
09	SB-3 10FT			1043										X	X														X				
10	SB-3 15FT			1045										X	X														X				
11	SB-3 20FT			1047																										X			
12	SB-3 25FT			1052																										X			
	TOTAL																																

RELINQUISHED BY:(Signature) K Hurkaba DATE/TIME 5-26-15 3:45 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) Marissa Martin 5.26.15 3:45

TURN AROUND TIME
NORMAL ☑
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 9.6° ROI THERM #:
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

APPENDIX C

Boring Logs

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X 10)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING	
	1	Excavated soil, Excavated to 1' logs							1	0.0 PPM	13:35
	5	Caliche, 7.5YR7/1, Pink, Sandy, Very fine grained, Quartz sand, Indurated, Hard, Moist, @ 5' and dry below	Caliche						5	0.0 PPM	13:50
	10								10	0.0 PPM	13:58
	15								15	119.4 PPM	14:05
	20	Sand, 5YR5/6, Yellowish red, Very fine grained quartz sand, Poorly sorted, Dry	SP						20	38.0 PPM	14:10
	25								25	6.0 PPM	14:25

PID READING scale: 2 4 6 8 10 12 14 16 18

SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 4 - 20 - 2015

BORING NUMBER : SB - 1

JOB NUMBER : Paladin/15-0130-02
HOLE DIAMETER : 5"
LOCATION : South of Well 003
LAI GEOLOGIST : MJL
DRILLING CONTRACTOR : SDI
DRILLING METHOD : DR

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X 20)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING	
	26	Start : 13:32									
	30		SP						30	2.6 PPM	14:35
	33										
		Sandstone, 5YR4/6, Yellowish red, Very fine grained, Quartz sand, Poorly sorted, Moderately cemented	Sand Stone						35	0.8 PPM	14:43
	35	TP: 35'									
	40										
	45										
	50										

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 4 - 20 - 2015

BORING NUMBER : SB - 1

JOB NUMBER : Paladin/15-0130-02
HOLE DIAMETER : 5"
LOCATION : South of Well 003
LAI GEOLOGIST : MJL
DRILLING CONTRACTOR : SDI
DRILLING METHOD : DR

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING PPM X 1	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING	
		Start : 9:55 Stop : 10:19			2 4 6 8 10 12 14 16 18					SOIL : _____ PPM	
	1	Excavated to 1'							1	0.0 PPM	9:55
						NR			4		
						1			5	4 PPM	
	5										10:04
		Caliche, 7.5YR7/3, Pink, Sandy, Quartz sand, Very fine grained	Caliche								
						NR			9		
						2			10	4 PPM	
	10										10:08
						NR			14		
						3			15	0 PPM	
	15										10:12
		Sand, 5YR7/3, Pink, Very fine grained, rounded, quartz, Dry									
						NR			19		
						4			20	0 PPM	
	20		SP								10:13
						NR			24		
		Sand, 5YR6/4, Reddish yellow, Very fine grained, moderately cemented TD: 25'				5			25	0 PPM	
	25										10:18

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 5 - 26 - 2015

BORING NUMBER : SB - 2

JOB NUMBER : Paladin/15-0130-02
HOLE DIAMETER : 5"
LOCATION : East of Well 003
LAI GEOLOGIST : KH
DRILLING CONTRACTOR : Scarborough
DRILLING METHOD : AR

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING PPM X 1 (2 4 6 8 10 12 14 16 18)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING (SOIL : _____ PPM)	
		Start : 10:28 Stop : 10:52									
	1	Excavated to 1'							1	0.0 PPM	10:27
						NR			4		
						1			5	0 PPM	
	5	Caliche, 7.5YR7/3, Pink, Sandy, Quartz sand, Very fine grained, Moist	Caliche								10:38
						NR			9		
						2			10	0 PPM	
	10										10:43
						NR			14		
						3			15	0 PPM	
	15										10:45
		Sand, 5YR7/3, Pink, Very fine grained, quartz sand, Moderately cemented, Rounded									
						NR			19		
	20		SP			4			20	0 PPM	10:47
						NR			24		
		Sand, 5YR6/4, Reddish yellow, Very fine grained, moderately cemented TD: 25'				5			25	0 PPM	
	25										10:52

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 5 - 26 - 2015

BORING NUMBER : SB - 3

JOB NUMBER : Paladin/15-0130-02
HOLE DIAMETER : 5"
LOCATION : SE of Well 003
LAI GEOLOGIST : KH
DRILLING CONTRACTOR : Scarborough
DRILLING METHOD : AR

APPENDIX D

Photographs

Well Sign

Excavation South of Well Viewing East, June 22, 2015

Excavation East of Well Viewing West, June 22, 2015

Excavation East of Well Viewing South, June 22, 2015

Excavation North of Well Viewing South, June 22, 2015

Installing Liner in Excavation Viewing West, June 22, 2015

Welding Liner Seam, June 22, 2015

Seam Welder, June 22, 2015

Welded Sean Viewing Southwest, June 22, 2015

Completed Liner Installation Viewing Southwest, June 22, 2015

Completed Remediation Viewing West, June 26, 2015

Completed Remediation Viewing West, June 26, 2015

Completed Remediation Viewing East, June 26, 2015

Completed Remediation Viewing North, June 26, 2015

APPENDIX E

Initial and Final C-141

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 August 8, 2011

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: Paladin Energy Corp	Contact: Mickey Horn
Address: 10290 Monroe Dr., Ste. 301, Fort Worth, TX 75229	Telephone No. (214) 352-7273
Facility Name: State BT "D" No. 003	Facility Type: Well (Producer)

Surface Owner: State of New Mexico	Mineral Owner: State of New Mexico	API No. 30-025-01021-00-00

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	35	11S	33E	660	South	660	West	Lea

Latitude 33° 19' 14"0 Longitude 103° 35' 03"

NATURE OF RELEASE

Type of Release: Crude oil/produced water	Volume of Release 4 bbl oil and 2 bbl water	Volume Recovered 0 bbl
Source of Release: Stuffing box leak	Date and Hour of Occurrence 03/15/2015	Date and Hour of Discovery 03/16/2015
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.*

RECEIVED
By OCD; Dr. Oberding at 1:19 pm, Apr 07, 2015

Describe Cause of Problem and Remedial Action Taken.* Leak at stuffing box flowed around and away from wellhead. Backhoe and roust-a-bout crew to pick up oily soil for disposal at OCD approved facility.

Describe Area Affected and Cleanup Action Taken.* Area affected by spill is around and south of wellhead. Composite soil sample will be collected and analyzed after oily soil is removed and results will be reported to OCD to determine if further remediation is required.

Note: Composite samples are not accepted.

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: Mickey Horn

Printed Name: Mickey Horn

Title: Operations Manager

E-mail Address: paladinmid@suddenlink.net

Date: April 6, 2015 Phone: (432) 522-2162

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Hydrologist

Approval Date: 04/07/201 Expiration Date: 07/07/2015

Conditions of Approval: Site samples required. Delineate and remediate area as per NMOCD guides.

Attached ☐

IRP-3594 164070

nTO1509748369

pTO1509748502

* Attach Additional Sheets If Necessary

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

1RP-3594

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

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Paladin Energy Corp.	Contact: Mickey Horn
Address: 10290 Monroe Dr., Ste. 301, Fort Worth, TX 75229	Telephone No.: (214) 352-7273
Facility Name: State BT "D" Well No. 003	Facility Type: Well (Producer)

Surface Owner: State of New Mexico	Mineral Owner: State of new Mexico	API No.30-025-01021

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County: Lea
P	35	11S	33E	660	South	660	West	

Latitude: N 33° 19' 14.0" Longitude: W 103° 35' 03"

NATURE OF RELEASE

Type of Release: Crude Oil and Produced Water	Volume of Release: 4 bbl oil/2 bbl water	Volume Recovered: 0 bbl
Source of Release: Stuffing Box	Date and Hour of Occurrence: 03/15/2015	Date and Hour of Discovery: 03/16/2015
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.* Leak from stuffing box flowed around and away from wellhead. Backhoe and rout-a-bout crew excavated soil to about 1 foot (top of caliche) and disposed at Lea Land Landfill, LLC.

Describe Area Affected and Cleanup Action Taken.* Area affected by spill is around and south of wellhead. Larson & Associates, Inc. collected an initial composite sample from bottom of excavation. Three (3) borings were drilled and samples analyzed for BTEX, TPH and chloride. Benzene and total BTEX not reported above RL in soil samples. Highest TPH concentration is 458.9 mg/Kg at 1 foot in SB-2. TPH below RL in samples from SB-2 (10' and 15') and SB-3 (5', 10' and 15'). Chloride decreases below 250 mg/Kg in samples from 5 feet (SB-1) and 25 feet (SB-2 and SB-3). A groundwater sample about 70 feet SE (down gradient) tested clean for BTEX and 221 mg/L for chloride. Liner was installed in excavation and backfilled with clean soil.

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: Mickey Horn	**1RP-3594** OIL CONSERVATION DIVISION	
Printed Name: Mickey Horn (Paladin Energy Corp.)	Approved by: :	
Title: Sr. Project Manager / President, Larson and Associates, Inc.	Approval Date:	Expiration Date:
E-mail Address: paladinmid@suddenlink.net	Conditions of Approval:	Attached ☐
Date: 06/26/2015 Phone: (432) 522-2162		

* Attach Additional Sheets If Necessary