From: Yu, Olivia, EMNRD
To: "Grubbs, Richard T"
Cc: Mark Larson; Tucker, Shelly
Subject: RE: Chevron 1RP-4715 and 1RP-4818
Date: Monday, January 8, 2018 9:21:00 AM
Attachments: image001.png

Mr. Grubbs:

NMOCD approves of the proposed additional delineation for 1RP-4818 and look forward to reviewing the formal submission of the delineation report.

NMOCD approves of the proposed additional delineation for 1RP-4715 with these stipulations:

1. Blended soil must be tested every 50 cubic yards for chlorides using EPA Method 300.
2. Based on the data provided from the delineation report dated from July 18, 2017, permissible level of chloride is not obtained until 4-5 ft. bgs for the area represented by S-7. Laboratory analyses of discrete confirmation bottom and sidewall samples are required for at least 2 sample locations.
3. Imported soil must demonstrate chloride levels <= 600 mg/kg and with similar soil characteristics.

Please confirm or inform for clarification.

Thanks,
Olivia

From: Grubbs, Richard T [mailto:rtgrubbs@chevron.com]
Sent: Wednesday, January 3, 2018 9:28 AM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mark Larson <Mark@laenvironmental.com>; Tucker, Shelly <stucker@blm.gov>
Subject: Chevron 1RP-4715 and 1RP-4818

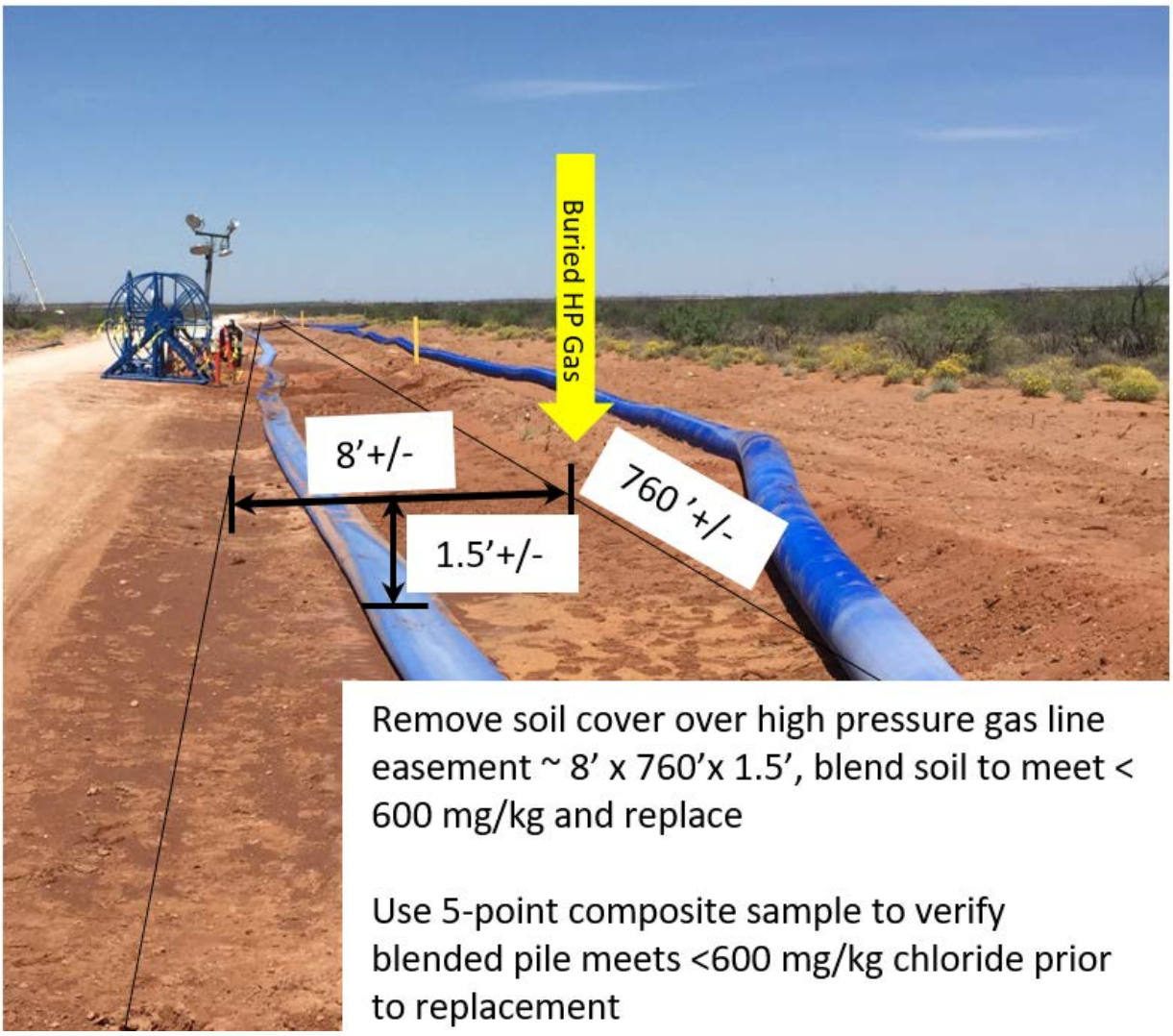
Dear Ms. Yu,

Regarding your responses below in your November 29, 2017 email.

Chevron will complete delineation of 1RP-4818 and submit a delineation report with remediation plan. We will attempt to compete the delineation drilling in early January.

Regarding your response for RP-4715, Chevron proposes the following alternative as remediation. If NMOCD is in alignment with this remediation approach, Chevron will revise the RP-4715 delineation report for formal approval.
Chevron will complete the delineation of S-1 and S4 to 5-foot below 600 mg/kg. Due to the complications of working in the easement of the high pressured gas line, Chevron would prefer to compete this delineation concurrent to the proposed remediation work below.

- The majority of the spill impacted a high pressure buried gas line easement between the north edge of road and 8 to 10-foot north of the edge of road that was previously disturbed with no vegetation.
- Due to the concern with excavation along and over this high pressure gas line, Chevron requests the option to remove the top layer of soil already disturbed in this easement, to the depth of 1 to 1.5-foot of soil, blend the soil, and replace it along the length and width of the impacted area (approximately 760-foot from east end near S-1 to the west end near S-4, and approximately 8-foot wide). Prior to replacement, a 5-point composite sample of blended soil would be completed to verify that blended soil is <600 mg/kg. Imported top soil would be used, as required, to achieve <600 mg/kg chloride. (see the diagram below)
- Shelley Tucker (cced) with the BLM has been contacted and is in alignment with this approach for this particular location along the road and over the high pressure gas line easement.
- On the south side of the Soil > 600mg/kg in the location of S-7 will be removed and replaced with imported fill.



Please let me know if you are in agreement with this approach so the work may be scheduled in the upcoming weeks.

Regards,

Richard T. Grubbs, P.E.
Water and Waste Advisor

Chevron NA Exploration & Production Company
MCBU
760 Horizon Drive Suite 401
Grand Junction, CO 81506
Office: 970-257-6021
Cell: 913-748-9815
rtgrubbs@chevron.com

From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Thursday, December 07, 2017 4:20 PM
To: Grubbs, Richard T <rtgrubbs@chevron.com>
Cc: Mark Larson <Mark@laenvironmental.com>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Subject: [**EXTERNAL**] RE: Chevron 1RP-4715 and 1RP-4818

Mr. Grubbs:

Your patience in regards to the subsequent course of action for 1RP-4715 and 1RP-4818 is appreciated. NMOCD determines that additional vertical delineation is necessary for 1RP-4715 (S-1 and S-4) and 1RP-4818 (S-2). Nonetheless, NMOCD is willing to compromise on delineation.

For 1RP-4715, NMOCD may consider no additional delineation at S-1 and S-4 if the areas represented S-2, S-3, S-4, and S-7 have soil depths that exceed 600 mg/kg removed. NMOCD may consider soil blending as an option.

For 1RP-4818, further vertical delineation at S-2 will be required. Also, remediation will be necessary unless the structural integrity of the two ponds comprising 1RC-11 will be negatively impacted. Based on the data presented, 2-3 feet of soil must be removed with the area represented by S-11 lined with a properly keyed 20 mil liner.

Please inform of decision.

Thanks,
Olivia

From: Grubbs, Richard T [mailto:rtgrubbs@chevron.com]
Sent: Wednesday, November 29, 2017 9:57 AM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mark Larson <Mark@laenvironmental.com>
Subject: RE: Chevron 1RP-4715 and 1RP-4818

Olivia,

Thank you for your consideration in this matter. To add to the discussion regarding additional drilling for 1RP-4715, we have received information from our locater that due to the proximity of the high pressure gas line in the easement where drilling would be required, significant shut-in activity and loss of production will be required to accommodate this activity.

Regards
Rich

From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Wednesday, November 29, 2017 7:20 AM
To: Grubbs, Richard T <rtgrubbs@chevron.com>
Cc: Mark Larson <Mark@laenvironmental.com>
Subject: [**EXTERNAL**] RE: Chevron 1RP-4715 and 1RP-4818

Good morning Mr. Grubbs:

Thank you for the below synopsis. I spoke with NMOCD-Santa Fe after our call and we will get back to you shortly on the optimal path forward.

Olivia

From: Grubbs, Richard T [mailto:rtgrubbs@chevron.com]

Sent: Tuesday, November 28, 2017 5:57 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mark Larson <Mark@laenvironmental.com>
Subject: Chevron 1RP-4715 and 1RP-4818

Olivia,

Thank you for taking my call this afternoon to discuss further delineation request specifically for 1RP-4715, and further discuss 1RP-4818 that you have only seen the delineation plan for.

Regarding 1RP-4715, When Larson Environmental delineated the spill they encountered two locations where their hydraulic hammer sampler was rejected at elevations of about 6'+/- in Samples S2 and S4 due to caliche boundary. At the rejection point, chlorides in S2 were 657 mg/kg and 788 mg/kg, respectively.

On October 05, 2017, as follow up on the Chevron's submittal of the 1RP-4715 delineation report, you requested that we complete Samples S2 and S4 to the depth of 5' below 600 mg/kg. In order to do this, large drill equipment is required. Prior to mobilizing that equipment, I wanted to verify that this level of delineation is needed in order to make reasonable judgement on the reclamation requirements for this site as well as the 1RP-4818 spill location.

Please find attached laboratory analytical data tables and sample location drawings for the two (2) Chevron Salado Draw sites. At your request I have also included a photo of the 1RP-4715 location. The following are brief summary of the investigations and physical setting for both sites.

Summary 1RP-4715

- Approximately 620 (bbl of treated produced water and brackish water was spilled with about 260 bbl recovered with a vacuum truck;
- The spill occurred on the north side of a caliche lease road and flowed east to west adjacent the north side of the road for a distance of about 760 feet;
- The spill crossed over the lease road to the south flowed east to west for a distance of about 190 feet;
- The spill on the north side of the lease road was contained the lease road and berm of a high pressure gas pipeline for a lateral distance between about 2 and 15 feet;
- The spill area on the south side of the lease road was about 7 feet in width. No surface water or vegetation was affected from the spill;
- LAI used an EM-38 conductivity meter to assess the spill to a depth of about 4.9 feet bgs;
- The background conductivity (S-5) was 4.2 mmhos/m and the maximum EM-38 VD readings on the north side of the lease road ranged from 54 mmhos/m near the spill origin (S-2) to 77.5 mmhos/m west of the spill at S-3 or between about 12 and 18 times background;
- The maximum EM-38 VD reading from the spill area on the south side of the lease road was 32.3 mmhos/m at S-7 located directly south of the spill origin;
- Soil samples were collected with direct-push technology (DPT) at six (6) locations (S-1 through S-6);
- Chloride was delineated below 600 mg/Kg at location S-2 where the release occurred;
- Chloride was 657 mg/Kg at S-1, 5'-6' and 788 mg/Kg at S-4, 5'-6;
- The surface elevation is about 3,130feet above mean sea level (MSL);
- The topography slopes gently to the south and southeast;
- No surface water features are present within 1 mile of the Site;
- The surface soil is designated "Pyote and Maljamar fine sands" consisting of about 30 inches of fine sand underlain by fine sandy loam to approximately 60 inches;
- The soil is sandy eolian deposits derived from sedimentary rock; and
- Groundwater occurs at about 150 feet below ground surface (bgs) according to records from the New Mexico Office of the State Engineer (NMOSE) and U.S. Geological Survey

This delineation work and analytical results indicate that additional drilling through the caliche that caused the previous rejection of the hydraulic hammer sampler, would most likely reveal that soil below this boundary zone and at the additional depths requested is not impacted, and would be similar to other samples at the same depth for this location.

After receiving your correspondence of October 5, 2017, and concurrent to delineation effort of the subsequent spill at the recycle facility recycle containment ponds 1RP-4818, we encountered 1 sample (S2) of 11 samples, where the hydraulic

hammer sampler was rejected due to caliche. While the results from this delineation have not been officially submitted in the delineation report, the data attached is for your review in discussing the need for additional drilling below the caliche zone.

Summary 1RP-4818

- The spill was caused by a leak in a hose on the recirculation system;
- This leak released approximately 1,105 bbl of treated produced water with approximately 500 bbl recovered with a vacuum truck;
- The spill occurred between two (2) ponds (North and South) containing treated water;
- The spill flowed north to a low area between the ponds and to the east and west for a distance of about 600 feet;
- Soil samples were collected with direct-push technology (DPT) at twelve (11) locations (S-1 through S-12, S-5 was omitted due to sampling error);
- Chloride was delineated below 600 mg/Kg at all locations but S-2 located in the low area north of the release point;
- Chloride is S-2 was 1,240 mg/Kg at 6 to 7 feet bgs;
- Surface elevation is approximately 3,150 feet above mean sea level (MSL);
- The topography slopes towards the south and southwest;
- The nearest surface water features is a seasonal playa located approximately 3,900 feet southeast of the Site.
- The surface soils are designated as "Pyote and Maljamar fine sands" which consist of approximately 30 inches of fine sand underlain by fine sandy loam to approximately 60 inches below ground surface(bgs);
- The soil is sandy eolian deposits derived from sedimentary rocks and underlain by cemented material (caliche);
- Groundwater occurs at roughly 150 feet below ground surface (bgs) according to records from the New Mexico Office of the State Engineer (NMOSE) and the U.S. Geological Survey.

Again, based on the results of the other samples in the area, additional drilling through the caliche that caused the rejection of the hydraulic hammer sampler at S2, would most likely reveal that soil below this boundary zone and at the additional depths requested is not impacted, and would be similar to other samples at the same depth for this location.

Chevron feels these spills are adequately delineated and respectfully requests the NMOCD to accept the previously submitted 1RP-4515 without additional drilling and respectfully requests approval to submit the final delineation report for 1RP-4818 without additional drilling at location S2. Please contact me if you have any additional questions or concerns.

Best Regards,

Richard T. Grubbs, P.E.
Water and Waste Advisor

Chevron NA Exploration & Production Company
MCBU
760 Horizon Drive Suite 401
Grand Junction, CO 81506
Office: 970-257-6021
Cell: 913-748-9815
rtgrubbs@chevron.com

Figure 3 - Aerial Map showing Direct Push Sample Location

Table 1
1RP-4818
Delineation Soil Sample Analytical Data Summary
Chevron North America Exploration and Production Co., Salado Draw RWCS 1RC-11
UL A, Section 23, Township 26 South, Range 32 East
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:			**10**	**50**				**5,000**	***600**
S-1	0 - 1	10/13/2017	<0.00196	<0.01176	<15.0	<15.0	<15.0	<15.0	5,940
	1 - 2	10/13/2017	--	--	--	--	--	--	5,440
	2 - 3	10/13/2017	--	--	--	--	--	--	140
	3 - 4	10/13/2017	--	--	--	--	--	--	32.9
	4 -5	10/13/2017	--	--	--	--	--	--	448
	5 - 6	10/13/2017	--	--	--	--	--	--	26.0
	6 - 7	10/13/2017	--	--	--	--	--	--	33.7
	7 - 8	10/13/2017	--	--	--	--	--	--	27.3
S-2	0 - 1	10/13/2017	<0.00198	<0.01189	<15.0	<15.0	<15.0	<15.0	41.1
	1 - 2	10/13/2017	--	--	--	--	--	--	109
	2 - 3	10/13/2017	--	--	--	--	--	--	474
	3 - 4	10/13/2017	--	--	--	--	--	--	673
	4 -5	10/13/2017	--	--	--	--	--	--	**2,030**
	5 - 6	10/13/2017	--	--	--	--	--	--	**5,060**
	6 - 7	10/13/2017	--	--	--	--	--	--	**1,240**
S-3	0 - 1	10/13/2017	<0.00196	<0.01177	<15.0	<15.0	<15.0	<15.0	3,280
	1 - 2	10/13/2017	--	--	--	--	--	--	339
	2 - 3	10/13/2017	--	--	--	--	--	--	96.0
	3 - 4	10/13/2017	--	--	--	--	--	--	89.5
	4 -5	10/13/2017	--	--	--	--	--	--	571
	5 - 6	10/13/2017	--	--	--	--	--	--	45.9
	6 - 7	10/13/2017	--	--	--	--	--	--	26.0
	7 - 8	10/13/2017	--	--	--	--	--	--	6.19
	8 - 9	10/13/2017	--	--	--	--	--	--	179

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Chevron North America Exploration and Production Co., Salado Draw RWCS 1RC-11
UL A, Section 23, Township 26 South, Range 32 East
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:			**10**	**50**				**5,000**	***600**
	9 - 10	10/13/2017	--	--	--	--	--	--	5.27
	10 - 11	10/13/2017	--	--	--	--	--	--	7.05
S-4	0 - 1	10/13/2017	<0.00197	<0.01182	<15.0	<15.0	<15.0	<15.0	216
	1 - 2	10/13/2017	--	--	--	--	--	--	51.4
	2 - 3	10/13/2017	--	--	--	--	--	--	44.0
	3 - 4	10/13/2017	--	--	--	--	--	--	16.3
	4 -5	10/13/2017	--	--	--	--	--	--	28.9
	5 - 6	10/13/2017	--	--	--	--	--	--	19.5
	6 - 7	10/13/2017	--	--	--	--	--	--	7.01
	7 - 8	10/13/2017	--	--	--	--	--	--	<4.97
S-6	0 - 1	10/18/2017	<0.00200	<0.0120	<15.0	<15.0	<15.0	<15.0	1,390
	1 - 2	10/18/2017	--	--	--	--	--	--	974
	2 - 3	10/18/2017	--	--	--	--	--	--	2,320
	3 - 4	10/18/2017	--	--	--	--	--	--	269
	4 -5	10/18/2017	--	--	--	--	--	--	22.5
	5 - 6	10/18/2017	--	--	--	--	--	--	49.4
	6 - 7	10/18/2017	--	--	--	--	--	--	38.4
	7 - 8	10/18/2017	--	--	--	--	--	--	20.9
	8 - 9	10/18/2017	--	--	--	--	--	--	27.3
	9 - 10	10/18/2017	--	--	--	--	--	--	16.2
	10 - 11	10/18/2017	--	--	--	--	--	--	<5.00
	11 - 12	10/18/2017	--	--	--	--	--	--	<4.96
	12 - 13	10/18/2017	--	--	--	--	--	--	103
	13 - 14	10/18/2017	--	--	--	--	--	--	169

Table 1
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Delineation Soil Sample Analytical Data Summary
Chevron North America Exploration and Production Co., Salado Draw RWCS 1RC-11
UL A, Section 23, Township 26 South, Range 32 East
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:			**10**	**50**				**5,000**	***600**
	14 - 15	10/18/2017	--	--	--	--	--	--	127
SB-8	0 - 1	10/12/2017	<0.002	<0.01199	<15.0	<15.0	<15.0	<15.0	220
	1 - 2	10/12/2017	--	--	--	--	--	--	3,150
	2 - 3	10/12/2017	--	--	--	--	--	--	533
	3 - 4	10/18/2017	--	--	--	--	--	--	576
	4 - 5	10/18/2017	--	--	--	--	--	--	1,840
	5 - 6	10/18/2017	--	--	--	--	--	--	22.0
	6 - 7	10/18/2017	--	--	--	--	--	--	6.73
SB-9	0 - 1	10/13/2017	<0.002	<0.012	<15.0	<15.0	<15.0	<15.0	37.6
	1 - 2	10/13/2017	--	--	--	--	--	--	23.6
	2 - 3	10/13/2017	--	--	--	--	--	--	30.8
	3 - 4	10/13/2017	--	--	--	--	--	--	24.7
S-10	0 - 1	10/12/2017	<0.00195	<0.01169	<15.0	<15.0	<15.0	<15.0	40.2
	1 - 2	10/12/2017	--	--	--	--	--	--	28.6
	2 - 3	10/12/2017	--	--	--	--	--	--	16.6
	3 - 4	10/12/2017	--	--	--	--	--	--	<4.97
	4 -5	10/12/2017	--	--	--	--	--	--	5.73
	5 - 6	10/12/2017	--	--	--	--	--	--	<4.92
S-11	0 - 1	10/12/2017	<0.00197	<0.01182	<15.0	<15.0	<15.0	<15.0	13.3
	1 - 2	10/12/2017	--	--	--	--	--	--	61.8
	2 - 3	10/12/2017	--	--	--	--	--	--	4,410
	3 - 4	10/12/2017	--	--	--	--	--	--	10,200

Table 1
1RP-4818
Delineation Soil Sample Analytical Data Summary
Chevron North America Exploration and Production Co., Salado Draw RWCS 1RC-11
UL A, Section 23, Township 26 South, Range 32 East
Lea County, New Mexico
N32.033156° W-103.639194°

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:			**10**	**50**				**5,000**	***600**
	4 -5	10/12/2017	--	--	--	--	--	--	2,890
	5 - 6	10/12/2017	--	--	--	--	--	--	210
	6 - 7	10/12/2017	--	--	--	--	--	--	12.9
	7 - 8	10/12/2017	--	--	--	--	--	--	9.37
	8 - 9	10/12/2017	--	--	--	--	--	--	<4.92
	9 - 10	10/12/2017	--	--	--	--	--	--	26.7
	10 - 11	10/12/2017	--	--	--	--	--	--	95.9
S-12	0 - 1	10/12/2017	<0.002	<0.01199	<15.0	<15.0	<15.0	<15.0	13.3
	1 - 2	10/12/2017	--	--	--	--	--	--	16.9
	2 - 3	10/12/2017	--	--	--	--	--	--	14.4
	3 - 4	10/12/2017	--	--	--	--	--	--	8.10
	4 - 5	10/12/2017	--	--	--	--	--	--	69.1
	5 - 6	10/12/2017	--	--	--	--	--	--	26.8

Notes: Analysis performed by Xenco Laboratories, Lubbock, Texas by EPA SW-846 Methods 8021B (BTEX), 8015M (TPH) and 300 (chloride).

*: OCD delineation limit plus 3 - 4 feet further in depth

Depth in feet below ground surface (bgs)

mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)

Table 1

1RP-4818

Delineation Soil Sample Analytical Data Summary

Chevron North America Exploration and Production Co., Salado Draw RWCS 1RC-11

UL A, Section 23, Township 26 South, Range 32 East

Lea County, New Mexico

N32.033156° W-103.639194°

Table 1

1RP-4818

Delineation Soil Sample Analytical Data Summary

Chevron North America Exploration and Production Co., Salado Draw RWCS 1RC-11

UL A, Section 23, Township 26 South, Range 32 East

Lea County, New Mexico

N32.033156° W-103.639194°

Table 1
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Delineation Soil Sample Analytical Data Summary
Chevron North America Exploration and Production Co., Salado Draw RWCS 1RC-11
UL A, Section 23, Township 26 South, Range 32 East
Lea County, New Mexico
N32.033156° W-103.639194°

533