A spill calculation worksheet was not prepared for this spill.



November 21, 2025

New Mexico Oil Consevation Division District II 506 W. Texas Street Artesia, New Mexico, 88240

Attn: Mike Bratcher

Re: Closure - XTO Energy, Inc. Nash 42 CTB (nAB1630929291) and Nash Unit #42H (nAB1717131002)

Dear Mr. Bratcher,

Larson & Associates, Inc. (LAI) on behalf of XTO Energy, Inc. (XTO) an ExxonMobil company submits this request for the New Mexico Oil and Conservation (NMOCD) to complete closure of two (2) releases at the Nash Draw CTB (nAB1630929291) and Nash Draw Unit 42H (nAB1717131002). Both releases are located Unit E (SW/4, NW/4), Section 18, Township 23 South, Range 30 East, in Eddy County, New Mexico. The geodetic position in 32.30651 and -103.92784. Closure of both releases were approved by NMOCD on January 18, 2018, however the NMOCD web portal shows that both releases remain open.

Background

The release at Nash Draw CTB (nAB1630929291) occurred on October 27, 2016, due to overflow from a tank caused by mechanical failure of a valve. XTO reported that about 124.7 bbls of crude oil were released and that 121 bbls were recovered. The initial release covered an area of about 3,978 square feet. A second release (nAB1717131002) occurred on June 14, 2016, due to failure of a fiberglass line, causing approximately 456.13 bbls and 9.31 bbls of crude oil to be released that covered the same area as the initial release. Both releases occurred in a partially lined tank battery containment and migrated east into an unlined area. Both spills were contained on the pad. No offsite areas were impacted. The first release, Nash 42 CTB, was originally filed by NMOCD under 2RP-3976 and the second release, Nash Unit #42H, was originally filed by NMOCD under 2RP-4253.

Delineation

A delineation report and remediation plan titled *RP-3976* and *2RP-4235*, *Delineation Report and Remediation Plan*, *Nash Draw #42 CTB Crude Oil and Produced Water Spills*, dated June 30, 2017, was approved by the NMOCD on July 27, 2017. The report recommended the following remedial actions:

- · Remediate both spills concurrently.
- Soil will be excavated to 1-foot bgs in the unlined areas.
- Additional soil will be removed around sample location DP-6 and DP-8 to a depth between two (2) and four (4) feet bgs.
- Dispose of impacted material at an NMOCD approved disposal facility.
- Collect confirmation samples have them analyzed for BTEX, TPH, and chloride by EPA-846 Method 8021B, EPA-846 Method 8015, and EPA Method 300, respectfully.
- Line the inside of tank battery with a spray in liner.
- Draft a closure report for submittal to the NMOCD.

NMOCD District II November 21,2025 Page 2 of 2

Remediation

Remediation was completed for both releases between August 8 and 16, 2017. The remediation covered all areas impacted by the releases and about 805.82 cubic yards of impacted material was disposed of at the Lea Land Landfill. The excavation was backfilled between August 21 and 23, 2017 and a spray-in liner was installed inside of the containment. The NMOCD approved closure of both releases on January 18, 2018. ExxonMobil requests permanent closure for both spills. Attachment A provides NMOCD communications with NMOCD closure approval. Attachment B Presents the original closure report. Please contact R. Dale Woodall with ExxonMobil at (575) 988-4374 or email Robert.D.Woodall@exxonmobil.com or me at (432) 687-0901 or email dstgermain@laenvironmental.com, if you have questions.

Respectfully submitted, Larson & Associates, Inc.

Daniel St. Germain

Daniel St. Germain, P.G. Office: (432) 684-0901 Cell: (432) 664-5357

Encl.

Attachment A

NMOCD Communications and Closure Approval

Littrell, Kyle

From: Williams, Luke

Sent: Monday, January 22, 2018 4:24 PM

To: Littrell, Kyle

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation

Plan, June 30, 2017

Follow Up Flag: Follow up Flag Status: Flagged

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, January 18, 2018 4:13 PM

To: Mark Larson <Mark@laenvironmental.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; 'Groves,

Amber' <agroves@slo.state.nm.us>

Cc: Williams, Luke <Luke_Williams@xtoenergy.com>; MNaranjo@slo.state.nm.us; Honea, Tammy

<thonea@slo.state.nm.us>

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash Draw #42 CTB * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

Because Mark has attested to the integrity of the rest of the liner I will go ahead and move forward with the rest of this approval, however, if next time photos can be taken of the liner after the tanks are removed, gravel/fill material is removed etc. that would be very helpful. When secondary lined containment is said to have contained some or have fully contained all of a spill the integrity check efforts combined with the integrity statement as well as before (pics of standing fluid) after photos (pics of liner after secondary containment is cleaned out and inspection of liner is completed) are something we will need to see every time secondary containment is involved.

Also in order to achieve approval from the State Land Office, now that Amber Groves is no longer working there, I believe either Mark Naranjo or Tammy Honea may be members of the SLO who are helping out with that at the current moment. I am not certain so I made sure to at least tag them on this email so that you could figure it out with them from here.

Thank you.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Wednesday, December 27, 2017 11:47 AM

To: Weaver, Crystal, EMNRD < Crystal. Weaver@state.nm.us >; Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us >;

'Groves, Amber' agroves@slo.state.nm.us>

Cc: 'Williams, Luke' < Luke Williams@xtoenergy.com>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

First I want to apologize for not responding sooner as your email was caught up in our mail server and took IT to free up. The attached photographs were presented in the delineation report (June 30, 2017). The loose poly liner beneath the remediation area where large holes were observed was removed prior to performing remediation in the area east of the tanks. The liner under the tanks west of the remediation area appeared intact. Fluid was removed from the liner beneath the tanks with a vacuum truck. A roust-a-bout crew removed gravel from the liner with shovels, wheel borrows and a hydrovac truck. LAI inspected the liner after gravel was removed and observed a few small punctures where the roust-a-bout crew nicked the liner while removing gravel. Standing fluid was observed in the lined sumps between the tanks near the center of the battery and in the northeast corner of the battery prior to removing fluids with a vacuum truck. Standing fluid confirms liner integrity. No nicks or cuts were observed in the liner within the sumps. The liner appeared anchored on all sides. The spray-in liner was installed without removing the tanks. Please contact Luke Williams with XTO at (432) 682-8873 or email Luke Williams@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, November 30, 2017 1:01 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'Groves, Amber'

Cc: Sarah Johnson

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash Draw #42 CTB * 30-015-37194 * 2RP-3976 & 2RP-4253

Mark,

I was just thinking about this one on the ride home yesterday after I sent the email below and I was wondering a few other things on it. I haven't closed it out in our system or anything yet so I wanted to get your answers on my questions below before I do.

I know there was breaks/tears in the liner in the area in between the battery tanks and that one overflow tank but I noticed all the rest of the area around the actual tanks of the battery no sampling or excavating was done. Those battery tanks were taken out so that the spray in secondary containment could be installed correct? So I am assuming then that no further issues were found with the liner in and around or under the battery tanks correct? Or anywhere else for that matter regarding that liner? I noticed also that once the liner went under all of the pipeline that are along side the battery tanks it looked really loose and not pulled tight or anything does it end up keying in at all or does it just stop existing once you get to the bermed edge of the well pad?

Please advise.

Thank you,

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia. NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Weaver, Crystal, EMNRD

Sent: Wednesday, November 29, 2017 2:00 PM

To: 'Mark Larson' < <u>Mark@laenvironmental.com</u>>; Bratcher, Mike, EMNRD < <u>mike.bratcher@state.nm.us</u>>; 'Groves,

Amber' <agroves@slo.state.nm.us>

Cc: 'Dudley_McMinn@xtoenergy.com' < <u>Dudley_McMinn@xtoenergy.com</u>>; 'Williams, Luke' < Luke_Williams@xtoenergy.com>; Sarah Johnson < SJohnson@laenvironmental.com>

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash Draw #42 CTB * 30-015-37194 * 2RP-3976 & 2RP-4253

Dudley/Mark,

Your request for closure of the above referenced releases are approved. State Land Office locations will require like approval from SLO.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

As a side note item doing a delineation on the fly during excavation efforts is not something that OCD is prone to regularly agree to. OCD would prefer to have the impacted areas fully delineated prior to implementation of remedial actions.*

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 25, 2017 12:23 PM

To: Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us>; Weaver, Crystal, EMNRD < Crystal.Weaver@state.nm.us>;

'Groves, Amber' agroves@slo.state.nm.us

Cc: 'Dudley McMinn@xtoenergy.com' < Dudley McMinn@xtoenergy.com>; 'Williams, Luke'

<<u>Luke Williams@xtoenergy.com</u>>; Sarah Johnson <<u>SJohnson@laenvironmental.com</u>>

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

All,

Please use the link below to download the remediation reports for 2RP-3976 and 2RP-4253 relating to the crude oil and produced water spills at the XTO Energy, Inc., Nash Draw #42 CTB in Eddy County, New Mexico. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/882fafa7-e31b-4edd-b47d-2fefae38aa11

Respectfully,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office – 432-687-0901 Cell – 432-556-8656 Fax – 432-687-0456 mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Bratcher, Mike, EMNRD [mailto:mike.bratcher@state.nm.us]

Sent: Friday, August 18, 2017 4:39 PM

To: Mark Larson; Weaver, Crystal, EMNRD; 'Groves, Amber'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

RE: 2RP-3976 & 2RP-4235

Mark,

Based on data provided, you are approved to commence backfill operations. Sorry for a perceived delayed response, but if we actually worked everything in the order received, it would be at least a few weeks before you got a response. We do appreciate the thorough job and uncomplicated reporting you provide, along with XTO's willingness and cooperation in maintaining an environmentally solid operation. I do understand the urgency for this particular project and apologize for any inconvenience.

Mike Bratcher NMOCD District 2 811 South First Street Artesia, NM 88210 575-748-1283 Ext 108

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.

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 18, 2017 8:27 AM

To: Bratcher, Mike, EMNRD < <u>mike.bratcher@state.nm.us</u>>; Weaver, Crystal, EMNRD < <u>Crystal.Weaver@state.nm.us</u>>; 'Groves, Amber' < <u>agroves@slo.state.nm.us</u>>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < <u>Luke Williams@xtoenergy.com</u>> Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal/Mike,

This summary is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of XTO Energy Inc. (XTO) to present the delineation and remediation of two (2) spills (2RP-3976 and 2RP-4253) at the Nash Draw CTB #42. LAI

requests approval to backfill the excavations so that XTO may install a spray-in liner and resume production. The final reports for 2RP-3976 and 2RP-4253 will be submitted after the excavations area backfilled along with the final C-141s.

On August 8 - 9, 2017, XTO personnel shut-in the production and removed above ground piping and electrical from the remediation area. On August 10, 2017, XTO had the gun barrel and overflow tanks removed from the remediation area. Immediately following removal of the tanks, Scarborough Drilling mobilized an air rotary rig to DP-11 for the purpose of delineating chloride as requested by OCD. Soil samples were collected with a jam tube sampler at 10, 15, 20, 25 and 30 feet below ground surface (bgs) and were analyzed for chloride by EPA Method 300. Chloride was below 250 mg/Kg in all samples concluding successful vertical delineation. The ploy liner was removed from the remediation area and disposed at Lea Land Landfill. Soil excavation began near the southwest corner of the remediation area and progressed east and north until the entire area was excavated to a depth of approximately 18 inches. Soil was excavated to approximately 5 feet bgs at DP-6. Additional soil was excavated in the vicinity of DP-5 where holes were observed in the poly liner and from areas beneath the tanks and where staining was observed beneath the liner. The area around DP-8 was excavated to about 2 feet bgs. Soil was scraped to about 0.5 feet bgs from the area north of DP-12 where the recent produced water spill (2RP-4253) had encroached. On August 11, 2017, LAI personnel used a stainless steel hand auger and trowel to collect soil samples from the bottom of the excavations at sixteen (16) locations (S-1 through S-16) including the area north of DP-12 where was scraped from the recent spill (S-16). Sidewall samples were collected from the deeper excavations. The samples were analyzed for BTEX, TPH and chloride by Methods SW-846=-8021B, SW-846-8015M and 300, respectively.

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following bottom samples:

S-5, 5.0' - 5.5' (5,450 mg/Kg)

S-6, 4.5' - 5.0' (9,780 mg/Kg)

S-10, 1.5' - 2.0' (3,953 mg/Kg)

S-14, 1.5' - 2.0'(1,598.7 mg/Kg)

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following sidewall samples:

S-5, 2' East (3,580 mg/Kg)

S-6, 4' North (1,310 mg/Kg)

S-6, 2' South (18,450 mg/Kg)

S-6,2' East (2,558 mg/Kg)

The laboratory reported chloride above 600 mg/Kg in the following bottom samples:

S-13, 1.5' - 2.0' (8,210 mg/Kg)

S-14, 1.5' - 2.0' (1,050 mg/Kg)

S-16, 0.5' - 1.0' (3,810 mg/Kg)

Between August 14 – 16, 2017, additional soil was excavated at S-5, S-6, S-10 and S-14. TPH was below the RRAL in the final confirmation samples. Chloride was 247 mg/Kg in the bottom sample (5.0′ – 5.5′) at S-14. Scarborough Drilling collected samples every 5 feet (5, 10. 15, 20 feet, etc.) to 30 feet at S-13 and 20 feet at S-16. Chloride was below 600 mg/Kg in all samples from S-13 and below 250 mg/Kg in all samples from S-16. Please refer to Table 2. The excavation and sample location drawing is presented as Figure 2. Photographs are attached. Approximately 525.5 tons/cubic yards of contaminated soil was hauled to Le Land Landfill, LLC. Clean caliche was hauled back from Lea Land for backfilling the excavations. LAI, on behalf of XTO, requests OCD approval to backfill the excavations so that XTO may begin installing the spray-in liner and resume production. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or Dudley McMinn@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office – 432-687-0901 Cell – 432-556-8656 Fax – 432-687-0456 mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Wednesday, August 09, 2017 7:01 PM

To: 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

The tanks (gun barrel and overflow) were emptied today and will be removed on Thursday morning to allow access for equipment to perform remediation. We plan to collect additional samples tomorrow from SB-11 for vertical delineation. Mark

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Monday, August 07, 2017 9:27 AM

To: Mark Larson

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Good morning,

Thank you Mark. I may try to make it out to this one if Amber can not.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Sunday, August 6, 2017 6:58 PM

To: Weaver, Crystal, EMNRD < Crystal.Weaver@state.nm.us >; 'Groves, Amber' < agroves@slo.state.nm.us > Cc: 'McMinn, Dudley' < Dudley McMinn@xtoenergy.com >; 'Williams, Luke' < Luke Williams@xtoenergy.com > Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal/Amber,

This is to inform you that remediation of 2RP-3976 and 2RO-4253 will commence on Monday, August 9, 2017. Please contact Dudley McMinn with XTO Energy, Inc., at (432) 682-8873 or Dudley_McMinn@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432-556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 27, 2017 5:21 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'McMinn, Dudley'; 'Williams, Luke'

Cc: 'Tucker, Shelly'; Groves, Amber

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

First off thank you Mark for your answers to my questions.

I was checking a few clerical details and I wanted to bring a few more things to all of your attention. On the first spill, given case number 2RP-3976, there was no API number provided on the initial C-141 and since it was mentioned that the release was involving a battery our administrative personnel entered this in our system and gave it a facility number instead of relating it to the API for this location. However, on the second spill, given case number 2RP-4253, an API number was provided on the initial C-141 so our administrative personnel entered this one into our system under the API number. So now we have records for two spills recorded in two different places in our system that in fact actually happened at this same site. Please try to remain consistent on what you go with for C-141 documentation and of course for any documentation.

Also I show in my records that this site is on State Land Office administered service but when I look back in the well file history for this site I see documents being provided to the BLM for this facility. Since I have this site as SLO land I am adding Amber Groves, from the State Land Office, to this email chain and I am thus requesting that someone please help to clarify this matter. So Shelly or Amber can you all please clear up who is the surface owner for this location?

Finally, getting back to Mark's answers to my questions.

OCD accepts your proposal for remediation of the above mentioned releases (2RP-3976 and 2RP-4235) with the following conditions:

- Within the answers provided below it is stated that Larson Associates Inc. on behalf of XTO will be submitting samples for laboratory testing of "total petroleum hydrocarbons (TPH) as determined by EPA SW-846 Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The confirmation samples will be analyzed Method 300. Additional vertical samples will be collected to delineate chloride to 600 mg/Kg." However, OCD notes that testing for BTEX was not mentioned in either of these statements. OCD requires that all sampling points related to the remediation of this site start out with testing for all required constituents that are mentioned within the Conditions of Approval document that was provided by OCD to you all for each of these releases.
- Since the second release spanned beyond the extent of the first release it is OCD's understanding that all impacted areas will be delineated during remedial activities. Excavation depths may vary based on new analytical data.
- Again as mentioned above in bullet point 1, because your response statement below, to my sampling request
 for areas where there are holes in the liner, does not include the mentioning of sampling for BTEX I want to
 make it clear that OCD requires that all sampling points related to the remediation of this site start out with
 testing for all required constituents that are mentioned within the Conditions of Approval document that was
 provided by OCD to you all for each of these releases.
- OCD concurs with the answer provided below regarding sampling point DP-11.

Please advise once remedial activities have been scheduled. If this is Federal surface then it will require like approval from BLM, if this is State Land Office surface than it will require like approval from SLO.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720 From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, July 21, 2017 7:24 AM

To: Weaver, Crystal, EMNRD < <u>Crystal.Weaver@state.nm.us</u>>; Bratcher, Mike, EMNRD < <u>mike.bratcher@state.nm.us</u>>; 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < <u>Luke Williams@xtoenergy.com</u>>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

The following is submitted on behalf of XTO Energy, Inc. (XTO) in response to your questions below:

Question:

All sampling mentioned in the current work plan (happened on 3/13/17 and 3/14/17) is sampling that relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional sampling being done on its behalf prior to excavation?

Response:

it is my opinion that the depth of excavation will be similar to what is proposed since the initial spill was mostly crude oil with an small amount of produced water and the recent spill is mostly produced water with a small amount of crude oil. Soil will be excavated until total petroleum hydrocarbons (TPH) as determined by EPA SW-846 Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The confirmation samples will be analyzed Method 300. Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question: Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.

Response:

The area east of the tank battery covered by the initial spill is unlined. The recent spill east of the tank battery occurred the lined area where holes are shown in the liner. Soil samples will be collected from the lined area covered by the spill where holes are observed. The soil samples will be will be analyzed for TPH as determined by EPA SW-846 Method 8015 for GR, DRO and ORO and chloride by Method 300. Soil will be excavated until TPH in bottom sample and sidewall samples where the excavation exceeds 2 feet is below the RRAL (1,000 mg/Kg). Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question: Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

Response:

A backhoe may be used to confirmed the chloride concentration in soil at DP-11, 5-6 feet. The sample will be analyzed by Method 300. Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question:

also just noticed one last thing, the label on your Table 1 says that the table is for 2RP-1486, is that a

typo?

Response: Good catch! I used an earlier table as a template and didn't change the remediation permit

number. Please find the corrected table attached.

Question: also just noticed one last thing, the remediation permit number you refer to for the recent spill (2RP-4235), is that a typo?

Response: This remediation permit (2RP-4235) is for a release at the Devon Energy Production Company Cotton

Draw Unit 84! It appears the 3 and 5 were juxtaposed and should be 2RP-4253.

Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 13, 2017 2:07 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'Tucker, Shelly'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

Thank you for the submission of this most recent plan and for the submission of the prior one as well.

OCD is fine with the idea of remediating both spills at the same time while you have equipment and workers mobilized, etc. and we are fine with both releases being written about in the same work plan and closure report etc., however, the spills will still be treated as separate cases as far as each will be referred to by its individual tracking number and DOR, and each will have to be closed out on our end as individual incidents. So each will need final C-141s.

With that being said, I have looked things over and I have a few questions for you all:

- All sampling mentioned in the current work plan (happened on 3/13/17 and 3/14/17) is sampling that relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional sampling being done on its behalf prior to excavation?
- Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.

• Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

I look forward to receiving a response to my questions/requests.

If you have any need for clarification or have any questions of your own please contact myself or Mike Bratcher here at the District II Office.

Thank you,

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Monday, July 3, 2017 4:06 PM

To: Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us; Weaver, Crystal, EMNRD < crystal.Weaver@state.nm.us;

'Tucker, Shelly' < stucker@blm.gov>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < <u>Luke Williams@xtoenergy.com</u>> Subject: Re: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Mike/Crystal/Shelly,

Larson & Associates, Inc. (LAI) submits the delineation report and remediation plan for a crude oil spill at the XTO Energy, Inc. (XTO) Nash Draw 42 CTB. Since submitting the plan on May 23, 2017, XTO reported another spill at the facility on June 14, 2017, prior to receiving OCD approval of the remediation plan for the crude oil spill. XTO would like the OCD to consider allowing remediation of both spills under the remediation plan presented herein. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/aac0757d-4e60-4e7d-b88c-f8ac9693cab9

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office – 432-687-0901 Cell – 432- 556-8656 Fax – 432-687-0456

mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Tuesday, May 23, 2017 8:24 AM

To: 'Bratcher, Mike, EMNRD'; 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: Re: XTO CTB 42 Revised Delineation Report

Mike/Crystal,

Please use the link below to download the revised delineation report for 2RP-3976. The report was revised to include additional photographs for exposing the liner inside the firewall. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/af3a731c-13d6-4830-8201-6944cbd5f9aa

Respectfully,

Mark J. Larson, P.G.
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"Serving the Permian Basin Since 2000"

NMOCD District II November 21,2025 Page 2 of 2

Attachment B Remediation Report

2RP-3976

Remediation Report

Nash Draw Tank Battery #42 CTB Crude Oil Spill

Eddy County, New Mexico

LAI Project No. 17-0124-02

August 24, 2017

Prepared for:

XTO Energy, Inc.

500 W. Illinois Ave., Suite 100

Midland, Texas 79707

Prepared by:

Larson & Associates, Inc.

507 North Marienfeld Street, Suite 205

Midland, Texas 79701

Mark J. Larson, P.G.

Certified Professional Geologist #10490

Sarah R. Johnson

Staff Geologist

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1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this remediation report on behalf of XTO Energy, Inc. (XTO) for submittal to the New Mexico Oil Conservation Division (OCD) District 2, in Artesia, New Mexico and New Mexico State Land Office (SLO), to document remediation of a crude oil spill at the Nash Draw 42 Consolidated Tank Battery (Site). The legal description is Unit E (SW/4, NW/4), Section 18, Township 23 South, Range 30 East, in Eddy County, New Mexico. The geodetic position in North 32° 18′ 23.14277″ and West 103° 55′ 29.89976″. Figure 1 presents a topographic map. Figure 2 presents a detailed aerial map.

1.1 Background

On October 27, 2016, XTO reported a crude oil spill after a rod line failed at the free water knockout (FWKO) causing the FWKO to dome out and a 210 barrel (bbl) tank to overflow. Approximately 124.7 bbl of crude oil was released with approximately 121 bbl recovered. XTO personnel discovered the release on October 28, 2016. Verbal notification was provided to the OCD District 2 and BLM, on October 28, 2016. It was later determined the surface ownership was State of New Mexico rather than BLM therefore the SLO was notified. The initial C-141 was submitted on November 3, 2016 and approved by OCD District 2 on November 4, 2016, and was assigned remediation permit number 2RP-3976 with conditions.

The spill occurred in an unlined area west of the lined tank battery where the firewall was removed. The spill covered the unlined area and flowed west into the lined containment of the tank battery which was covered with a later of pea sized gravel. XTO contracted a roust-a-bout crew and hydrovac truck to remove oil contaminated pea sized gravel. The liner was pressure washed and inspected for integrity. The contaminated pea gravel was disposed at an OCD approved landfill. The wash water was recovered using the hydrovac truck and disposed in an OCD permitted Class II disposal well. The liner within the tank battery containment was not deteriorated and had a few small holes.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,020 feet above mean sea level (AMSL);
- Topography slopes toward the south-southeast;
- The nearest surface water feature is a playa lake (Salt Lake) located about 0.75 miles northwest of the Site;
- Surface geology is comprised of unconsolidated Holocene to mid-Pleistocene-age eolian and piedmont-slope deposits that are approximately 80 feet thick according to a log from a nearby well;

- The Triassic-age Chinle formation of the Dockum group underlies the unconsolidated deposits and is comprised of interbedded sand, clay, and mudstone;
- According to New Mexico Office of the State Engineer (NMOSE) records a well is located about 1.5 miles south in Unit J, Section 24, Township 23 South, Range 29 East with groundwater reported at about 54 feet below ground surface (bgs).

1.3 Recommended Remediation Action Levels

Recommended remediation action levels (RRCL) were calculated for benzene, BTEX and TPH based on the following criteria by the OCD in "Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993":

Criteria	Result	Score
Depth-to-Groundwater	50 - 99 feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1,000 Horizontal Feet	0

The following RRAL apply to the release for ranking score: 10

Benzene 10 mg/Kg
 BTEX 50 mg/Kg
 TPH 1,000 mg/Kg

2.0 SPILL DELINEATION

On March 13 – 14, 2017, LAI personnel used direct push technology (DPT) to collect soil samples at twelve (12) locations (DP-1 through DP-12). Soil samples were collected in one foot increments (i.e., 0 to 1, 1 to 2, 2 to 3 feet, etc.) to approximately one (1) foot bgs at location DP-1, 2 feet bgs at locations DP-5 and DP-9, six (6) feet bgs at locations DP-2, DP-4, DP-8, and DP-11, seven (7) feet bgs at location DP-6 and eight (8) feet bgs at locations DP-3, DP-7, DP-10 and DP-12. The samples were screened for organic vapors using the ambient temperature headspace method and reported vapor concentrations above 100 parts per million (ppm) in the following samples:

- DP-2, 0 to 1 foot (1,380 ppm)
- DP-2, 1 to 2 feet (232.3 ppm)
- DP-3, 0 to 1 foot (1,236 ppm)
- DP-3, 3 to 4 feet (141.3 ppm)
- DP-3, 4 to 5 feet (198.3 ppm)
- DP-3, 7 to 8 feet (231.2 ppm)
- DP-3, 4 to 5 feet (198.3 ppm)
- DP-4, 0 to 1 foot (1,250 ppm)

- DP-6, 2 to 3 feet (1,622 ppm)
- DP-6, 3 to 4 feet (1,328 ppm)
- DP-6, 4 to 5 feet (841.9 ppm)
- DP-8, 0 to 1 foot (1,104 ppm)
- DP-8, 1 to 2 feet (1,334 ppm)
- DP-8, 2 to 3 feet (115.8 ppm)
- DP-10, 0 to 1 foot (116.7 ppm)
- DP-10, 1 to 2 feet (590.5 ppm)

- et (118.6 ppm) DP-10, 4 to 5 feet (367.4 ppm)
 - DP-11, 5 to 6 feet (101.3 ppm)
 - DP-12, 7 to 8 feet (103 ppm)

- DP-4, 1 to 2 feet (118.6 ppm)
- DP-6, 0 to 1 foot (1,155 ppm)
- DP-6, 1 to 2 feet (1,836 ppm)

Laboratory samples were collected in 4 ounce jars that were hand delivered under preservation and chain of custody to Permian Basin Environmental Laboratory (PBEL), a National Laboratory Accreditation Program (NELAP) certified laboratory, located in Midland, Texas. PBEL analyzed samples exhibiting headspace readings above 100 ppm for benzene, toluene, ethylbenzene, xylenes (BTEX) by EPA SW-846 Method 8021B. The laboratory analyzed samples for total petroleum hydrocarbons (TPH) by SW-846 Method 8015M, including gasoline range organics, diesel range organics and oil range organics and chloride by Method 300. Table 1 presents the delineation soil sample analytical data summary. Figure 3 present the DPT sample locations and approximate spill area.

Benzene exceeded the RRAL (10 mg/Kg) in soil samples DP-6, 1 to 2 feet (18.9 mg/Kg). BTEX exceeded the RRAL (50 mg/Kg) in soil samples DP-2, 0 to 1 foot (147.75 mg/Kg), DP-3, 0 to 1 foot (140.53 mg/Kg), DP-6, 0 to 1 foot (230.27 mg/Kg), DP-6, 1 to 2 feet (439.6 mg/Kg), DP-6, 2 to 3 feet (254.36 mg/Kg) and DP-8, 0 to 1 foot (110.56 mg/Kg). TPH exceeded the RRAL (1,000 mg/Kg) in the following soil samples:

- DP-2, 0 to 1 foot (25,400 mg/Kg)
- DP-3, 0 to 1 foot (17,800 mg/Kg)
- DP-4, 0 to 1 foot (6,900 mg/Kg)
- DP-6, 0 to 1 foot (31,700 mg/Kg)
- DP-6, 1 to 2 feet (30,800 mg/Kg)
- DP-6, 2 to 3 feet (25,100 mg/Kg)
- DP-6, 3 to 4 feet (3,720 mg/Kg)
- DP-7, 0 to 1 foot (4,160 mg/Kg)
- DP-8, 0 to 1 foot (23,100 mg/Kg)
- DP-8, 1 to 2 feet (21,300 mg/Kg)
- DP-10, 0 to 1 foot (37,000 mg/Kg)

The delineation report was submitted to the OCD on May 23, 2017 and later revised (July 28, 2017) to include remediation for a produced water spill that occurred on June 14, 2017 (1RP-4235).

3.0 SPILL REMEDIATION

On July 27, 2017, OCD District 2 approved the remediation plan for 2RP-3976 and 2RP-4253 (Appendix A). On August 8 – 9, 2017, XTO personnel shut-in the production and removed above ground piping and electrical from the remediation area. On August 10, 2017, XTO removed the gun barrel and overflow tanks. Scarborough Drilling, Inc. (SDI) mobilized an air rotary rig immediately following removal of the tanks and used a jam tube sampler to collect soil samples for chloride delineation at DP-11, as requested by OCD District 2. Soil samples were collected every 5 feet (5, 10, 15, 20 feet etc.) to approximately 30 feet bgs. PBEL analyzed the samples for chloride by EPA Method 300 and reported chloride below 600

mg/Kg in all samples. The poly liner was removed from the remediation area. Soil excavation began near the southwest corner of the remediation area and progressed east and north until the entire area measuring approximately 3,978 square feet was excavated to a depth of approximately 18 inches. Soil was excavated to approximately 5 feet bgs at DP-6. Soil was excavated in the vicinity of DP-5 where holes were observed in the poly liner. The area around the gun barrel tank (S-15) was excavated to about 5 feet bgs. Additional soil was excavated near DP-8 and near the southwest corner of the excavation (S-14) to about 2 feet bgs. Soil was scraped to about 0.5 feet bgs from the north of DP-12 where the recent produced water spill (2RP-4253) had encroached.

On August 11, 2017, LAI personnel used a stainless steel hand auger and trowel to collect soil samples from the bottom of the excavations at sixteen (16) locations (S-1 through S-16) including the area north of DP-12 where soil was scraped from the recent spill (S-16). Sidewall samples were collected from the deeper excavations. The samples were analyzed for BTEX, TPH and chloride by EPA SW-846 Methods 8021B (BTEX) 8015 (TPH) including GRO, DRO and ORO and chloride by Method 300.

The Laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following bottom samples:

- S-5, 5.0' 5.5' (5,450 mg/Kg)
- S-10, 1.5' 2.0' (3,953 mg/Kg)
- S-6, 4.5' 5.0' (9,780 mg/Kg)
- S-14 1.5' 2.0' (1,598.7 mg/Kg)

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following sidewall samples:

• S-5, 2' East (3,580 mg/Kg)

S-6, 2' South (18,450 mg/Kg)

S-6, 4' North (1,310 mg/Kg)

S-6, 2' East (2,558 mg/Kg)

The laboratory reported chloride above 600 mg/Kg in the following bottom samples:

- S-13, 1.5' 2.0' (8,210 mg/Kg)
- S-16, 0.5' 1.0' (3,810 mg/Kg)
- S-14, 1.5' 2.0' (1,050 mg/Kg)

Additional soil was excavated at S-5, S-6, S-10 and S-14. TPH was below the RRAL in the final confirmation samples. Chloride was 247 mg/Kg in the bottom (5.0' - 5.5') at S-14.

On August 14, 2017, SDI collected samples for chloride delineation at locations S-13 and S-16. Soil samples were collected every 5 feet (5, 10, 15, 20 feet, etc.) to 30 feet bgs at S-13 and to 20 feet bgs at S-16. Chloride was below 600 mg/Kg in all samples from S-13 and below 250 mg/Kg in all samples from S-16. Approximately 805.82 tons/ cubic yards of soil was excavated and hauled to Lea Land Landfill, LLC. Clean caliche was hauled back from Lea Land for backfilling the excavation. On August 18, 2017, OCD District 2 approved backfilling the excavation which occurred between August 21 – 23, 2017. Table 2 presents the confirmation soil sample analytical data summary. Figure 3 presents the excavation and confirmation sample location map. Appendix A presents OCD correspondence. Appendix B presents the

laboratory reports. Appendix C presents he waste manifests. Appendix D presents photographs. Appendix E presents the initial and final C-141.

4.0 CONCLUSIONS

XTO performed soil remediation according to the remediation plan approved by OCD District 2, on July 27, 2017 and XTO requests no further action for 2RP-3976.

Tables

Table 1 2RP-3976

Assessment Soil Sample Analytical Data Summary XTO Energy, Inc., Nash Draw #42 CTB Crude Oil Spill UL N (SE/4, SW/4), S-8, T-26 South, R-31 East N32° 18' 23.14277" W103° 55' 29.89976" Eddy County, New Mexico

Sample	Depth	Collection	Status	PID	Benzene	ВТЕХ	GRO	DRO	ORO	ТРН	Chloride
	(Feet)	Date		(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	*250
DP-1	0 - 1	03/14/2017	In-situ	1.8		1	<27.5	<27.5	<27.5	<27.5	17.4
DP-2	0 - 1	03/14/2017	In-situ	1,380	4.75	147.75	5,730	16,900	2,760	25,400	62.9
	1 - 2	03/14/2017	In-situ	232.3	0.00702	0.1863	72.9	614	102	788.9	53.9
	2 - 3	03/14/2017	In-situ	16.3	I	1	<28.7	<28.7	<28.7	<28.7	33.9
	3 - 4	03/14/2017	In-situ	2.9	1	1	1	1	1	;	;
	4 - 5	03/14/2017	In-situ	1.8	I	1	1	1	1	1	1
		03/14/2017	In-situ	1.8	<0.00116	<0.00794	<29.1	<29.1	<29.1	<29.1	<1.16
DP-3	0 - 1	03/14/2017	In-situ	1,236	5.23	140.53	5,380	10,800	1,650	17,800	10.5
	- 1	03/14/2017	In-situ	90.2	0.0127	0.1708	<30.1	112	<301.	112	11.6
	2 - 3	03/14/2017	In-situ	29.5	ŀ	1	<29.4	<29.4	<29.4	<29.4	12.4
		03/14/2017	In-situ	141.3	ł	1	<29.1	<29.1	<29.1	<29.1	9.45
	4 - 5	03/14/2017	In-situ	198.3	ŀ	1	1	1	1	1	1
		03/14/2017	In-situ	13.6	I	1	1	1	ŀ	;	1
	2 - 9	03/14/2017	In-situ	25	1	1	1	1	ł	1	;
	7 - 8	03/14/2017	In-situ	231.2	<0.00116	<0.00794	<29.1	<29.1	<29.1	<29.1	8.31
DP-4	0 - 1	03/14/2017	In-situ	1,250	0.807	10.86	666	2,060	844	6,900	43.4
	1 - 2	03/14/2017	In-situ	118.6	0.0056	0.0056	<29.8	<29.8	<29.8	<29.8	33.9
	2 - 3	03/14/2017	In-situ	39.4	ŀ	1	<28.4	<28.4	<28.4	<28.4	22.1
	3 - 4	03/14/2017	In-situ	12.5	ŀ	1	1	1	1	1	1
	4 - 5	03/14/2017	In-situ	26.8	1	1	}	1	ł	1	;
	9 - 9	03/14/2017	In-situ	53.5	<0.00112	<0.00786	<28.1	<28.1	<28.1	<28.1	106
DP-5	0 - 1	03/14/2017	ln-situ	2.2	ı	-	<27.5	<27.5	<27.5	<27.5	12.5

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Table 1 2RP-3976

Received by OCD: 12/1/2025 9:20:15 AM

Assessment Soil Sample Analytical Data Summary XTO Energy, Inc., Nash Draw #42 CTB Crude Oil Spill UL N (SE/4, SW/4), S-8, T-26 South, R-31 East N32° 18' 23.14277" W103° 55' 29.89976" Eddy County, New Mexico

Sample	Depth	Collection	Status	PID	Benzene	ВТЕХ	GRO	DRO	ORO	TPH	Chloride
	(Feet)	Date		(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	*250
	1 - 2	03/14/2017	In-situ	3.7	-	1	<27.8	<27.8	<27.8	<27.8	9.41
DP-6	0 - 1	03/13/2017	In-situ	1,155	8.87	230.27	7,900	20,400	3,330	31,700	145
	- 1	03/13/2017	In-situ	1,836	18.9	439.6	12,800	15,200	2,780	30,800	9.57
	2 - 3	03/13/2017	In-situ	1,622	9.16	254.36	10,500	12,300	2,240	25,100	9.72
	3 - 4	03/13/2017	In-situ	1,328	0.54	19.414	1,160	2,210	358	3,720	8.75
	- 1	03/13/2017	In-situ	841.9	<0.00115	0.05052	95.2	363	60.2	518.4	8.86
	2 - 6	03/13/2017	In-situ	11.5	<0.00115	<0.04945	<28.7	129	47.3	176.3	<1.16
	2 - 9	03/13/2017	In-situ	54	<0.00114	<0.00796	<28.4	<28.4	<28.4	<28.4	<1.14
DP-7	0 - 1	03/13/2017	In-situ	4.1		-	239	3,300	625	4,160	22.4
	1 - 2	03/13/2017	In-situ	1.9		-	<29.1	78.8	<29.1	78.8	19.3
	2 - 3	03/13/2017	In-situ	1.9	1	1	1	ł	1	1	1
	3 - 4	03/13/2017	In-situ	4.2	!	1	1	1	1	1	1
	4 - 5	03/13/2017	In-situ	4.7	!	1	1	1	1	1	1
	2 - 6	03/13/2017	In-situ	12.2	I	1	1	1	1	1	1
	2 - 9	03/13/2017	In-situ	5.6	1	1	1	1	1	-	1
	7 - 8	03/13/2017	In-situ	39.5	<0.00111	<0.00777	<27.8	<27.8	<27.8	<27.8	137
DP-8	0 - 1	03/13/2017	In-situ	1,104	4.16	110.56	7,320	13,600	2,190	23,100	32.1
	1 - 2	03/13/2017	In-situ	1,334	1.42	28.47	8,260	11,100	1,910	21,300	13.5
	2 - 3	03/13/2017	In-situ	115.8		1	38	238	58	334	6.29
	3 - 4	03/13/2017	In-situ	43.1	I	1	1	1	1	1	1
	4 - 5	03/13/2017	In-situ	86.2	1	1	1	1	1	1	1
	9 - 9	03/13/2017	In-situ	8.5	<0.00111	<0.00777	<27.8	<27.8	<27.8	<27.8	<1.11

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Table 1 2RP-3976

Received by OCD: 12/1/2025 9:20:15 AM

Assessment Soil Sample Analytical Data Summary XTO Energy, Inc., Nash Draw #42 CTB Crude Oil Spill UL N (SE/4, SW/4), S-8, T-26 South, R-31 East N32° 18' 23.14277" W103° 55' 29.89976" Eddy County, New Mexico

Sample	Depth	Collection	Status	PID	Benzene	ВТЕХ	GRO	DRO	ORO	ТРН	Chloride
	(Feet)	Date		(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	*250
6-dQ	0 - 1	03/13/2017	In-situ	5.6	1	1	<27.2	<27.2	<27.2	<27.2	16.0
	1 - 2	03/13/2017	In-situ	4.5	I	1	<28.1	<28.1	<28.1	<28.1	9.15
DP-10	0 - 1	03/13/2017	In-situ	116.7	1.53	49.730	10,400	22,900	3,720	37,000	7.34
	1 - 2	03/13/2017	In-situ	590.5	0.195	4.571	152	531	<144	683	7.48
	2 - 3	03/13/2017	In-situ	48.7	ł	1	<29.4	<29.4	<29.4	<29.4	5.28
	3 - 4	03/13/2017	In-situ	24	1	1	1	ł	1	1	1
	4 - 5	03/13/2017	In-situ	367.4	1	1	1	1	1	1	;
	2 - 6	03/13/2017	In-situ	12.7	I	1	1	Ì	1	1	1
	6 - 7	03/13/2017	In-situ	20.3	ŀ	1	1	ł	1	1	;
	7 - 8	03/13/2017	In-situ	3.4	<0.00111	<0.00777	44.5	<27.8	<27.8	44.5	174
DP-11	0 - 1	03/13/2017	In-situ	11.2		1	<27.8	<27.8	<27.8	<27.8	14.8
	1 - 2	03/13/2017	In-situ	6.4	ŀ	1	<29.4	<29.4	<29.4	<29.4	162
		03/13/2017	In-situ	6.4	1	1	1	1	1	1	;
	3 - 4	03/13/2017	In-situ	1.8	I	1	1	Ì	1	1	1
	4 - 5	03/13/2017	In-situ	4.2	ŀ	1	1	1	1	1	1
	9 - 9	03/13/2017	In-situ	101.3	I	ŀ	<27.8	156	50.3	206.3	702
DP-12	0 - 1	03/13/2017	In-situ	2.5	-	:	<27.2	122	45.1	167 1	104
 	1-2	03/13/2017	In-situ	4.7	ŀ	1	<28.1	49.1	<28.1	49.1	145
	2 - 3	03/13/2017	In-situ	21.9	1	1	1	1	1	1	1
	3 - 4	03/13/2017	In-situ	15.2	1	1	1	1	1	1	1
	4 - 5	03/13/2017	In-situ	7	I	1	1	Ì	1	1	1
	2 - 6	03/13/2017	In-situ	4.9	ŀ	1	1	1	1	1	1
	6 - 7	03/13/2017	In-situ	27.6	1		-	-	-	1	-

2RP-3976 Table 1

XTO Energy, Inc., Nash Draw #42 CTB Crude Oil Spill Assessment Soil Sample Analytical Data Summary UL N (SE/4, SW/4), S-8, T-26 South, R-31 East N32° 18' 23.14277" W103° 55' 29.89976"

Eddy County, New Mexico

Sample	Depth	Collection	Status	DID	Benzene	BTEX	GRO	DRO	ORO	ТРН	Chloride
	(Feet)	Date		(mdd)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	*250
	7 - 8	03/13/2017	In-situ	103	<0.00112	<0.0079	<28.1	<28.1	<28.1	<28.1	72.7

Notes: analysis performed by Permian Basin Environmental Lab, Midland, Texas, by EPA SW-846 method 8021B (BTEX) and 8015M (TPH) Depth in inches below ground surface (bgs)

mg/Kg: milligrams per kilogram equivalent to parts per million (ppm) *: OCD delineation limit

P: Laboratory results pending

Bold and highlighted denotes analyte detected at concentration above the OCD Recommended Remediation Action Level (RRAL)

Table 2

2RP-3976 and 2RP-4253

Remediation Soil Sample Analytical Data Summary

XTO Energy, Inc., Nash Draw #42 CTB Spills

UL E (SW/4, NW/4), S-18, T-23 South, R-30 East

N32° 18' 23.14277" W103° 55' 29.89976"

Eddy County, New Mexico

Page 1 of 4

Sample	Depth	Collection	Position	Status	Benzene	BTEX	GRO	DRO	ORO	TPH	Chloride
	(Feet)	Date			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	009**
S-1	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0244	<0.1708	<30.5	<30.5	<30.5	<30.5	62.7
S-2	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0241	<0.1687	<30.1	57.4	<30.1	57.4	103
S-3	1.5 - 2.0	08/11/2017	Bottom	ln-situ	<0.0235	<0.1047	<29.4	<29.4	<29.4	<29.4	13.7
S-4	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0230	<0.161	<28.7	<28.7	<28.7	<28.7	<1.15
S-5	1.5 - 2.0	08/11/2017	Bottom	Excavated	0.0664	13.7464	755	3,970	720	5,450	147
	5.0 - 5.5	08/14/2017	Bottom	In-situ	1	Ì	<28.7	209	84.9	293.9	19.3
	7	08/14/2017	Side (N)	In-situ	1	Ì	43.1	764	152	959.1	48.0
	7	08/14/2017	Side (S)	In-situ	1	1	<27.2	<27.2	<27.2	<27.2	<1.09
	*2	08/14/2017	Side (E)	Excavated	1	1	356	2,700	524	3,580	161
	2	08/14/2017	Side (W)	In-situ	1	1	<30.1	66.2	<30.1	66.2	16.8
9-S	4.5 - 5.0	08/11/2017	Bottom	Excavated	0.199	688.6	2,850	5,710	1,210	9,780	<1.14
	12.0 - 12.5	08/14/2017	Bottom	In-situ	1	1	<28.1	200	36.5	236.5	35.2
	2	08/11/2017	Side (N)	In-situ	<0.0244	<0.1708	<30.5	131	38.8	169.8	<1.22
	4	08/14/2017	Side (N)	Excavated	1	1	246	906	160	1,310	30.3
	4	08/16/2017	Side (N)	In-situ	1	1	<26.9	<26.9	<26.9	<26.9	20.2
	8	08/14/2017	Side (N)	In-situ	1	1	<29.8	<29.8	<29.8	<29.8	20.1
	2	08/11/2017	Side (S)	Excavated	0.388	36.718	4,770	11,400	2,280	18,450	102
	4	08/14/2017	Side (S)	In-situ	1	1	<28.1	<28.1	<28.2	<28.1	61.5
	8	08/14/2017	Side (S)	In-situ	1	1	<27.8	<27.8	<27.8	<27.8	954
	*2	08/11/2017	Side (W)	In-situ	<0.0227	<0.1591	42.7	534	122	698.7	15.0

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Table 2

2RP-3976 and 2RP-4253

Remediation Soil Sample Analytical Data Summary

XTO Energy, Inc., Nash Draw #42 CTB Spills

UL E (SW/4, NW/4), S-18, T-23 South, R-30 East

N32° 18' 23.14277" W103° 55' 29.89976"

Eddy County, New Mexico

Page 2 of 4

Sample	Depth	Collection	Position	Status	Benzene	BTEX	GRO	DRO	ORO	ТРН	Chloride
	(Feet)	Date			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	**600
	7	08/14/2017	Side (W)	In-situ	1	-	<28.7	281	48.5	329.5	21.6
	∞	08/14/2017	Side (W)	In-situ	ł	l	<28.7	61.4	<28.7	61.4	18.1
	2	08/11/2017	Side (E)	Excavated	<0.0244	0.9416	358	1,830	370	2,558	780
	4	08/14/2017	Side (E)	In-situ	1	1	<26.9	<26.9	<26.9	<26.9	13.8
	∞	08/14/2017	Side (E)	In-situ	ł	ŀ	<27.2	<27.2	<27.2	<27.2	43.8
S-7	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0227	.0568	<28.4	390	76.3	466.3	152
,		1,007	:	:	1000			i i			
۶-8 8-	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0227	<0.1591	<28.4	8.99	<28.4	8.99	13.7
6-S	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0230	<0.161	<28.7	<28.7	<28.7	<28.7	<1.15
S-10	1.5 - 2.0	08/11/2017	Bottom	Excavated	<0.0230	2.525	286	2,900	467	3,953	629
	5.0 - 5.5	08/14/2017	Bottom	In-situ	1	-	<27.5	177	32.1	209.1	4.88
	2	08/14/2017	Side (N)	In-situ	1	-	<29.1	<29.1	<29.1	<29.1	99.7
	2	08/14/2017	Side (S)	In-situ	1	1	33.2	553	95.2	681.4	68.4
	2	08/14/2017	Side (E)	In-situ	1	1	<28.7	92.9	<28.7	92.9	79.3
	7	08/14/2017	Side (W)	In-situ	1	ŀ	<29.1	<29.1	<29.1	<29.1	19.4
S-11	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0238	<0.1666	<29.8	42.9	<29.8	42.9	53.3
S-12	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0235	<0.1047	<29.4	50.4	<29.4	50.4	459
S-13	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0233	<0.1629	<29.1	114	<29.4	114	8,210

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Remediation Soil Sample Analytical Data Summary UL E (SW/4, NW/4), S-18, T-23 South, R-30 East XTO Energy, Inc., Nash Draw #42 CTB Spills N32° 18' 23.14277" W103° 55' 29.89976" **Eddy County, New Mexico** 2RP-3976 and 2RP-4253 Table 2

Page 3 of 4 loride g/Kg) 009*

Chloride	(mg/Kg)	009**	169	290	520	64.3	21.2	26.1	1,050	247	105	192	139	412	34.5	14.2	5.11	112	11.4
НД	(mg/Kg)	1,000	-	1	-	1	1	1	1,598.7	<30.9	<28.1	<31.2	<30.5	<29.1	<29.4	<28.4	<29.8	<28.4	<28.4
ORO	(mg/Kg)		:	ŀ	1	1	1	1	284	<30.9	<28.1	<31.2	<30.5	<29.1	<29.4	<28.4	<29.8	<28.4	<28.4
DRO	(mg/Kg)		:	;	1	1	1	1	1,270	<30.9	<28.1	<31.2	<30.5	<29.1	<29.4	<28.4	<29.8	<28.4	<28.4
GRO	(mg/Kg)			ŀ	1	ł	ŀ	1	44.7	<30.9	<28.1	<31.2	<30.5	<29.1	<29.4	<28.4	<29.8	<28.4	<28.4
BTEX	(mg/Kg)	20	-	1	1	1	1	1	<0.1573	1	1	1	1	;	<0.1647	<0.1591	<0.1666	<0.1591	<0.1591
Benzene	(mg/Kg)	10	-	ŀ	1	1	1	ł	<0.0225	1	1	1	1	ŀ	<0.0235	<0.0227	<0.0238	<0.0227	<0.0227
Status			In-situ	In-situ	In-situ	In-situ	In-situ	In-situ	Excavated	In-situ	In-situ	In-situ	In-situ	In-situ	ln-situ	In-situ	In-situ	In-situ	In-situ
Position			Bottom	Side (N)	Side (S)	Side (E)	Side (W)	Bottom	Side (North)	Side (South)	Side (West)	Side (East)							
Collection	Date		08/14/2017	08/14/2017	08/14/2017	08/14/2017	08/14/2017	08/14/2017	08/11/2017	08/14/2017	08/14/2017	08/14/2017	08/14/2017	08/14/2017	08/11/2017	08/11/2017	08/11/2017 Side (South	08/11/2017 Side (West)	08/11/2017
Depth	(Feet)		9 - 9	10 - 11	15 - 16	20 - 21	25 - 26	30 - 31	1.5 - 2.0	5.0 - 5.5	2	2	2	2	4.5 - 5.0	2	2	2	2

S-14

OCD RRAL:

Sample

3,810

<26.6

<26.6

<26.6

<26.6

<0.1278

<0.0213

In-situ

Bottom

In-situ

Bottom Bottom Bottom

08/14/2017 08/11/2017

0.5 - 1.0

S-16

9 - 9

1 1

1 1 1

ł

1 1

In-situ In-situ

08/14/2017 08/14/2017

70.7

1 1

ł

S-15

95.2

413

2RP-3976 and 2RP-4253 Table 2

Remediation Soil Sample Analytical Data Summary UL E (SW/4, NW/4), S-18, T-23 South, R-30 East XTO Energy, Inc., Nash Draw #42 CTB Spills N32° 18' 23.14277" W103° 55' 29.89976" **Eddy County, New Mexico**

Sample Depth Collection Position Status Benzene BTEX GRO DRO ORO TPH Chloris OCD RRAL: 20-21 08/14/2017 Bottom In-situ												Page 4 of 4
(Feet) Date (mg/Kg) (m	Sample	Depth	Collection	Position	Status	Benzene	BTEX	GRO	DRO	ORO	ТРН	Chloride
20 - 21 08/14/2017 Bottom In-situ -		(Feet)	Date			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
08/14/2017 Bottom In-situ	OCD RRAL:					10	20				1,000	009**
		20 - 21		Bottom	In-situ	1	-	:	1	-	-	63.8

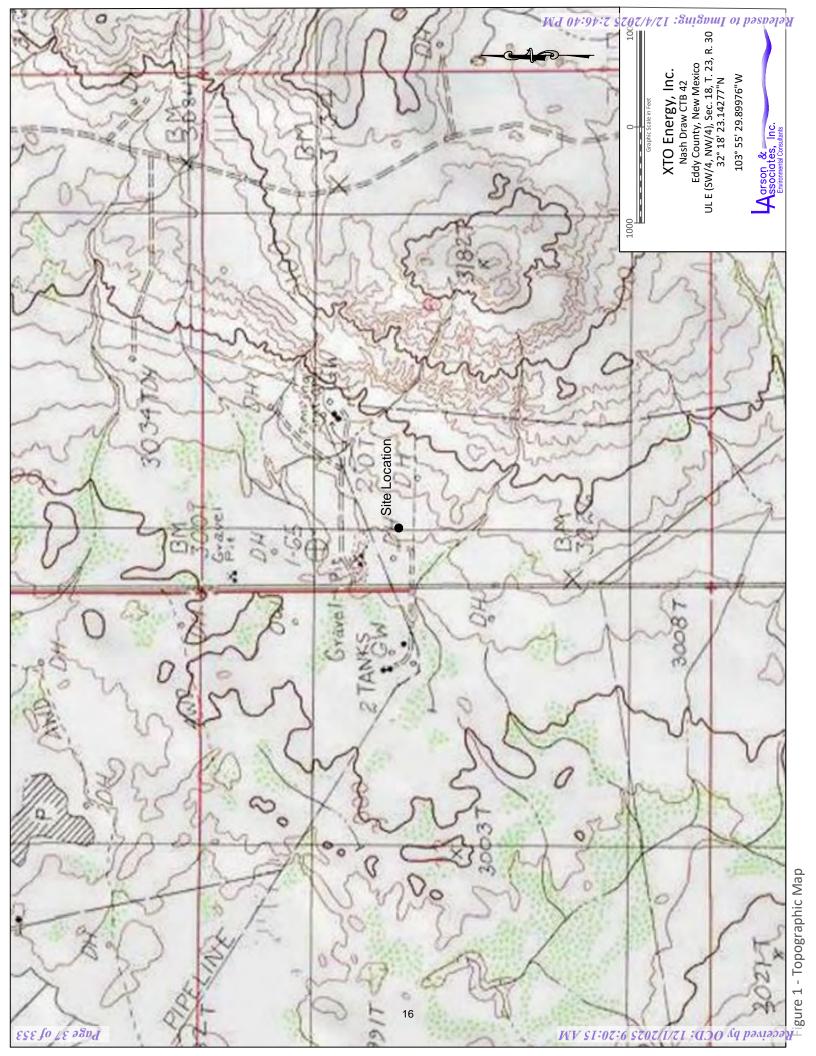
Notes: analysis\ by Permian Basin Environmental Lab, Midland, Texas, by EPA SW-846 Method 8021B (BTEX), Method 8015M (TPH) and Method 300 (chloride) Depth in feet below ground surface (bgs)

mg/Kg: milligrams per kilogram equivalent to parts per million (ppm) * East side of excavation (S-5) joined to west side of adjoining excavation (S-6)

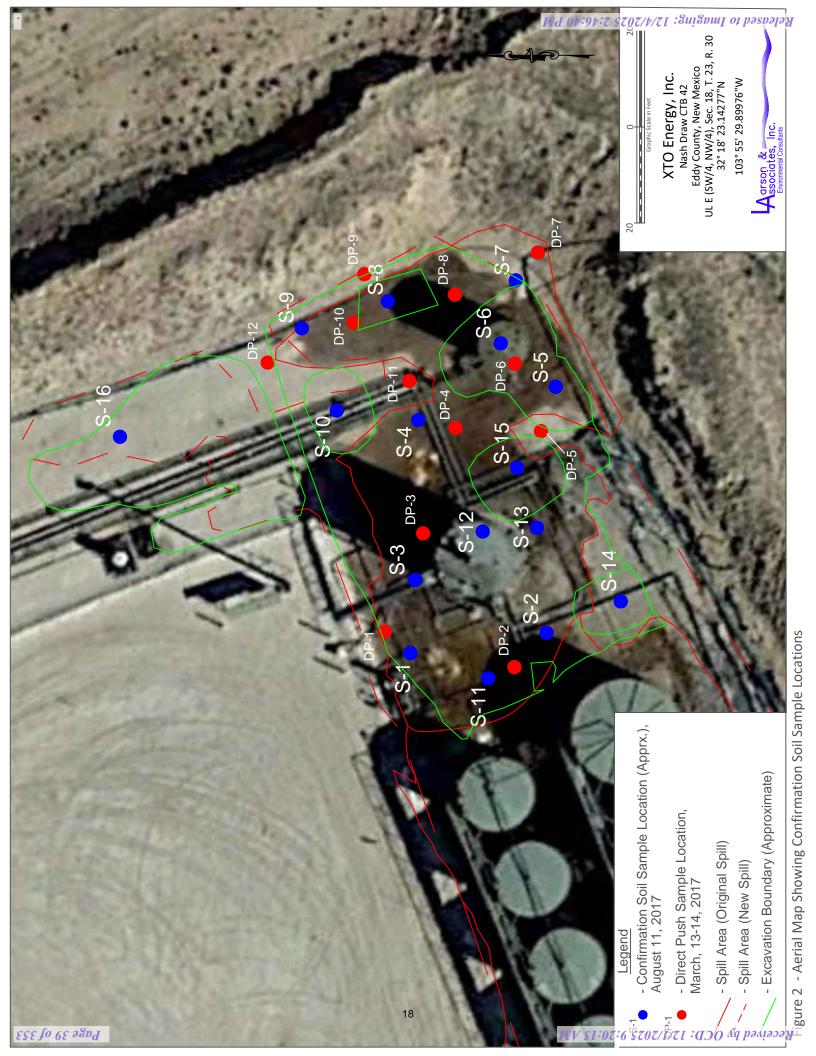
**: OCD delineation limit

P Laboratory analysis pending Bold and highlighted denotes analyte detected at concentration above the OCD Recommended Remediation Action Level (RRAL)

Figures







Appendix A

OCD Approval

From: Mark Larson To: Sarah Johnson

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Date: Tuesday, August 22, 2017 8:03:50 AM Attachments:

Location Drawing for Berm.pdf

Sarah,

Good morning! Here's the approval for backfilling the excavations. The attached drawing shows the location for the new berm on the north side of the excavation. Please have SDR build a berm from caliche to the same height as the existing berm on the north side of the tanks. Have SDR tie the west end of the berm into the berm on the north side of the tanks and on the east end where the berm turns north (east of DP-1). Please call me if you have guestions.

Mark

From: Bratcher, Mike, EMNRD [mailto:mike.bratcher@state.nm.us]

Sent: Friday, August 18, 2017 4:39 PM

To: Mark Larson; Weaver, Crystal, EMNRD; 'Groves, Amber'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

RE: 2RP-3976 & 2RP-4235

Mark.

Based on data provided, you are approved to commence backfill operations. Sorry for a perceived delayed response, but if we actually worked everything in the order received, it would be at least a few weeks before you got a response. We do appreciate the thorough job and uncomplicated reporting you provide, along with XTO's willingness and cooperation in maintaining an environmentally solid operation. I do understand the urgency for this particular project and apologize for any inconvenience.

Mike Bratcher NMOCD District 2 811 South First Street Artesia, NM 88210 575~748~1283 Ext 108

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.

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 18, 2017 8:27 AM

To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; 'Groves, Amber' <agroves@slo.state.nm.us>

Cc: 'McMinn, Dudley' <Dudley_McMinn@xtoenergy.com>; 'Williams, Luke' <Luke_Williams@xtoenergy.com>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal/Mike,

This summary is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of XTO Energy Inc. (XTO) to present the delineation and remediation of two (2) spills (2RP-3976 and 2RP-4253) at the Nash Draw CTB #42. LAI requests approval to backfill the excavations so that XTO may install a spray-in liner and resume production. The final reports for 2RP-3976 and 2RP-4253 will be submitted after the excavations area backfilled along with the final C-141s.

On August 8 - 9, 2017, XTO personnel shut-in the production and removed above ground piping and electrical from the remediation area. On August 10, 2017, XTO had the gun barrel and overflow tanks removed from the remediation area. Immediately following removal of the tanks, Scarborough Drilling mobilized an air rotary rig to DP-11 for the purpose of delineating chloride as requested by OCD. Soil samples were collected with a jam tube sampler at 10, 15, 20, 25 and 30 feet below ground surface (bgs) and were analyzed for chloride by EPA Method 300. Chloride was below 250 mg/Kg in all samples concluding successful vertical delineation. The ploy liner was removed from the remediation area and disposed at Lea Land Landfill. Soil excavation began near the southwest corner of the remediation area and progressed east and north until the entire area was excavated to a depth of approximately 18 inches. Soil was excavated to approximately 5 feet bgs at DP-6. Additional soil was excavated in the vicinity of DP-5 where holes were observed in the poly liner and from areas beneath the tanks and where staining was observed beneath the liner. The area around DP-8 was excavated to about 2 feet bgs. Soil was scraped to about 0.5 feet bgs from the area north of DP-12 where the recent produced water spill (2RP-4253) had encroached. On August 11, 2017, LAI personnel used a stainless steel hand auger and trowel to collect soil samples from the bottom of the excavations at sixteen (16) locations (S-1 through S-16) including the area north of DP-12 where was scraped from the recent spill (S-16). Sidewall samples were collected from the deeper excavations. The samples were analyzed for BTEX, TPH and chloride by Methods SW-846=-8021B, SW-846-8015M and 300, respectively.

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following bottom samples:

S-5, 5.0' - 5.5' (5,450 mg/Kg)

S-6, 4.5' - 5.0' (9,780 mg/Kg)

S-10, 1.5' - 2.0' (3,953 mg/Kg)

S-14, 1.5' - 2.0'(1,598.7 mg/Kg)

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following sidewall samples:

S-5, 2' East (3,580 mg/Kg)

S-6, 4' North (1,310 mg/Kg)

S-6, 2' South (18,450 mg/Kg)

S-6,2' East (2,558 mg/Kg)

The laboratory reported chloride above 600 mg/Kg in the following bottom samples:

S-13, 1.5' – 2.0' (8,210 mg/Kg) S-14, 1.5' – 2.0' (1,050 mg/Kg) S-16, 0.5' – 1.0' (3,810 mg/Kg)

Between August 14 – 16, 2017, additional soil was excavated at S-5, S-6, S-10 and S-14. TPH was below the RRAL in the final confirmation samples. Chloride was 247 mg/Kg in the bottom sample (5.0′ – 5.5′) at S-14. Scarborough Drilling collected samples every 5 feet (5, 10. 15, 20 feet, etc.) to 30 feet at S-13 and 20 feet at S-16. Chloride was below 600 mg/Kg in all samples from S-13 and below 250 mg/Kg in all samples from S-16. Please refer to Table 2. The excavation and sample location drawing is presented as Figure 2. Photographs are attached. Approximately 525.5 tons/cubic yards of contaminated soil was hauled to Le Land Landfill, LLC. Clean caliche was hauled back from Lea Land for backfilling the excavations. LAI, on behalf of XTO, requests OCD approval to backfill the excavations so that XTO may begin installing the spray-in liner and resume production. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or Dudley_McMinn@xtoenergy.com or me if you have questions. Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432-556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Wednesday, August 09, 2017 7:01 PM

To: 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Crystal,

The tanks (gun barrel and overflow) were emptied today and will be removed on Thursday morning to allow access for equipment to perform remediation. We plan to collect additional samples tomorrow from SB-11 for vertical delineation.

Mark

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Monday, August 07, 2017 9:27 AM

To: Mark Larson

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Good morning,

Thank you Mark. I may try to make it out to this one if Amber can not.

Crystal Weaver

Environmental Specialist

OCD - Artesia District II

811 S. 1st Street

Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Sunday, August 6, 2017 6:58 PM

To: Weaver, Crystal, EMNRD < <u>Crystal.Weaver@state.nm.us</u>>; 'Groves, Amber'

<agroves@slo.state.nm.us>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke'

<<u>Luke Williams@xtoenergy.com</u>>

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Crystal/Amber,

This is to inform you that remediation of 2RP-3976 and 2RO-4253 will commence on Monday, August 9, 2017. Please contact Dudley McMinn with XTO Energy, Inc., at (432) 682-8873 or Dudley_McMinn@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456

mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 27, 2017 5:21 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'McMinn, Dudley'; 'Williams, Luke'

Cc: 'Tucker, Shelly'; Groves, Amber

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

First off thank you Mark for your answers to my questions.

I was checking a few clerical details and I wanted to bring a few more things to all of your attention. On the first spill, given case number 2RP-3976, there was no API number provided on the initial C-141 and since it was mentioned that the release was involving a battery our administrative personnel entered this in our system and gave it a facility number instead of relating it to the API for this location. However, on the second spill, given case number 2RP-4253, an API number was provided on the initial C-141 so our administrative personnel entered this one into our system under the API number. So now we have records for two spills recorded in two different places in our system that in fact actually happened at this same site. Please try to remain consistent on what you go with for C-141 documentation and of course for any documentation.

Also I show in my records that this site is on State Land Office administered service but when I look back in the well file history for this site I see documents being provided to the BLM for this facility. Since I have this site as SLO land I am adding Amber Groves, from the State Land Office, to this email chain and I am thus requesting that someone please help to clarify this matter. So Shelly or Amber can you all please clear up who is the surface owner for this location?

Finally, getting back to Mark's answers to my questions.

OCD accepts your proposal for remediation of the above mentioned releases (2RP-3976 and 2RP-4235) with the following conditions:

• Within the answers provided below it is stated that Larson Associates Inc. on behalf of XTO will be submitting samples for laboratory testing of "total petroleum hydrocarbons (TPH) as determined by EPA SW-846 Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The confirmation samples will be analyzed Method 300. Additional vertical samples

will be collected to delineate chloride to 600 mg/Kg." However, OCD notes that testing for BTEX was not mentioned in either of these statements. OCD requires that all sampling points related to the remediation of this site start out with testing for all required constituents that are mentioned within the Conditions of Approval document that was provided by OCD to you all for each of these releases.

- Since the second release spanned beyond the extent of the first release it is OCD's understanding that all impacted areas will be delineated during remedial activities. Excavation depths may vary based on new analytical data.
- Again as mentioned above in bullet point 1, because your response statement below, to my
 sampling request for areas where there are holes in the liner, does not include the
 mentioning of sampling for BTEX I want to make it clear that OCD requires that all sampling
 points related to the remediation of this site start out with testing for all required constituents
 that are mentioned within the Conditions of Approval document that was provided by OCD to
 you all for each of these releases.
- OCD concurs with the answer provided below regarding sampling point DP-11.

Please advise once remedial activities have been scheduled. If this is Federal surface then it will require like approval from BLM, if this is State Land Office surface than it will require like approval from SLO.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street

Artesia, NM 88210 Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720 **From:** Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, July 21, 2017 7:24 AM

To: Weaver, Crystal, EMNRD <<u>Crystal.Weaver@state.nm.us</u>>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; 'McMinn, Dudley' <<u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < Luke Williams@xtoenergy.com>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Crystal,

The following is submitted on behalf of XTO Energy, Inc. (XTO) in response to your questions below:

Question: All sampling mentioned in the current work plan (happened on 3/13/17 and

> 3/14/17) is sampling that relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional sampling

being done on its behalf prior to excavation?

it is my opinion that the depth of excavation will be similar to what is proposed since Response:

> the initial spill was mostly crude oil with an small amount of produced water and the recent spill is mostly produced water with a small amount of crude oil. Soil will be excavated until total petroleum hydrocarbons (TPH) as determined by EPA SW-846

Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The

confirmation samples will be analyzed Method 300. Additional vertical samples will

be collected to delineate chloride to 600 mg/Kg.

Question: Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.

Response:

The area east of the tank battery covered by the initial spill is unlined. The recent spill east of the tank battery occurred the lined area where holes are shown in the liner. Soil samples will be collected from the lined area covered by the spill where holes are observed. The soil samples will be will be analyzed for TPH as determined by EPA SW-846 Method 8015 for GR, DRO and ORO and chloride by Method 300. Soil will be excavated until TPH in bottom sample and sidewall samples where the excavation exceeds 2 feet is below the RRAL (1,000 mg/Kg). Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question: Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

Response: A backhoe may be used to confirmed the chloride concentration in soil at DP-11, 5 –

6 feet. The sample will be analyzed by Method 300. Additional vertical samples will

be collected to delineate chloride to 600 mg/Kg.

Question: also just noticed one last thing, the label on your Table 1 says that the table is for 2RP-1486, is that a typo?

Response: Good catch! I used an earlier table as a template and didn't change the remediation

permit number. Please find the corrected table attached.

Question: also just noticed one last thing, the remediation permit number you refer to for the recent spill (2RP-4235), is that a typo?

Response: This remediation permit (2RP-4235) is for a release at the Devon Energy Production

Company Cotton Draw Unit 84! It appears the 3 and 5 were juxtaposed and should

be 2RP-4253.

Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office — 432-687-0901
Cell — 432-556-8656
Fax — 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 13, 2017 2:07 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'Tucker, Shelly'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

Thank you for the submission of this most recent plan and for the submission of the prior one as well.

OCD is fine with the idea of remediating both spills at the same time while you have equipment and workers mobilized, etc. and we are fine with both releases being written about in the same work plan and closure report etc., however, the spills will still be treated as separate cases as far as each will be referred to by its individual tracking number and DOR, and each will have to be closed out on our end as individual incidents. So each will need final C-141s.

With that being said, I have looked things over and I have a few questions for you all:

- All sampling mentioned in the current work plan (happened on 3/13/17 and 3/14/17) is sampling that relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional sampling being done on its behalf prior to excavation?
- Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.
- Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

I look forward to receiving a response to my questions/requests.

If you have any need for clarification or have any questions of your own please contact myself or Mike Bratcher here at the District II Office.

Thank you,

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Monday, July 3, 2017 4:06 PM

To: Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us >; Weaver, Crystal, EMNRD

<<u>Crystal.Weaver@state.nm.us</u>>; 'Tucker, Shelly' <<u>stucker@blm.gov</u>>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke'

<<u>Luke Williams@xtoenergy.com</u>>

Subject: Re: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Mike/Crystal/Shelly,

Larson & Associates, Inc. (LAI) submits the delineation report and remediation plan for a crude oil spill at the XTO Energy, Inc. (XTO) Nash Draw 42 CTB. Since submitting the plan on May 23, 2017, XTO reported another spill at the facility on June 14, 2017, prior to receiving OCD approval of the remediation plan for the crude oil spill. XTO would like the OCD to consider allowing remediation of both spills under the remediation plan presented herein. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/aac0757d-4e60-4e7d-b88c-f8ac9693cab9

Mark J. Larson, P.G.
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"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Tuesday, May 23, 2017 8:24 AM

To: 'Bratcher, Mike, EMNRD'; 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: Re: XTO CTB 42 Revised Delineation Report

Mike/Crystal,

Please use the link below to download the revised delineation report for 2RP-3976. The report was revised to include additional photographs for exposing the liner inside the firewall. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/af3a731c-13d6-4830-8201-6944cbd5f9aa

Respectfully,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office - 432-687-0901 Cell - 432-556-8656 Fax - 432-687-0456

mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

Appendix B

Laboratory Reports

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



Analytical Report

Prepared for:

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

Project: Nash Draw 42
Project Number: 17-0124-01
Location: New Mexico

Lab Order Number: 7H12002



NELAP/TCEQ # T104704516-16-7

Report Date: 08/13/17

Larson & Associates, Inc.

Project: Nash Draw 42
P.O. Box 50685

Project Number: 17-0124-01

Midland TX, 79710

Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-1 1.5-2'	7H12002-01	Soil	08/11/17 14:45	08-11-2017 20:00
S-2 1.5-2'	7H12002-02	Soil	08/11/17 14:46	08-11-2017 20:00
S-3 1.5-2'	7H12002-03	Soil	08/11/17 14:46	08-11-2017 20:00
S-4 1.5-2'	7H12002-04	Soil	08/11/17 14:50	08-11-2017 20:00
S-5 1.5-2'	7H12002-05	Soil	08/11/17 15:22	08-11-2017 20:00
S-6 4.5-5'	7H12002-06	Soil	08/11/17 15:25	08-11-2017 20:00
S-6 N-2'	7H12002-07	Soil	08/11/17 15:40	08-11-2017 20:00
S-6 S-2'	7H12002-08	Soil	08/11/17 15:44	08-11-2017 20:00
S-6 W-2'	7H12002-09	Soil	08/11/17 15:46	08-11-2017 20:00
S-6 E-2'	7H12002-10	Soil	08/11/17 15:47	08-11-2017 20:00
S-7 1.5-2'	7H12002-11	Soil	08/11/17 14:54	08-11-2017 20:00
S-8 1.5-2'	7H12002-12	Soil	08/11/17 14:57	08-11-2017 20:00
S-9 1.5-2'	7H12002-13	Soil	08/11/17 15:01	08-11-2017 20:00
S-10 1.5-2'	7H12002-14	Soil	08/11/17 15:05	08-11-2017 20:00
S-11 1.5-2'	7H12002-15	Soil	08/11/17 15:08	08-11-2017 20:00
S-12 1.5-2'	7H12002-16	Soil	08/11/17 15:10	08-11-2017 20:00
S-13 1.5-2'	7H12002-17	Soil	08/11/17 15:11	08-11-2017 20:00
S-14 1.5-2'	7H12002-18	Soil	08/11/17 15:13	08-11-2017 20:00
S-15 4.5-5'	7H12002-19	Soil	08/11/17 15:18	08-11-2017 20:00
S-15 N 2'	7H12002-20	Soil	08/11/17 15:36	08-11-2017 20:00
S-15 S 2'	7H12002-21	Soil	08/11/17 15:34	08-11-2017 20:00
S-15 W-2'	7H12002-22	Soil	08/11/17 15:38	08-11-2017 20:00
S-15 E 2'	7H12002-23	Soil	08/11/17 15:39	08-11-2017 20:00
S-16 0.5-1'	7H12002-24	Soil	08/11/17 15:27	08-11-2017 20:00

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-1 1.5-2' 7H12002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
,	Perm	ian Basin I	Environmen	tal Lab, l	L .P.	•	-		
Organics by GC				,					
Benzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		45.2 %	75-12	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		104 %	75-12	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EPA	Standard Methods	5							
Chloride	ND	30.5	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	18.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	by EPA Method 801	5M							
C6-C12	ND	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		110 %	70-13	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		138 %	70-13	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	30.5	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-2 1.5-2' 7H12002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	nian Basin I	Environmen	tal Lab,	L .P.				
Organics by GC									
Benzene	ND	0.0241	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0482	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0241	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0482	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0241	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		98.7 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		48.8 %	75-12	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by El	PA / Standard Method	S							
Chloride	139	30.1	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	17.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	ND	30.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	57.4	30.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	30.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		103 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		127 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	57.4	30.1	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-3 1.5-2' 7H12002-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perr	nian Basin E	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		97.4 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		37.6 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA/	Standard Method	ls							
Chloride	ND	29.4	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	15.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		108 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		136 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-4 1.5-2' 7H12002-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmen	tal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		98.0 %	75-12	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		41.9 %	75-12	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA	/ Standard Method	s							
Chloride	ND	28.7	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		111 %	70-13	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		135 %	70-13	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-5 1.5-2' 7H12002-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perr	nian Basin E	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	0.0664	0.0222	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	2.25	0.0444	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	2.35	0.0222	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	5.80	0.0444	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	3.28	0.0222	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.9 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		35.4 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EI	PA / Standard Method	ls							
Chloride	ND	27.8	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	10.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C.	35 by EPA Method 80	15M							
C6-C12	755	139	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	3970	139	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	720	139	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		114 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		125 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	5450	139	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-6 4.5-5' 7H12002-06 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	iian Basin E	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	0.199	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	2.52	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	1.88	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	4.23	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	1.06	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		35.2 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		91.2 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EP.	A / Standard Method	S							
Chloride	53.1	28.4	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 80	15M							
C6-C12	2850	142	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	5710	142	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	1210	142	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		123 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	9780	142	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-6 N-2' 7H12002-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	tal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.9 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by El	PA / Standard Method	S							
Chloride	ND	30.5	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	18.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	ND	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	131	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	38.8	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		109 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		130 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	170	30.5	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-6 S-2' 7H12002-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmei	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	0.338	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	7.71	0.0449	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	4.30	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	16.1	0.0449	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	8.27	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		44.6 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		97.6 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by El Chloride	PA / Standard Method ND	28.1	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	4770	140	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	11400	140	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	2280	140	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		103 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		124 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	18400	140	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-6 W-2' 7H12002-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
•	Pern	nian Basin E	Environmen	tal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	0.0959	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	0.0570	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.2 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		94.8 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	s							
Chloride	ND	28.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	42.7	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	534	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	122	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		121 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		145 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	699	28.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-6 E-2' 7H12002-10 (Soil)

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Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	0.0707	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	0.0959	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	0.582	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	0.193	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		66.7 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		91.6 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	S							
Chloride	780	30.5	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	18.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	358	152	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	1830	152	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	370	152	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		111 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		128 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	2560	152	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-7 1.5-2' 7H12002-11 (Soil)

Amalista	Dagult	Reporting Limit	Units	Dilutio :-	Dotah	Duomonod	Amalyar-1	Mathad	Not
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmen	ital Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	0.0568	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.7 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		98.8 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	s							
Chloride	ND	28.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	390	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	76.3	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		139 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	467	28.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-8 1.5-2' 7H12002-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin F	Environmer	ıtal Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		102 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		56.8 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EP	A / Standard Methods	3							
Chloride	ND	28.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	5M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	66.8	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		135 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	66.8	28.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-9 1.5-2' 7H12002-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin F	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		52.6 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		100 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EPA	Standard Methods	s							
Chloride	ND	28.7	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	oy EPA Method 801	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		111 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		139 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-10 1.5-2' 7H12002-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	0.293	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	1.54	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	0.692	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		97.4 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		38.0 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EI	PA / Standard Method	ls							
Chloride	629	28.7	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C.	35 by EPA Method 80	15M							
C6-C12	586	144	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	2900	144	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	467	144	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		115 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		139 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	3950	144	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-11 1.5-2' 7H12002-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	tal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0238	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0476	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0238	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0476	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0238	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		49.0 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		99.2 %	75-12	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	ls							
Chloride	ND	29.8	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	16.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	235 by EPA Method 80	15M							
C6-C12	ND	29.8	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	42.9	29.8	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.8	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		100 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		124 %	70-130		P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	42.9	29.8	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-12 1.5-2' 7H12002-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmen	tal Lab,	L .P.				
Organics by GC									
Benzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		50.0 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		100 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EP	A / Standard Methods	3							
Chloride	459	29.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	15.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	5M							
C6-C12	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	50.4	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		151 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	50.4	29.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-13 1.5-2' 7H12002-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0233	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0465	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0233	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0465	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0233	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		54.4 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		96.3 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	ls							
Chloride	8210	58.1	mg/kg dry	50	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	14.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	ND	29.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	114	29.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		113 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		140 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	114	29.1	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-14 1.5-2' 7H12002-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	Environmen	tal Lab,	L .P.				
Organics by GC									
Benzene	ND	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0449	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0449	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		37.5 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		101 %	75-12	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EI	PA / Standard Method	s							
Chloride	1050	28.1	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C.	35 by EPA Method 801	15M							
C6-C12	44.7	28.1	mg/kg dry	1	P7H1204	08/12/17	08/13/17	TPH 8015M	
>C12-C28	1270	28.1	mg/kg dry	1	P7H1204	08/12/17	08/13/17	TPH 8015M	
>C28-C35	284	28.1	mg/kg dry	1	P7H1204	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		56.5 %	70-1.	30	P7H1204	08/12/17	08/13/17	TPH 8015M	S-GC
Surrogate: o-Terphenyl		72.3 %	70-1.	30	P7H1204	08/12/17	08/13/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	1600	28.1	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-15 4.5-5' 7H12002-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		46.5 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		97.5 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EPA /	Standard Method	ls							
Chloride	ND	29.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	15.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		86.9 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		106 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-15 N 2' 7H12002-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		96.9 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		50.3 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA /	Standard Method	ls							
Chloride	79.0	28.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 h	oy EPA Method 80	15M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		122 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		145 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-15 S 2' 7H12002-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Per	rmian Basin I	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0238	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Toluene	ND	0.0476	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Ethylbenzene	ND	0.0238	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (p/m)	ND	0.0476	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (o)	ND	0.0238	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		96.8 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.8 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA / Stand	lard Metho	ods							
Chloride	ND	29.8	mg/kg dry	25	P7H1216	08/12/17	08/13/17	EPA 300.0	
% Moisture	16.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA	Method 8	8015M							
C6-C12	ND	29.8	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C12-C28	ND	29.8	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C28-C35	ND	29.8	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		80.7 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: o-Terphenyl		96.0 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.8	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-15 W-2' 7H12002-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		44.7 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		93.8 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	
General Chemistry Parameters by EPA	/ Standard Method	ls							
Chloride	ND	28.4	mg/kg dry	25	P7H1216	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		111 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: o-Terphenyl		127 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-15 E 2' 7H12002-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.2 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		102 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	
General Chemistry Parameters by EPA	Standard Method	ls							
Chloride	ND	28.4	mg/kg dry	25	P7H1216	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	oy EPA Method 80	15M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: o-Terphenyl		150 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-16 0.5-1' 7H12002-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0213	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Toluene	ND	0.0426	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Ethylbenzene	ND	0.0213	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (p/m)	ND	0.0426	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (o)	ND	0.0213	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		43.8 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA	Standard Method	ls							
Chloride	3810	26.6	mg/kg dry	25	P7H1216	08/12/17	08/13/17	EPA 300.0	
% Moisture	6.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 h	oy EPA Method 80	15M							
C6-C12	ND	26.6	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		75.8 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: o-Terphenyl		89.9 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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

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

Blank (P7H1205-BLK1)				Prepared &	Analyzed:	08/12/17				
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	0.00132	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0604		"	0.0600		101	75-125			
Surrogate: 4-Bromofluorobenzene	0.0350		"	0.0600		58.4	75-125			S-GO
LCS (P7H1205-BS1)				Prepared &	Analyzed:	08/12/17				
Benzene	0.115	0.00100	mg/kg wet	0.100		115	70-130			
Toluene	0.112	0.00200	"	0.100		112	70-130			
Ethylbenzene	0.110	0.00100	"	0.100		110	70-130			
Xylene (p/m)	0.197	0.00200	"				70-130			
Xylene (o)	0.0951	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	0.0708		"	0.0600		118	75-125			
Surrogate: 4-Bromofluorobenzene	0.0349		"	0.0600		58.1	75-125			S-GC
LCS Dup (P7H1205-BSD1)				Prepared &	Analyzed:	08/12/17				
Benzene	0.119	0.00100	mg/kg wet	0.100		119	70-130	3.16	20	
Toluene	0.118	0.00200	"	0.100		118	70-130	5.00	20	
Ethylbenzene	0.106	0.00100	"	0.100		106	70-130	4.16	20	
Xylene (p/m)	0.200	0.00200	"				70-130		20	
Xylene (o)	0.102	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0687		"	0.0600		114	75-125			
Surrogate: 4-Bromofluorobenzene	0.0361		"	0.0600		60.2	75-125			S-GC
Matrix Spike (P7H1205-MS1)	Sour	rce: 7H12002	2-20	Prepared: 08	8/12/17 A	nalyzed: 08	3/13/17			
Benzene	0.190	0.0227	mg/kg dry	0.227	ND	83.8	80-120			
Toluene	0.210	0.0455	"	0.227	ND	92.3	80-120			
Ethylbenzene	0.167	0.0227	"	0.227	ND	73.4	80-120			QM-07
Xylene (p/m)	0.370	0.0455	"		ND		80-120			
Xylene (o)	0.130	0.0227	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	0.0325		"	0.0682		47.6	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0719		"	0.0682		105	75-125			

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

0.119

0.114

0.199

0.0979

0.0766

0.0425

0.00200

0.00100

0.00200

0.00100

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

A 1.	5	Reporting	TT **	Spike	Source	0/85~	%REC	p.p.c	RPD	37.
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1205 - General Preparation (GC)									
Matrix Spike Dup (P7H1205-MSD1)	Sour	rce: 7H12002	2-20	Prepared: (08/12/17 A	nalyzed: 08	/13/17			
Benzene	0.213	0.0227	mg/kg dry	0.227	ND	93.9	80-120	11.4	20	
Toluene	0.230	0.0455	"	0.227	ND	101	80-120	9.20	20	
Ethylbenzene	0.206	0.0227	"	0.227	ND	90.5	80-120	20.9	20	QM-0
Xylene (p/m)	0.467	0.0455	"		ND		80-120		20	
Xylene (o)	0.168	0.0227	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.0740		"	0.0682		108	75-125			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0682		60.4	75-125			S-GO
Ratch P7H1206 - Ceneral Preparation (CC)									
Batch P7H1206 - General Preparation (Blank (P7H1206-BLK1)	GC)			Prepared: (08/12/17 A:	nalyzed: 08	3/13/17			
•	GC)	0.00100	mg/kg wet	Prepared: (08/12/17 A	nalyzed: 08	3/13/17			
Blank (P7H1206-BLK1)	,	0.00100 0.00200	mg/kg wet	Prepared: (08/12/17 A	nalyzed: 08	3/13/17			
Blank (P7H1206-BLK1) Benzene	ND			Prepared: (08/12/17 A	nalyzed: 08	:/13/17			
Blank (P7H1206-BLK1) Benzene Toluene	ND ND	0.00200	"	Prepared: (08/12/17 A:	nalyzed: 08	:/13/17			
Blank (P7H1206-BLK1) Benzene Toluene Ethylbenzene Xylene (p/m)	ND ND ND	0.00200 0.00100	"	Prepared: (08/12/17 A	nalyzed: 08	<u>-</u> :/13/17			
Blank (P7H1206-BLK1) Benzene Toluene Ethylbenzene	ND ND ND	0.00200 0.00100 0.00200	"	Prepared: (08/12/17 A	nalyzed: 08	75-125			
Blank (P7H1206-BLK1) Benzene Toluene Ethylbenzene Xylene (p/m) Xylene (o) Surrogate: 1,4-Difluorobenzene	ND ND ND ND	0.00200 0.00100 0.00200	" " "	•	08/12/17 A	,				S-G(
Blank (P7H1206-BLK1) Benzene Toluene Ethylbenzene Xylene (p/m) Xylene (o)	ND ND ND ND ND	0.00200 0.00100 0.00200	"	0.0600		94.0 59.0	75-125 75-125			S-GC

0.100

0.100

0.0600

0.0600

DRAFT REPORT

Toluene Ethylbenzene

Xylene (p/m) Xylene (o)

Surrogate: 1,4-Difluorobenzene

Surrogate: 4-Bromofluorobenzene

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

119

114

128

70.8

70-130

70-130

70-130

70-130

75-125

75-125

S-GC1

S-GC

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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 P7H1206 - General Preparation (GC)										
LCS Dup (P7H1206-BSD1)				Prepared: 0	08/12/17 A	nalyzed: 08	/13/17			
Benzene	0.0975	0.00100	mg/kg wet	0.100		97.5	70-130	19.2	20	
Toluene	0.0960	0.00200	"	0.100		96.0	70-130	21.0	20	R2
Ethylbenzene	0.0933	0.00100	"	0.100		93.3	70-130	20.1	20	R2
Xylene (p/m)	0.165	0.00200	"				70-130		20	
Xylene (o)	0.0816	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0603		"	0.0600		100	75-125			
Surrogate: 4-Bromofluorobenzene	0.0331		"	0.0600		55.2	75-125			S-GC
Matrix Spike (P7H1206-MS1)	Sou	ırce: 7H12002	2-24	Prepared: 0	08/12/17 A	nalyzed: 08	/13/17			
Benzene	0.244	0.0213	mg/kg dry	0.213	ND	115	80-120			
Toluene	0.236	0.0426	"	0.213	ND	111	80-120			
Ethylbenzene	0.199	0.0213	"	0.213	ND	93.4	80-120			
Xylene (p/m)	0.435	0.0426	"		ND		80-120			
Xylene (o)	0.194	0.0213	"		ND		80-120			
Surrogate: 1,4-Difluorobenzene	0.0663		"	0.0638		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.0274		"	0.0638		42.9	75-125			S-GC
Matrix Spike Dup (P7H1206-MSD1)	Sou	ırce: 7H12002	2-24	Prepared: 0	08/12/17 A	nalyzed: 08	/13/17			
Benzene	0.185	0.0213	mg/kg dry	0.213	ND	87.1	80-120	27.4	20	R3
Toluene	0.197	0.0426	"	0.213	ND	92.4	80-120	18.3	20	
Ethylbenzene	0.189	0.0213	"	0.213	ND	88.8	80-120	5.05	20	
Xylene (p/m)	0.430	0.0426	"		ND		80-120		20	
Xylene (o)	0.151	0.0213	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.0624		"	0.0638		97.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.0244		"	0.0638		38.2	75-125			S-GC

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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

	D to	Reporting	TT 14	Spike	Source	0/DEC	%REC	DDD	RPD	NT 4
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1215 - *** DEFAULT PREP ***										
Blank (P7H1215-BLK1)				Prepared &	& Analyzed:	08/12/17				
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1215-BS1)				Prepared &	& Analyzed:	08/12/17				
Chloride	424	1.00	mg/kg wet	400		106	80-120			
LCS Dup (P7H1215-BSD1)				Prepared &	& Analyzed:	08/12/17				
Chloride	422	1.00	mg/kg wet	400		105	80-120	0.598	20	
Duplicate (P7H1215-DUP1)	Sou	rce: 7H12002	2-01	Prepared &	& Analyzed:	08/12/17				
Chloride	ND	30.5	mg/kg dry		19.5				20	
Duplicate (P7H1215-DUP2)	Sou	rce: 7H12002	2-11	Prepared:	08/12/17 A	nalyzed: 08	3/13/17			
Chloride	ND	28.4	mg/kg dry		ND				20	
Matrix Spike (P7H1215-MS1)	Sou	rce: 7H12002	2-01	Prepared &	& Analyzed:	08/12/17				
Chloride	2450	30.5	mg/kg dry	2440	19.5	99.8	80-120			
Batch P7H1216 - *** DEFAULT PREP ***										
Blank (P7H1216-BLK1)				Prepared:	08/12/17 Aı	nalyzed: 08	3/13/17			
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1216-BS1)				Prepared:	08/12/17 A	nalyzed: 08	3/13/17			
Chloride	432	1.00	mg/kg wet	400		108	80-120			
LCS Dup (P7H1216-BSD1)				Prepared:	08/12/17 Aı	nalyzed: 08	3/13/17			
Chloride	420	1.00	mg/kg wet	400		105	80-120	2.85	20	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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 P7H1216 - *** DEFAULT PREP ***										
Duplicate (P7H1216-DUP1)	Sourc	e: 7H12002-	-21	Prepared: (08/12/17 A	nalyzed: 08	/13/17			
Chloride	ND	29.8	mg/kg dry		ND				20	
Duplicate (P7H1216-DUP2)	Sourc	e: 7H09006-	-08	Prepared: (08/12/17 A	nalyzed: 08	/13/17			
Chloride	7310	29.1	mg/kg dry		7550			3.15	20	
Matrix Spike (P7H1216-MS1)	Sourc	e: 7H12002	-21	Prepared: (08/12/17 A	nalyzed: 08	/13/17			
Chloride	2170	29.8	mg/kg dry	2380	ND	91.3	80-120			
Batch P7H1307 - *** DEFAULT PREP ***										
Blank (P7H1307-BLK1)				Prepared &	: Analyzed:	08/13/17				
% Moisture	19.0	0.1	%							
Duplicate (P7H1307-DUP1)	Sourc	e: 7H12002-	-01	Prepared &	: Analyzed:	08/13/17				
% Moisture	ND	0.1	%		18.0			200	20	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1203 - TX 1005										
Blank (P7H1203-BLK1)				Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	112		"	100		112	70-130			
Surrogate: o-Terphenyl	67.0		"	50.0		134	70-130			S-GC
LCS (P7H1203-BS1)				Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	932	25.0	mg/kg wet	1000		93.2	75-125			
>C12-C28	941	25.0	"	1000		94.1	75-125			
Surrogate: 1-Chlorooctane	124		"	100		124	70-130			
Surrogate: o-Terphenyl	60.4		"	50.0		121	70-130			
LCS Dup (P7H1203-BSD1)				Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	941	25.0	mg/kg wet	1000		94.1	75-125	1.01	20	
>C12-C28	952	25.0	"	1000		95.2	75-125	1.17	20	
Surrogate: 1-Chlorooctane	125		"	100		125	70-130			
Surrogate: o-Terphenyl	61.1		"	50.0		122	70-130			
Matrix Spike (P7H1203-MS1)	Sour	ce: 7H12002	2-24	Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	967	26.6	mg/kg dry	1060	ND	90.9	75-125			
>C12-C28	990	26.6	"	1060	11.6	92.0	75-125			
Surrogate: 1-Chlorooctane	127		"	106		120	70-130			
Surrogate: o-Terphenyl	62.9		"	53.2		118	70-130			
Matrix Spike Dup (P7H1203-MSD1)	Sour	ce: 7H12002	2-24	Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	984	26.6	mg/kg dry	1060	ND	92.5	75-125	1.75	20	
>C12-C28	1020	26.6	"	1060	11.6	94.6	75-125	2.84	20	
Surrogate: 1-Chlorooctane	132		"	106		124	70-130			
Surrogate: o-Terphenyl	64.3		"	53.2		121	70-130			

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

	ъ	Reporting	***	Spike	Source	0/B=~	%REC	D.C.C.	RPD	N.
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1204 - TX 1005										
Blank (P7H1204-BLK1)				Prepared &	ն Analyzed:	08/12/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	112		"	100		112	70-130			
Surrogate: o-Terphenyl	68.6		"	50.0		137	70-130			S-GC
LCS (P7H1204-BS1)				Prepared &	k Analyzed:	08/12/17				
C6-C12	861	25.0	mg/kg wet	1000		86.1	75-125			
>C12-C28	904	25.0	"	1000		90.4	75-125			
Surrogate: 1-Chlorooctane	129		"	100		129	70-130			
Surrogate: o-Terphenyl	57.0		"	50.0		114	70-130			
LCS Dup (P7H1204-BSD1)				Prepared &	k Analyzed:	08/12/17				
C6-C12	897	25.0	mg/kg wet	1000		89.7	75-125	4.10	20	
>C12-C28	929	25.0	"	1000		92.9	75-125	2.83	20	
Surrogate: 1-Chlorooctane	123		"	100		123	70-130			
Surrogate: o-Terphenyl	58.9		"	50.0		118	70-130			
Matrix Spike (P7H1204-MS1)	Sour	rce: 7H12002	2-20	Prepared: (08/12/17 A	nalyzed: 08	3/13/17			
C6-C12	1070	28.4	mg/kg dry	1140	ND	93.8	75-125			
>C12-C28	1090	28.4	"	1140	ND	95.8	75-125			
Surrogate: 1-Chlorooctane	139		"	114		122	70-130			
Surrogate: o-Terphenyl	68.9		"	56.8		121	70-130			
Matrix Spike Dup (P7H1204-MSD1)	Source: 7H12002-20 Pro				08/12/17 A	nalyzed: 08	3/13/17			
C6-C12	1040	28.4	mg/kg dry	1140	ND	91.7	75-125	2.28	20	
>C12-C28	1060	28.4	"	1140	ND	93.2	75-125	2.67	20	
Surrogate: 1-Chlorooctane	136		"	114		120	70-130			
Surrogate: o-Terphenyl	66.9		"	56.8		118	70-130			

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

Notes and Definitions

S-GC1 Surrogate recovery outside of control limits. A second analysis confirmed the original results..

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

R3 The RPD exceeded the acceptance limit due to sample matrix effects.

R2 The RPD exceeded the acceptance limit.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS

recovery.

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

	Drew	Darlor		
Report Approved By:			Date:	8/13/2017

0 aR

Brent Barron, Laboratory Director/Technical Director

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01
Midland TX, 79710 Project Manager: Mark Larson

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DRAFT REPORT

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



Analytical Report

Prepared for:

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

Project: Nash Draw 42 CTB Project Number: 17-0124-02

Location:

Lab Order Number: 7H15001



NELAP/TCEQ # T104704516-16-7

Report Date: 08/16/17

Larson & Associates, Inc.

Project: Nash Draw 42 CTB
P.O. Box 50685

Project Number: 17-0124-02

Midland TX, 79710 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-13 5'-6'	7H15001-01	Soil	08/14/17 10:10	08-15-2017 08:25
S-13 10'-11'	7H15001-02	Soil	08/14/17 10:12	08-15-2017 08:25
S-13 15'-16'	7H15001-03	Soil	08/14/17 10:17	08-15-2017 08:25
S-13 20'-21'	7H15001-04	Soil	08/14/17 10:23	08-15-2017 08:25
S-13 25'-26'	7H15001-05	Soil	08/14/17 10:25	08-15-2017 08:25
S-13 30'-31'	7H15001-06	Soil	08/14/17 10:27	08-15-2017 08:25
S-16 5'-6'	7H15001-07	Soil	08/14/17 12:01	08-15-2017 08:25
S-16 10'-11'	7H15001-08	Soil	08/14/17 12:03	08-15-2017 08:25
S-16 15'-16'	7H15001-09	Soil	08/14/17 12:06	08-15-2017 08:25
S-16 20'-21'	7H15001-10	Soil	08/14/17 12:09	08-15-2017 08:25
S-5 5'-5.5'	7H15001-11	Soil	08/14/17 13:50	08-15-2017 08:25
S-5 N2'	7H15001-12	Soil	08/14/17 14:00	08-15-2017 08:25
S-5 S2'	7H15001-13	Soil	08/14/17 15:38	08-15-2017 08:25
S-5 E2'	7H15001-14	Soil	08/14/17 15:43	08-15-2017 08:25
S-5 W2'	7H15001-15	Soil	08/14/17 15:40	08-15-2017 08:25
S-6 12'-12.5'	7H15001-16	Soil	08/14/17 13:53	08-15-2017 08:25
S-6 N4'	7H15001-17	Soil	08/14/17 14:30	08-15-2017 08:25
S-6 S4'	7H15001-18	Soil	08/14/17 14:22	08-15-2017 08:25
S-6 E4'	7H15001-19	Soil	08/14/17 14:26	08-15-2017 08:25
S-6 W4'	7H15001-20	Soil	08/14/17 14:34	08-15-2017 08:25
S-6 N8'	7H15001-21	Soil	08/14/17 14:28	08-15-2017 08:25
S-6 S8'	7H15001-22	Soil	08/14/17 14:20	08-15-2017 08:25
S-6 E8'	7H15001-23	Soil	08/14/17 14:24	08-15-2017 08:25
S-6 W8'	7H15001-24	Soil	08/14/17 14:32	08-15-2017 08:25
S-10 5'-5.5'	7H15001-25	Soil	08/14/17 15:55	08-15-2017 08:25
S-10 N2'	7H15001-26	Soil	08/14/17 15:58	08-15-2017 08:25
S-10 S2'	7H15001-27	Soil	08/14/17 15:50	08-15-2017 08:25
S-10 E2'	7H15001-28	Soil	08/14/17 15:52	08-15-2017 08:25
S-10 W2'	7H15001-29	Soil	08/14/17 15:56	08-15-2017 08:25

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 5'-6' 7H15001-01 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	169	1.05 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	5.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 10'-11' 7H15001-02 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	290	1.05 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	5.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 15'-16' 7H15001-03 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	520	1.08 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	7.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 20'-21' 7H15001-04 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	64.3	1.00 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	ND	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 25'-26' 7H15001-05 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	21.2	1.00 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	ND	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 30'-31' 7H15001-06 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	26.1	1.01 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	1.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

S-16 5'-6'

7H15001-07 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	70.7	1.10 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	9.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-16 10'-11' 7H15001-08 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	95.2	1.10 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	9.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-16 15'-16' 7H15001-09 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	413	1.11 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	10.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-16 20'-21' 7H15001-10 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	63.8	1.00 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	ND	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

Total Petroleum Hydrocarbon

C6-C35

Fax: (432) 687-0456

calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

294

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-5 5'-5.5' 7H15001-11 (Soil)

			(
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Perm	ian Basin I	Environment	al Lab, l	L.P.				
General Chemistry Parameters by	EPA / Standard Method	s							
Chloride	19.3	1.15	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons Co	6-C35 by EPA Method 80	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	209	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	84.9	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.1 %	70-13	0	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		112 %	70-13	0	P7H1508	08/15/17	08/15/17	TPH 8015M	

28.7 mg/kg dry

[CALC]

08/15/17

08/15/17

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-5 N2' 7H15001-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmen	tal Lab,	L.P.				
General Chemistry Parameters by EI	PA / Standard Methods	3		,					
Chloride	48.0	1.12	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C.	35 by EPA Method 801	5M							
C6-C12	43.1	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	764	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	152	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		103 %	70-1.	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		122 %	70-1.	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon	959	28.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-5 S2' 7H15001-13 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

	1 (1111	ian Dasin I	znvii ommentai	Lab,	L.I.				
General Chemistry Parameters by EPA/	Standard Methods								
Chloride	ND	1.09	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	8.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 801	5M							
C6-C12	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.7 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		112 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-5 E2' 7H15001-14 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	161	1.12	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	5M						
C6-C12	356	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	2700	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	524	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		109 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		108 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	3580	28.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-5 W2' 7H15001-15 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	16.8	1.20	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	17.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	15M						
C6-C12	ND	30.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	66.2	30.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	30.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		77.5 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		89.9 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	66.2	30.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 12'-12.5' 7H15001-16 (Soil)

		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
Poursian Posin Environmental Lab I D										

Permian Basin Environmental Lab, L.P.

Chloride	35.2	1.12	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C3:	5 by EPA Method 801	5M						
C6-C12	ND	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	200	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	36.5	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		91.8 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		105 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	237	28.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

S-6 N4' 7H15001-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
	Perm	iian Basin F	Environme	ntal Lab,	L.P.					
General Chemistry Parameters by EP	A / Standard Method	s								
Chloride	30.3	1.16	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0		
% Moisture	14.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216		
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 80	15M								
C6-C12	246	29.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M		
>C12-C28	906	29.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M		
>C28-C35	160	29.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M		
Surrogate: 1-Chlorooctane		94.4 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M		
Surrogate: o-Terphenyl		105 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M		
Total Petroleum Hydrocarbon C6-C35	1310	29.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc		

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

Fax: (432) 687-0456

S-6 S4' 7H15001-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmer	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA/S	tandard Method	s							
Chloride	61.5	1.12	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 80	15M							
C6-C12	ND	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		91.8 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		106 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 E4' 7H15001-19 (Soil)

									1
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

C ICI '4 P 4 I EPA					,			
General Chemistry Parameters by EPA/ Chloride	Standard Methods 13.8	1.08	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	7.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 801	5M						
C6-C12	ND	26.9	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	ND	26.9	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	26.9	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		87.3 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		102 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 W4' 7H15001-20 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

	Term	ian Dasin i	211 v II O II III C II ta	ı Lab,	, 1				
General Chemistry Parameters by EPA	A / Standard Methods	1							
Chloride	21.6	1.15	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	5M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	281	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	48.5	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		88.3 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		102 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	330	28.7	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 N8' 7H15001-21 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Parmia	n Rasin Fi	wironm	ental Lah I	p				

General Chemistry Parameters by EPA / St	andard Methods							
Chloride	20.1	1.19	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	16.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 801	5M						
C6-C12	ND	29.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	ND	29.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	29.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		90.9 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		107 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	29.8	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Analyte

Fax: (432) 687-0456

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 S8' 7H15001-22 (Soil)

		` `						
	Reporting							
D. I.		TT 14	D'1 ('	D (1	D 1	A 1 1	3.6.4.1	NT /
Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab. L.P.

	Perm	ian Basin E	Environmental	l Lab,	, L.P.				
General Chemistry Parameters by EPA/S	Standard Methods	S							
Chloride	954	1.11	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	10.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 801	5M							
C6-C12	ND	27.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		92.8 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		109 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

S-6 E8'

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	nian Basin I	Environme	ntal Lab,	L.P.				
General Chemistry Parameters by EPA	Standard Method	s							
Chloride	43.8	1.09	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	8.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	oy EPA Method 80	15M							
C6-C12	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		108 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		125 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

S-6 W8'

7H15001-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin I	Environmen	tal Lab,	L.P.				
General Chemistry Parameters by EF	PA / Standard Method	s							
Chloride	18.1	1.15	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	35 by EPA Method 80	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C12-C28	61.4	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.5 %	70-1.	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		114 %	70-1.	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	61.4	28.7	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-10 5'-5.5' 7H15001-25 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian	Basin	Environmenta	al Lab	L.P.
ı cı mnan	Dasin	LIII VIII VIIIIII CIII	ai Lav	, L., L ,

Chloride	4.88	1.10	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	9.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C3:	5 by EPA Method 801	15M						
C6-C12	ND	27.5	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C12-C28	177	27.5	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C28-C35	32.1	27.5	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		97.8 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		114 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	209	27.5	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

S-10 N2' 7H15001-26 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

	1 CI III	ian Dasin I	m v m ommenta.	Lab	, 1				
General Chemistry Parameters by EPA/S	Standard Methods	i							
Chloride	99.7	1.16	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	14.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 801	5M							
C6-C12	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.5 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M	_
Surrogate: o-Terphenyl		113 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-10 S2' 7H15001-27 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

	1 61 111	iun Dusin i	211 vii ommenta	L Lub,				
General Chemistry Parameters by EPA	A / Standard Method:	S						
Chloride	68.4	1.20	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	17.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35	5 by EPA Method 801	15M						
C6-C12	33.2	30.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C12-C28	553	30.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C28-C35	95.2	30.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		97.0 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		113 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	681	30.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

Fax: (432) 687-0456

S-10 E2' 7H15001-28 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmen	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA	/ Standard Methods	S							
Chloride	79.3	1.15	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 801	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C12-C28	92.9	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-1.	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		126 %	70-1.	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	92.9	28.7	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-10 W2' 7H15001-29 (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	19.4	1.16	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	14.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 801:	5M						
C6-C12	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C12-C28	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		109 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		129 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 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 P7H1503 - *** DEFAULT PREP ***										
Blank (P7H1503-BLK1)				Prepared: (08/15/17 A	nalyzed: 08	/16/17			
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1503-BS1)				Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	362	1.00	mg/kg wet	400		90.5	80-120			
LCS Dup (P7H1503-BSD1)				Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	366	1.00	mg/kg wet	400		91.5	80-120	1.07	20	
Duplicate (P7H1503-DUP1)	Sour	ce: 7H15001	-01	Prepared: (08/15/17 A	nalyzed: 08	/16/17			
Chloride	169	1.05	mg/kg dry		169			0.0873	20	
Duplicate (P7H1503-DUP2)	Sour	ce: 7H15001	-11	Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	20.4	1.15	mg/kg dry		19.3			5.61	20	
Matrix Spike (P7H1503-MS1)	Sour	ce: 7H15001	-01	Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	4460	26.3	mg/kg dry	4210	169	102	80-120			
Batch P7H1507 - *** DEFAULT PREP ***										
Blank (P7H1507-BLK1)				Prepared: (08/15/17 A:	nalyzed: 08	3/16/17			
Chloride	ND	1.00	mg/kg wet	•						
Chloride LCS (P7H1507-BS1)	ND	1.00	mg/kg wet	Prepared: (08/15/17 A:	nalyzed: 08	3/16/17			
	ND 371	1.00		Prepared: (nalyzed: 08 92.7	80-120			
LCS (P7H1507-BS1)				400		92.7	80-120			

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

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

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1602 - *** DEFAULT PREP ***										
Blank (P7H1602-BLK1)				Prepared &	Analyzed:	08/16/17				
% Moisture	ND	0.1	%							
Duplicate (P7H1602-DUP1)	Source: 7H15001-26			Prepared &	Analyzed:	08/16/17				
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P7H1602-DUP2)	Sourc	e: 7H15010-0)1	Prepared &	Analyzed:	08/16/17				
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P7H1602-DUP3)	Sourc	e: 7H15016-0)1	Prepared &	Analyzed:	08/16/17				
	ND	0.1	%		1.0			200	20	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

	ъ.	Reporting	** **	Spike	Source	A/DEC	%REC	DDD	RPD	NT .
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1508 - TX 1005										
Blank (P7H1508-BLK1)				Prepared &	Analyzed:	08/15/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	122		"	100		122	70-130			
Surrogate: o-Terphenyl	71.1		"	50.0		142	70-130			S-GC
LCS (P7H1508-BS1)				Prepared &	Analyzed:	08/15/17				
C6-C12	911	25.0	mg/kg wet	1000		91.1	75-125			
>C12-C28	870	25.0	"	1000		87.0	75-125			
Surrogate: 1-Chlorooctane	147		"	120		123	70-130			
Surrogate: o-Terphenyl	71.0		"	60.0		118	70-130			
LCS Dup (P7H1508-BSD1)				Prepared &	Analyzed:	08/15/17				
C6-C12	912	25.0	mg/kg wet	1000		91.2	75-125	0.0669	20	
>C12-C28	884	25.0	"	1000		88.4	75-125	1.54	20	
Surrogate: 1-Chlorooctane	148		"	120		123	70-130			
Surrogate: o-Terphenyl	74.2		"	60.0		124	70-130			
Duplicate (P7H1508-DUP1)	Sou	rce: 7H15001	1-23	Prepared &	Analyzed:	08/15/17				
C6-C12	ND	27.2	mg/kg dry		ND				20	
>C12-C28	16.7	27.2	"		18.1			8.04	20	
Surrogate: 1-Chlorooctane	110		"	109		101	70-130			
Surrogate: o-Terphenyl	66.6		"	54.3		123	70-130			
Batch P7H1601 - TX 1005										
Blank (P7H1601-BLK1)				Prepared &	Analyzed:	08/15/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	114		"	100		114	70-130			
Surrogate: o-Terphenyl	66.4		"	50.0		133	70-130			S-GC

Permian Basin Environmental Lab, L.P.

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

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1601 - TX 1005										
LCS (P7H1601-BS1)				Prepared &	k Analyzed:	08/15/17				
C6-C12	855	25.0	mg/kg wet	1000		85.5	75-125			
>C12-C28	880	25.0	"	1000		88.0	75-125			
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	64.2		"	50.0		128	70-130			
LCS Dup (P7H1601-BSD1)				Prepared &	k Analyzed:	08/15/17				
C6-C12	857	25.0	mg/kg wet	1000		85.7	75-125	0.211	20	
>C12-C28	869	25.0	"	1000		86.9	75-125	1.18	20	
Surrogate: 1-Chlorooctane	111		"	100		111	70-130			
Surrogate: o-Terphenyl	62.6		"	50.0		125	70-130			
Duplicate (P7H1601-DUP1)	Sou	rce: 7H07000	5-21	Prepared: (08/15/17 A	nalyzed: 08	/16/17			
C6-C12	53.6	125	mg/kg dry		ND				20	
>C12-C28	14500	125	"		2730			137	20	
Surrogate: 1-Chlorooctane	93.2		"	100		93.2	70-130			
Surrogate: o-Terphenyl	49.8		"	50.0		99.7	70-130			

Larson & Associates, Inc.

Project: Nash Draw 42 CTB

Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

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

	Dren	Darwort		
Report Approved By:			Date:	8/16/2017

P AR

Brent Barron, Laboratory Director/Technical Director

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

Permian Basin Environmental Lab, L.P.

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

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



Analytical Report

Prepared for:

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

Project: Nash Draw 42 CTB Project Number: 17-0124-02

Location:

Lab Order Number: 7H15002



NELAP/TCEQ # T104704516-16-7

Report Date: 08/16/17

Larson & Associates, Inc.

Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-14 5'-5.5'	7H15002-01	Soil	08/14/17 15:10	08-15-2017 08:25
S-14 N2'	7H15002-02	Soil	08/14/17 15:30	08-15-2017 08:25
S-14 S2'	7H15002-03	Soil	08/14/17 15:22	08-15-2017 08:25
S-14 E2'	7H15002-04	Soil	08/14/17 15:28	08-15-2017 08:25
S-14 W2'	7H15002-05	Soil	08/14/17 15:20	08-15-2017 08:25

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 5'-5.5' 7H15002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes				
	Perm	ian Basin F	Environme	ntal Lab,	L.P.								
General Chemistry Parameters by EPA/S	tandard Methods	8											
Chloride	247	1.23	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0					
% Moisture	19.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216					
otal Petroleum Hydrocarbons C6-C35 by EPA Method 8015M													
C6-C12	ND	30.9	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M					
>C12-C28	ND	30.9	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M					
>C28-C35	ND	30.9	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M					
Surrogate: 1-Chlorooctane		109 %	70-1	30	P7H1601	08/15/17	08/15/17	TPH 8015M					
Surrogate: o-Terphenyl		129 %	70-1	30	P7H1601	08/15/17	08/15/17	TPH 8015M					
Total Petroleum Hydrocarbon C6-C35	ND	30.9	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc					

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

S-14 N2' 7H15002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environme	ntal Lab,	L.P.				
General Chemistry Parameters by EPA	Standard Methods	5							
Chloride	105	1.12	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	oy EPA Method 801	5M							
C6-C12	ND	28.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
Surrogate: 1-Chlorooctane		102 %	70-1	30	P7H1601	08/15/17	08/16/17	TPH 8015M	
Surrogate: o-Terphenyl		121 %	70-1	30	P7H1601	08/15/17	08/16/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	08/15/17	08/16/17	calc	

Total Petroleum Hydrocarbon C6-C35

Fax: (432) 687-0456

Larson & Associates, Inc. Project: Nash Draw 42 CTB

ND

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 S2' 7H15002-03 (Soil)

				•					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmen	ital Lab, l	L .P.				
General Chemistry Parameters by E	PA / Standard Methods								
Chloride	192	1.25	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	20.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 801	5M							
C6-C12	ND	31.2	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
>C12-C28	ND	31.2	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
>C28-C35	ND	31.2	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
Surrogate: 1-Chlorooctane		95.7 %	70-1.	30	P7H1601	08/15/17	08/16/17	TPH 8015M	
Surrogate: o-Terphenyl		114 %	70-1.	30	P7H1601	08/15/17	08/16/17	TPH 8015M	

31.2 mg/kg dry

[CALC]

08/15/17

08/16/17

calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 E2' 7H15002-04 (Soil)

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes					
Permian Basin Environmental Lab, L.P.														
General Chemistry Parameters by El			ma/Ira duri	1	P7H1507	00/15/15	00/16/17	EPA 300.0						
Chloride	139	1.22	mg/kg dry			08/15/17	08/16/17							
% Moisture	6 Moisture 18.0 0.1 % 1 P7H1602 08/16/17 08/16/17 ASTM D2216													

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 W2' 7H15002-05 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

	1 (1111	ian basin i	ziivii oiiiiieiita	ı Lab,	, L.I.								
General Chemistry Parameters by EPA / Standard Methods													
Chloride	412	1.16	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0					
% Moisture	14.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216					
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 801	5M											
C6-C12	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M					
>C12-C28	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M					
>C28-C35	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M					
Surrogate: 1-Chlorooctane		97.5 %	70-130		P7H1601	08/15/17	08/16/17	TPH 8015M					
Surrogate: o-Terphenyl		116 %	70-130		P7H1601	08/15/17	08/16/17	TPH 8015M					
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	08/15/17	08/16/17	calc					

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

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

	D 1	Reporting	TT ''	Spike	Source	0/DEC	%REC	DDD	RPD	NI.
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1507 - *** DEFAULT PREP ***										
Blank (P7H1507-BLK1)				Prepared: (08/15/17 A	nalyzed: 08	/16/17			
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1507-BS1)				Prepared: (08/15/17 A	nalyzed: 08	/16/17			
Chloride	371	1.00	mg/kg wet	400		92.7	80-120			
LCS Dup (P7H1507-BSD1)				Prepared: 08/15/17 Analyzed: 08/16/17						
Chloride	371	1.00	mg/kg wet	400		92.8	80-120	0.0835	20	
Batch P7H1602 - *** DEFAULT PREP ***										
Blank (P7H1602-BLK1)				Prepared &	k Analyzed:	08/16/17				
% Moisture	ND	0.1	%							
Duplicate (P7H1602-DUP1)	Source	ce: 7H15001	1-26	Prepared &	k Analyzed:	08/16/17				
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P7H1602-DUP2)	Sourc	ce: 7H15010)-01	Prepared &	k Analyzed:	08/16/17				
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P7H1602-DUP3)	Source	ce: 7H15016	5-01	Prepared &	ն Analyzed:	08/16/17				

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
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 P7H1601 - TX 1005										
Blank (P7H1601-BLK1)				Prepared &	k Analyzed:	: 08/15/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	114		"	100		114	70-130			
Surrogate: o-Terphenyl	66.4		"	50.0		133	70-130			S-GC
LCS (P7H1601-BS1)				Prepared &	k Analyzed:	08/15/17				
C6-C12	855	25.0	mg/kg wet	1000		85.5	75-125			
>C12-C28	880	25.0	"	1000		88.0	75-125			
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	64.2		"	50.0		128	70-130			
LCS Dup (P7H1601-BSD1)				Prepared &	k Analyzed:	08/15/17				
C6-C12	857	25.0	mg/kg wet	1000		85.7	75-125	0.211	20	
>C12-C28	869	25.0	"	1000		86.9	75-125	1.18	20	
Surrogate: 1-Chlorooctane	111		"	100		111	70-130			
Surrogate: o-Terphenyl	62.6		"	50.0		125	70-130			
Duplicate (P7H1601-DUP1)	Sou	rce: 7H07000	5-21	Prepared: (08/15/17 A	nalyzed: 08	/16/17			
C6-C12	53.6	125	mg/kg dry		ND				20	
>C12-C28	14500	125	"		2730			137	20	
Surrogate: 1-Chlorooctane	93.2		"	100		93.2	70-130			
Surrogate: o-Terphenyl	49.8		"	50.0		99.7	70-130			

Larson & Associates, Inc.

Project: Nash Draw 42 CTB

Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

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

Duplicate

MS Matrix Spike

Dup

	nen	David.		
Report Approved By:			Date:	8/16/2017
			_	

RARMON

Brent Barron, Laboratory Director/Technical Director

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

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

Permian Basin Environmental Lab, L.P.

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

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



Analytical Report

Prepared for:

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

Project: XTO Nash Draw Battery 42 Project Number: 17-0124-02

Location: New Mexico

Lab Order Number: 7H17002



NELAP/TCEQ # T104704516-16-7

Report Date: 08/17/17

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-6 N 0-4'	7H17002-01	Soil	08/16/17 16:45	08-17-2017 08:16

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 N 0-4' 7H17002-01 (Soil)

		Reporting										
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
Permian Basin Environmental Lab, L.P.												
General Chemistry Parameters by EPA / Sta	<u>indard Method</u>	ds										
Chloride	20.2	1.08	mg/kg dry	1	P7H1714	08/17/17	08/17/17	EPA 300.0				
% Moisture	7.0	0.1	%	1	P7H1701	08/17/17	08/17/17	ASTM D2216				
Total Petroleum Hydrocarbons C6-C35 by E	PA Method 8	015M										
C6-C12	ND	26.9	mg/kg dry	1	P7H1706	08/17/17	08/17/17	TPH 8015M				
>C12-C28	ND	26.9	mg/kg dry	1	P7H1706	08/17/17	08/17/17	TPH 8015M				
>C28-C35	ND	26.9	mg/kg dry	1	P7H1706	08/17/17	08/17/17	TPH 8015M				
Surrogate: 1-Chlorooctane		91.2 %	70-1	30	P7H1706	08/17/17	08/17/17	TPH 8015M				
Surrogate: o-Terphenyl		109 %	70-1	30	P7H1706	08/17/17	08/17/17	TPH 8015M				
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	08/17/17	08/17/17	calc				

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

General Chemistry Parameters by EPA / Standard Methods - Quality Control

P	ermian Rasii	n Environmental	l Lah I. P	•
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	Reporting		Spike Source			%REC		RPD		
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1701 - *** DEFAULT PREP ***										
Blank (P7H1701-BLK1)				Prepared &	& Analyzed	08/17/17				
% Moisture	ND	0.1	%							
Duplicate (P7H1701-DUP1)	Source: 7H16006-01		Prepared &	Prepared & Analyzed: 08/17/17						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Batch P7H1714 - *** DEFAULT PREP ***										
Blank (P7H1714-BLK1)				Prepared & Analyzed: 08/17/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1714-BS1)				Prepared &	& Analyzed:	08/17/17				
Chloride	330	1.00	mg/kg wet	400		82.5	80-120			
LCS Dup (P7H1714-BSD1)				Prepared &	& Analyzed	08/17/17				
Chloride	350	1.00	mg/kg wet	400		87.5	80-120	5.88	20	

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1706 - TX 1005										
Blank (P7H1706-BLK1)				Prepared &	Analyzed:	08/17/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	109		"	100		109	70-130			
Surrogate: o-Terphenyl	63.3		"	50.0		127	70-130			
LCS (P7H1706-BS1)				Prepared &	Analyzed:	08/17/17				
C6-C12	970	25.0	mg/kg wet	1000		97.0	75-125			
>C12-C28	1020	25.0	"	1000		102	75-125			
Surrogate: 1-Chlorooctane	122		"	100		122	70-130			
Surrogate: o-Terphenyl	56.7		"	50.0		113	70-130			
LCS Dup (P7H1706-BSD1)				Prepared &	Analyzed:	08/17/17				
C6-C12	970	25.0	mg/kg wet	1000		97.0	75-125	0.0814	20	
>C12-C28	1010	25.0	"	1000		101	75-125	0.990	20	
Surrogate: 1-Chlorooctane	126		"	100		126	70-130			
Surrogate: o-Terphenyl	62.9		"	50.0		126	70-130			
Duplicate (P7H1706-DUP1)	Sou	rce: 7H17002	2-01	Prepared &	Analyzed:	08/17/17				
C6-C12	ND	26.9	mg/kg dry		ND				20	
>C12-C28	ND	26.9	"		ND				20	
Surrogate: 1-Chlorooctane	107		"	108		99.2	70-130			
Surrogate: o-Terphenyl	63.9		"	53.8		119	70-130			

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

Notes and Definitions

BULK Samples received in Bulk soil containers

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

	R. D. Barron			
Report Approved By:	Sull Site	Date:	8/17/2017	

Brent Barron, Laboratory Director/Technical Director

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Permian Basin Environmental Lab, L.P.

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

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Appendix C

Waste Manifests

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON	I-HAZARDOUS WASTE MANIF	EST	NO 1	19281	1. PAG	GE_OF	2.	TRAILE	R NO.	20
	3. COMPANY NAME	4. ADD	RESS	THE STATE OF	9. 18.7	5.	PICK-UP	DATE	100	
G	XTO-Energy	wales and	W Illinois			7110	8/44/		411	2100
	PHONE NO.	CITY		STATE			TNRCC I	.D. NO.		
E	7. NAME OR DESCRIPTION OF WASTE SHIPPE		and	1 Tx		TAINERS	9. TO	TAL 1	0. UNIT	11. TEXAS
	7. NAME OF DESCRIPTION OF WASTE SHIFFE	D:		-15	No.	Туре	QUAN	TITY	Wt/Vol.	WASTE ID#
N	a. Non-Regulated, Non Hazardous Was	te		7	- 1	CM				
	b. 41420			4						
E	с.									
	d A Q H O O	AL	7 7	GIN			1			
R	47.120 480	271	1 6	1 (cll)	April 1		10 17/4	CTE DD	OFH F M	
	12. COMMENTS OR SPECIAL INSTRUCTIONS:		-				13. WA	ASTE PRO	OFILE NO	910623
A				C 179,38	0					
	14. IN CA		F EMERG	ENCY OR SPIL	L, CO	NTACT		HOLID E	EMERGE	NCV NO
T	JOE ONTIVEROS		897-404B				9 9 9 9	-HOUK I	SWERGE	NCT NO.
	15.GENERATOR'S CERTIFICATION:	I Hereby	declare that	the contents of this co	nsignme	nt are full	y and acc	urately de	escribed al	bove by proper
0	shipping name and are classified, packed, marked, an international and national government regulations, in	d labeled	l, and are in al	I respects in proper co e regulations, and are	ndition for	or transpo materials	rt by high s previous	way according approv	rding to ap	oplicable A LAND, LLC
	PRINTED/TYPED NAME			SIGNATURE	-					DATE
R										
T	16. TRANSPORTER (1)			17.	TI	RANSP	ORTER	R (2)		
R	NAME: OR ENTERPRISE LLC / MARK	LARS	SON & AS	NAME:						
A N	TEXAS I.D. NO.			TEXAS I.D. NO.						
S		ANNO	N RUSK	IN CASE OF EME	PGENC	V CONT.	ACT:			
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R	PRINTED THE NAME.	1	0/1/	TRINTED/TITEL	NAME					
S	SIGNATURE	DATE	W 19	SIGNATURE				DA	ATE	
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S I A T	21.DISPOSAL FACILITY'S CERTIFIC facility is authorized and permitted to receive such v		Hereby C	ertify that the above of	iescribed	wastes w	ere delive	red to thi	is raciffly,	mat tile
LY	AUTHORIZED SIGNATURE			CELL NO.	-	DA	TE			ME
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GENERATOR: COPIES 1 & 6

DISPOSAL SILE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

-								11 4 1
NON	I-HAZARDOUS WASTE MANIF	EST NO	119282	1. PAG	E_OF_	_ 2. TRAIL	ER NO.	21
	3. COMPANY NAME	4. ADDRESS	All and the second		5. PI	CK-UP DATE		and the same of
G	XTO-Energy	500 W Illinois	# 100			8/14/2017		
	PHONE NO.	CITY	STATE	Z	(IP 6. T)	NRCC I.D. NO		
T.	(817) 870-2900	Midland		797	104			
E	7. NAME OR DESCRIPTION OF WASTE SHIPPE			8. CONT		9. TOTAL	10. UNIT	11. TEXAS
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:		No.	Type	QUANTITY	Wt/Vol.	WASTE ID#
N	a. Non-Regulated, Non Hazardous Was	te		1	CM			
	b. 01010			-				
-	419(d)							
E	c.							
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R	48940 53040) 443	21)					and the
	12. COMMENTS OR SPECIAL INSTRUCTIONS:					13. WASTE P	ROFILE N	0.
	NASH UNIT CTB # 42 H		TO 109 A	10				910623
A			C 100,0	ild				
			ENCY OR SPIL	L, CON	TACT			
T	NAME INE ONTIVEROS	PHONE NO 575-987-4049				24-HOUR	EMERGE	NCY NO.
	TOTAL STATE VALUE OF THE STATE	07010071000						
0	15.GENERATOR'S CERTIFICATION:	I Hereby declare that	the contents of this co	nsignmen	t are fully	and accurately	described a	bove by proper
0	shipping name and are classified, packed, marked, an international and national government regulations, in	d labeled, and are in a cluding applicable sta	respects in proper conteres regulations, and are	the same	materials p	reviously appre	oved by LE	A LAND, LLC
		5 PP			•	* **		
R	PRINTED/TYPED NAME		SIGNATURE					DATE
T	16. TRANSPORTER (1)		17.	TR	ANSPO	RTER (2)		
R A	NAME: OR ENTERPRISE LLC / MARK	LARSON & AS	NAME:					
N	TEXAS I.D. NO.		TEXAS I.D. NO.					
S P	IN CASE OF EMERGENCY CONTACT:	ANNON RUSK	IN CASE OF EME	RGENCY	CONTAC	T:		
0	EMERGENCY PHONE:	(675) 441-733	EMERGENCY PH	ONE:				
R	18. TRANSPORTER (1): Acknowledgment of	of receipt of material	19. TRANSPOI		2): Ackno	wledgment of	receipt of n	naterial
T E	1 + 1 9							
R	PRINTED/TYPED NAME	2016.	PRINTED/TYPED	NAME_	_			
S	SIGNATURE	DATE 8/14	SIGNATURE			ī	DATE	
	SIGNATURE	DATE	SIGNATURE					
		ADDRESS:				PHONE:		
ъ г	Lea Land, LLC	Mile	e Marker 64, U.	S. Hw	y 62/18	0,	575-88	37-4048
D F I A		30 N	Ailes East of Ca	arlsbad	, NM			
SC	PERMIT NO.		20. COMMENTS					
PI	WM-01-035 - New Mex	ico	2 12 12 12 12					
O L	21.DISPOSAL FACILITY'S CERTIFIC	ATION: I Hanshu	antify that the above d	lagarihad y	wastas war	a dalivarad to t	hie facility	that the
	facility is authorized and permitted to receive such v		certify that the above of	icsellocu '	masics wel	activered to	mo racinty,	mar allo
TV	AUTHORIZED SIGNATURE		CELL NO.	-	DATI	1	TI	ME
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	1)1111111 1 WERDS					8/14/2017		1

GENERATOR: COPIES 1 & 6

DISPOSAL SITE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

	1300 WEST MAIN ST	NEET OILEN	101,111	C11 1, OK 75100		.00) 200			2) K.
NON	N-HAZARDOUS WASTE MANIF	EST NO	1	19283	1. PA	GEOF	2	. TRAIL	ER NO.	006
	3. COMPANY NAME	4. ADDRESS	olq all	ne arts material in	of balan	5. 1		P DATE	45 4 114	6 1/1 1/1
G	XTO-Energy	500 W Ulir	1913 f	± 100		ryote since	8/14	/2017	Pro. I	ARTH
	PHONE NO.	CITY		STATE	sun m	ZIP 6.	TNRCC	I.D. NO.		THOU
E	(817) 870-2800	Midland		Tx	. 79	701			1	
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:			8. CON	TAINERS Type		OTAL NTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
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	12. COMMENTS OR SPECIAL INSTRUCTIONS:						13. W	ASTE PI	ROFILE NO	910623
A	10.51.6141.516.04211	Message	To vito	J = E aldul						5,10023
			ERGE	ENCY OR SPIL	L, CO	NTACT		(au)		
T	NAME JOE ONTIVEROS	PHONE NO	048				24	1-HOUR	EMERGE	NCY NO.
	CENED TODIC CEDEVICATION		3	17010						
0	15.GENERATOR'S CERTIFICATION: shipping name and are classified, packed, marked, and	d labeled, and are	e in all	respects in proper co	ondition fo	or transpor	t by high	iway acc	ording to ap	oplicable
	international and national government regulations, in	cluding applicab	le state	regulations, and are	the same	materials	previou	sly appro	ved by LE	A LAND, LLC
R	PRINTED/TYPED NAME			SIGNATURE						DATE
			24-1							
T	16. TRANSPORTER (1)	h mil 8 2	SH SH	17.	TI	RANSPO	ORTE	R (2)	1 - 1	
R	NAME: DR ENTERPRISE LLC / MARK	LARSON &	ASE	NAME:						LL W. J.
N	TEXAS I.D. NO.			TEXAS I.D. NO.						
S P	IN CASE OF EMERGENCY CONTACT:	ANNON RU	ISK	IN CASE OF EMI	EDCENC	V CONTA	СТ			
O		(B7B) A41	733	THE REAL PROPERTY.		1 CONTA	CI:			OPD C
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R	PRINTED/TYPED NAME	CNCE	-	PRINTED/TYPEI	D NAME		i digita di			
S	SIGNATURE / CC / CC / CC	DATE	9/14/	SIGNATURE		and the same		D	ATE	n a firm of
	Service Control of the Control of th	ADDRESS:	THE R	Constitution (State of	Calling Prisons		Р	HONE:		
	Lea Land, LLC		Mile	Marker 64, U	S. Hw	v 62/18			575-88	7-4048
D F	,			iles East of C		•	,			
I A S C	PERMIT NO.			20. COMMENTS					100	1 1
PI	WM-01-035 - New Mex	ico								
O L S I	21.DISPOSAL FACILITY'S CERTIFIC	ATION: I Her	reby ce	rtify that the above	described	wastes we	re delive	ered to th	nis facility	that the
	facility is authorized and permitted to receive such w		,						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
LY	AUTHORIZED SIGNATURE	(A. 100); A. 100	111	CELL NO.		DAT	E		TII	ME
	Dantos 13 Intiveras		111			I II av		/2017		
-	DUTINO CALINETOS		120				111 113			

GENERATOR: COPIES 1 & 6

DISPOSAL SITE COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

	1300 WEST MAIN STREET	T 10 11	9309	1. PAG	EO	F	2. TRAIL	ER NO.	021	
	HAZARDOUS WASTE MANIFES	ADDRESS	merantan anxistra asin a	of India	5	. PICK	-UP DATE	पुरा न गाने व	5 1 x (q. f	
1 1 1 1 3	COMPANY NAME	500 W/Illinois#	OD TO THE OWN		a Charles		15/2017	L I Mile I	o MAIN	
	WENT'S ET HIS VIR I		STATE	7	ZIP (6. TNR	.CC I.D. NO	or Wiles	10.001	
		Midland	Tx	8. CON	701	25 (9. TOTAL	10. UNIT	11. TEXAS	
7	NAME OR DESCRIPTION OF WASTE SHIPPED:	off smudoscale surem	and the same of th	No.	Type	200	UANTITY	Wt/Vol.	WASTE ID #	
-			- 1 - 1/11	4	CI	M				
I a.	Non-Regulated, Non Hazardous Waste	1 SI		No. 1	771 T	in A	no fare	C		
b	(14,200,2003) sales see	ngi - Di	30(4)	121 mm0	n office telline	337 10	SESSION A			
E c	matali			deli	17.0%	all id	put to hill			
0	12001 1104	100 4	6.720	Z Driver	Denistre.	201	o Oligie	a inte	0.10211	
R	TO 000 TO, 1	GO	4 1100	1/0	THE STREET		13. WASTE	PROFILE N	91062	
	12. COMMENTS OR SPECIAL INSTRUCTIONS: NASH UNIT CTB # 42 H								21002	
A		SE OF EMERGE	NCV OR SPI	L. CO	NTA	CT				
	Int.	PHONE NO	NCI OR SIL	JL, CC			24-HOU	R EMERG	ENCY NO.	
T	NAME JOÉ ONTIVEROS	575-887-4048	EL MONTH				100	l	1 by arone	
	COPPLEICATION I	Hereby declare that t	he contents of this	consignm	ent are for trar	fully a	and accurated by highway a	y described according to	above by prope	
0	15. GENERATOR'S CERTIFICATION: I shipping name and are classified, packed, marked, and international and national government regulations, inc	l labeled, and are in all cluding applicable state	respects in proper of regulations, and a	re the san	ne mate	erials p	reviously ap	proved by I	EA LAND, LL	
			SIGNATURE		THE PERSON NAMED IN				DATE	
R	PRINTED/TYPED NAME	rig on antibones 1 1								
	16. TRANSPORTER (1)	Submission of the April 24	17.	-	ΓRAN	ISPO	RTER (2)		
T R	***	LADGON & AS	NAME:							
A	NAME: OR ENTERPRISE, LLC / MARK	LOSIN PARKET	TEXAS I.D. NO).						
N	TEXAS I.D. NO.	ANNON RUSK	IN CASE OF E		ICY C	ONTA	CT:			
S P	IN CASE OF EMERGENCY CONTACT:	(575) 441-73					10 (0	na say	11.13 I/111	
0	EMERGENCY PHONE:		19. TRANSP	ORTE	R (2)	Ackn	owledgment	of receipt	of material	
R T	18. TRANSPORTER (1): Acknowledgment	of receipt of museum	PRINTED/TY						U SE IEM	
E	PRINTED/TYPED NAME Conto Rober	300 /								
R	SIGNATURE SIGNATURE	DATE 8/1	SIGNATURE	0.60		1111		DATE		
	SIGNATURE	ADDRESS:					PHO		007 1018	
	Lea Land, LLC	Mi	Mile Marker 64, U.S. Hwy 62/180,							
D I		30	Miles East of		bad,	NM			11 1 1 17	
I	PERMIT NO.		20. COMMENT	S						
	WM-01-035 - New Me	exico						1 4 - 41 - 1 - F-	sility that the	
0	L DISPOSAL FACILITY'S CERTIFI	CATION: I Hereb	Hereby certify that the above described wastes were delivered to this facility, that the							
SA	T 21.DISPOSAL FACTORY facility is authorized and permitted to receive such				1			TIME ()		
	Y AUTHORIZED SIGNATURE	0	CELL NO.	CELL NO.				0.		
L	ACTION		B/15/2017 TRANSPORTERS: COPI							

DISPOSALISITE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

N-1	THE RELEASE OF THE PARTY OF THE	-		110010	T					1
NO	N-HAZARDOUS WASTE MANIF	EST	NO	119310	1. PA	GEO		2. TRAIL		206
~	3. COMPANY NAME	4. ADDI		d of Installation (1984) and	rot limit	5		L-UP DATE	end wat	\$ 1/3'E1
G	· PGO-Énergyanos, roma a hamiera roma	7 1 1 1 1 1	W.Illinois			WEGO IC US		15/2017	Tully	01/F (E)
	PHONE NO.	CITY		STATE	()	ZIP 6	. TNR	CC I.D. NO.	to the	=111119
E	(817) 870-2800	Midla	and	Tx.		701				
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:	म्हण्युद्धारिता <u>ः</u> ।	TORO SPOREMENTS OF THE		TAINER	and the same of	The second secon	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
N	a.Non-Regulated, Non Hazardous Was		Horizan.	med to book	No.	Туре		JANTITY	www.vol.	WASTEID#
	skillbar	Same -	(4)			Linnin	3, rusu	eligat/2+3	0	
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	d. AT A D A A > A =			AMAG		1/ 1/2		Total A	-	
R	40,400 45	16	D	43/40	71120s.014	James	1 S) (4.1	YTHEAN	0.17(0)	PENE
	12. COMMENTS OR SPECIAL INSTRUCTIONS:		W. F.	B. Takker and	a u la l		13.	. WASTE PI	ROFILE NO	
A	NASH UNIT CTB #42 H									910623
	14. IN CA	SE OF	EMERC	ENCY OR SPILI	CO	JTACT	,			
Т	NAME	PHON	IE NO	Windship - 1	L, COI	TAC	and the	24-HOUR	EMERGEN	NCY NO.
1	JOE ONTIVEROS	5/5-	887-4049							
	15.GENERATOR'S CERTIFICATION:	I Hereby	declare that	the contents of this cor	nsignmen	it are ful	ly and	accurately o	lescribed al	bove by proper
0	shipping name and are classified, packed, marked, and international and national government regulations, inc	d labeled,	and are in al	Il respects in proper con	ndition fo	or transpo	ort by h	nighway acco	ording to ar	oplicable
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R	TAINTED/TTPED NAME			SIGNATURE	Song Sp.					DATE
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T R	16. TRANSPORTER (1)			17.	TI	RANSF	ORT	TER (2)		
A	NAME OR ENTERPRISE LLC / MARK	LARS	ON 8 AS	NAME:						H MATTER
N	TEXAS I.D. NO.			TEXAS I.D. NO.						ne 17 (11
S P	IN CASE OF EMERGENCY CONTACT:	MINON	V RUSK	IN CASE OF EMER	RGENCY	CONT	ACT:			
0	EMERGENCY PHONE:	(575)	441-733	grade and the contract of		LONI	.101.			- 4.11
R	18. TRANSPORTER (1): Acknowledgment of	f receipt	of material	19. TRANSPOR	-	(2): Ack	nowled	Igment of re	eceipt of m	aterial
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R	PRINTED/TYPED NAME	1		PRINTED/TYPED	NAME.		-0.00		1 1 1 1	_
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		ADDR						PHONE:		
	Lea Land, LLC	וטטוי		Marker 64, U.S	S. Hwy	v 62/1	80	1	575-88	7-4048
D F	-3.7.4, 220			Miles East of Car		•		1 , 1 -	0 7 5 - 00	, 1010
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PI	WM-01-035 - New Mexi	ico	,	_/2					21	
O L	21 DISPOSAL FACILITYIS CEDTIFIC	ATION	• 1.11-	outification of				lance to the	i. C	had the
S I A T	21. DISPOSAL FACILITY'S CERTIFICATE facility is authorized and permitted to receive such with the control of th	astes.	. I Hereby (ertify that the above de	escribed	wastes w	ere de	nvered to th	ns facility,	tnat the
V	AUTHORIZED SIGNATURE	-1-	CELL NO. DATE TIME					Æ N		
	Landa Man		CELL NO. DATE TIME				2.00			
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GENERATOR: COPIES 1 & 6

DISPOSAL SITE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NO	N-HAZARDOUS WASTE MANIF	EST	NO	119311	1. PA	GE_OF	2. TRAII	ER NO.	020				
	3. COMPANY NAME	4. ADD		The state of the s		5.	PICK-UP DATE		enger (
G	XTO-Energy	500	VV Illinoi	2 # 100			8/15/2017		ografe				
	PHONE NO.	CITY		STATE			TNRCC I.D. NO).	11,021				
E	(817) 970-2800	Midle	and	Tr		701							
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	ED:			8. CON No.	TAINERS Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID#				
N	a. Hon-Regulated, Non Hazardous Was	te			1	CM							
	b. 4874D					THE PARTY	hard to d						
E	c.												
R	d. AT 44,280 47,2	20	15	0780									
	12. COMMENTS OR SPECIAL INSTRUCTIONS:						13. WASTE I	ROFILE N					
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T	NAME YOU ONTIVEROS		NE NO				24-HOUF	EMERGE	NCY NO.				
0	15.GENERATOR'S CERTIFICATION: shipping name and are classified, packed, marked, an	d labeled	d, and are in	all respects in proper co	ondition fo	or transpo	rt by highway ac	cording to a	pplicable				
	international and national government regulations, in	cluding	applicable	state regulations, and are	the same	materials	s previously appr	oved by LE					
R	PRINTED/TYPED NAME			SIGNATURE					DATE				
Т	16. TRANSPORTER (1)			17.	TI	RANSP	ORTER (2)	-	-				
R	NAME:OR ENTERPRISE LLC / MARK	LARE	30N & .4		NAME:								
AN	TEXAS I.D. NO.			TEXAS I.D. NO.									
S	IN CASE OF EMERGENCY CONTACT:	ANNO	N RUS	IN CASE OF EMI	ERGENC	Y CONTA	ACT:						
0	EMERGENCY PHONE:	(575	5) 441-7										
R	18. TRANSPORTER (1): Acknowledgment	of receip	t of materia			(2): Ack	nowledgment of	receipt of n	naterial				
E R	PRINTED/TYPED NAME	Mr. A	MARI	PRINTED/TYPE	O NAME								
S	SIGNATURE	DATE	7 += 87	SIGNATURE				DATE					
		ADE	DRESS:				PHONE		1				
D F	Lea Land, LLC			ile Marker 64, U			80,	575-88	37-4048				
I A			30	Miles East of C	arlsba	d, NM							
S C P I	PERMIT NO. WM-01-035 - New Mex	cico		20. COMMENTS									
O L S I A T	21.DISPOSAL FACILITY'S CERTIFIC facility is authorized and permitted to receive such v		N: I Hereb	y certify that the above	described	wastes w	ere delivered to	this facility,	that the				
L Y	AUTHORIZED SIGNATURE	1,		CELL NO.		DA	TE	TI	IME 20				
	Montal Dans						8/16/201	1 6	1:				
	the state of the s				-	_							

GENERATOR: COPIES 1 & 6

DISPOSAL SI13! COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

			140040					1-1-
NON	N-HAZARDOUS WASTE MANIF	EST NO	119312	1. PA	GEOF_	2. TRAIL	ER NO.5	\bigcirc B
	3. COMPANY NAME	4. ADDRESS	For this islam many of	767 polin	5. P	ICK-UP DATE	PIE KIN	经验证证
G	XTO-Energy	500 W Illinois	# 100		in the latest	8/15/2017	11-1	0 M331 - 3
	PHONE NO.	CITY	STATE	4 17	ZIP 6. T	NRCC I.D. NO	in katu	A 183119
E	(817) 870-2800	Midland	Tx		701			
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:		8. CON No.	TAINERS Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
N	a.Non-Regulated, Non Hazardous Was	te	ayai dalah	1	CM			
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E	c.	misto 73	ight div	201	Month of the	principle a		
	d.MT-11 070 150) _ A .I		2 - 7/10	L SOXIEL W	Harles and		
R	41,020 4000	30 44	-140	y Million	chan site)	Maria Tale	Q LaT()	CWSYL.
	12. COMMENTS OR SPECIAL INSTRUCTIONS:		h. = I com upon			13. WASTE P	ROFILE N	O.
A		ormanité in at	hill - 2 - black					
		SE OF EMERG	ENCY OR SPIL	L, CO	NTACT			
T	NAME JOE ONTIVEROS	PHONE NO				24-HOUR	EMERGE	NCY NO.
	15.GENERATOR'S CERTIFICATION:	I Hereby declare that	the contents of this co	onsignmer	nt are fully	and accurately	described a	bove by proper
0	shipping name and are classified, packed, marked, and international and national government regulations, in	d labeled, and are in al	l respects in proper co	ndition fo	or transport	by highway acc	cording to a	pplicable
R	PRINTED/TYPED NAME		SIGNATURE	15	april 100 miles		784	DATE
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T	16. TRANSPORTER (1)	saming species was be	17.	TI	RANSPO	ORTER (2)		
R	NAME: DR ENTERPRISE LLC / MARK	LARSON & AS	NAME:					0.001
N	TEXAS I.D. NO.	man (/ max a man)	TEXAS I.D. NO.					ar state of
S P	IN CASE OF EMERGENCY CONTACT:	AMMON RUSK	IN CASE OF EME	ERGENC	Y CONTAC	CT:		
O	EMERGENCY PHONE:	(575) 441-733	EMERGENCY PH					1001
R T	18. TRANSPORTER (1): Acknowledgment of	f receipt of material	19. TRANSPO		(2): Ackno	owledgment of	receipt of n	naterial
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R		O Tayis	20047	TURIVIE				
S	SIGNATURE	DATE	SIGNATURE			I	DATE	
		ADDRESS:				PHONE:		
D F	Lea Land, LLC		Marker 64, U.			30,	575-88	37-4048
IA		30 N	Miles East of Ca	arlsbac	l, NM			
S C P I	PERMIT NO. WM-01-035 - New Mex	ico	20. COMMENTS					
O L								4 - 4
S I A T	21.DISPOSAL FACILITY'S CERTIFIC facility is authorized and permitted to receive such w		ertify that the above of	described	wastes wer	re delivered to t	his facility,	that the
L Y	AUTHORIZED SIGNATURE		CELL NO.	ا ایسل	DAT	Е	TI	ME AD
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-	the state of the s	The Audit						

DISPOSAL SITE: COPIES 2 & 3 COPY 4

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

				_		110	DIE	Liouin
NON	N-HAZARDOUS WASTE MANIFI	EST NO	19315	1. PAGI	EOF	2. TRAIL	ER NO.	501
	3. COMPANY NAME	4. ADDRESS	का कार्यकृताम अवस्था सा	not hadrings	5. PIO	CK-UP DATE		- Maria
G	KTO-Energy TURN	500 Willinois				3/15/2017	1 1/1/17	a blant
	PHONE NO.	CITY	STATE	ZI	W I WIND	RCC I.D. NO	i i i i	r,Ourn
E	(817) 970-2800	Midland	TX.	8. CONTA	4.1	9. TOTAL	10. UNIT	11. TEXAS
	7. NAME OR DESCRIPTION OF WASTE SHIPPER	D:	and Labert	No.		QUANTITY	Wt/Vol.	WASTE ID #
N	a. Non-Regulated, Non Hazardous Wast	e		1	CM			
	b. Cautt simb chart	yui - T		Total plan	nick project	notes)// = A	P) The Table	
E	C. (104.1)	dyd - Y	= 1,=20	Caracter 1910	Marca Saxan	1 John Jan A	1	
	gate sur norga en como estados e sor	100	200	100/100				
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	12. COMMENTS OR SPECIAL INSTRUCTIONS:	One of the second				13. WASTE P	ROFILE N	
A	NASH UNIT CTB # 42 H							910623
	14. IN CA	SE OF EMERG	ENCY OR SPIL	L, CON	TACT			
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LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

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LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

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Appendix D

Photographs



Location Sign August 10, 2017



Location Viewing South Prior to Excavation, April 12, 2017



Location Viewing North, June 2, 2017



Location Viewing East Prior to Remediation and Chloride Delineation at DP-11, August 10, 2017



Soil Excavation near DP-7 Viewing Southwest, August 10, 2017



Soil Excavation along South Side of Spill Area Viewing East, August 10, 2017



Soil Excavation at S-15 Viewing North, August 11, 2017



Excavation Area Viewing West, August 11, 17



Final Excavation Area Viewing West, August 16, 2017



Final Excavation Area Viewing South, August 16, 2017



Backfill of Excavation Viewing Southwest, August 21, 2017



Backfill of Excavation Viewing Southwest, August 22, 2017



Water Packing of Excavation Viewing South, August 22, 2017



Backfill of Excavation Viewing South, August 23, 2017



Final Backfill Viewing Southwest, August 23, 2017



Final Backfill Viewing North, August 23, 2017



New Firewall Viewing Northwest, August 23, 2017

Appendix E

Initial and Final C-141

NM OIL CONSERVATION

State of New Mexico

ARTESIA DISTRICT

Form C-141 Revised August 8, 2011

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

Energy Minerals and Natural Resources NUV 0 3 2016 Oil Conservation Division

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

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Ratterson, Heather, EMNRD

Robinson, John < John_Robinson@xtoenergy.com>

Sent: Thursday, November 03, 2016 1:52 PM To: stucker@blm.gov; Patterson, Heather, EMNRD

Subject: FW: form Form-C141.pdf **Attachments:**

From: Snyder, Kathy

Sent: Thursday, November 03, 2016 2:48 PM

To: Robinson, John Subject: form

Kathy Snyder

Office Clerk XTO Energy, Inc **PO Box 700**

Eunice, NM 88231 Phone: 575-394-2089 Fax: 575-394-3362

Email: Kathy snyder@xtoenergy.com

An ExxonMobil Subsidiary

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

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

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Title: EHS C	Coordinator					Approval Dat	e:	Expiration	Date:
E-mail Addre	ess: luke_wi	lliams@xtoer	nergy.com			Conditions of 2RP-3976	Approval:		Attached
Date: Aug	ust 24, 2017		Phone:	(432) 682-8873		20x 44.6			

2RP-3976

Remediation Report

Nash Draw Tank Battery #42 CTB Crude Oil Spill

Eddy County, New Mexico

LAI Project No. 17-0124-02

August 24, 2017

Prepared for:

XTO Energy, Inc.

500 W. Illinois Ave., Suite 100

Midland, Texas 79707

Prepared by:

Larson & Associates, Inc.

507 North Marienfeld Street, Suite 205

Midland, Texas 79701

Mark J. Larson, P.G.

Certified Professional Geologist #10490

Sarah R. Johnson

Staff Geologist

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1.1	Background	1
1.2	Physical Setting	
	Recommended Remediation Action Levels	
2.0	SPILL DELINEATION	. 2
3.0	SPILL REMEDIATION	3
4.0	CONCLUSIONS	3

Tables

Table 1 Assessment Soil Sample Analytical Data Summary
Table 2 Confirmation Soil Sample Analytical Data Summary

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Figure 1 Topographic Map
Figure 2 Aerial Map

Figure 3 Site Map Showing Excavations and Depths

Appendices

Appendix A OCD Approval

Appendix B Laboratory Reports

Appendix C Waste Manifests

Appendix D Photographs

Appendix E Initial and Final C-141

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this remediation report on behalf of XTO Energy, Inc. (XTO) for submittal to the New Mexico Oil Conservation Division (OCD) District 2, in Artesia, New Mexico and New Mexico State Land Office (SLO), to document remediation of a crude oil spill at the Nash Draw 42 Consolidated Tank Battery (Site). The legal description is Unit E (SW/4, NW/4), Section 18, Township 23 South, Range 30 East, in Eddy County, New Mexico. The geodetic position in North 32° 18′ 23.14277″ and West 103° 55′ 29.89976″. Figure 1 presents a topographic map. Figure 2 presents a detailed aerial map.

1.1 Background

On October 27, 2016, XTO reported a crude oil spill after a rod line failed at the free water knockout (FWKO) causing the FWKO to dome out and a 210 barrel (bbl) tank to overflow. Approximately 124.7 bbl of crude oil was released with approximately 121 bbl recovered. XTO personnel discovered the release on October 28, 2016. Verbal notification was provided to the OCD District 2 and BLM, on October 28, 2016. It was later determined the surface ownership was State of New Mexico rather than BLM therefore the SLO was notified. The initial C-141 was submitted on November 3, 2016 and approved by OCD District 2 on November 4, 2016, and was assigned remediation permit number 2RP-3976 with conditions.

The spill occurred in an unlined area west of the lined tank battery where the firewall was removed. The spill covered the unlined area and flowed west into the lined containment of the tank battery which was covered with a later of pea sized gravel. XTO contracted a roust-a-bout crew and hydrovac truck to remove oil contaminated pea sized gravel. The liner was pressure washed and inspected for integrity. The contaminated pea gravel was disposed at an OCD approved landfill. The wash water was recovered using the hydrovac truck and disposed in an OCD permitted Class II disposal well. The liner within the tank battery containment was not deteriorated and had a few small holes.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,020 feet above mean sea level (AMSL);
- Topography slopes toward the south-southeast;
- The nearest surface water feature is a playa lake (Salt Lake) located about 0.75 miles northwest of the Site;
- Surface geology is comprised of unconsolidated Holocene to mid-Pleistocene-age eolian and piedmont-slope deposits that are approximately 80 feet thick according to a log from a nearby well;

- The Triassic-age Chinle formation of the Dockum group underlies the unconsolidated deposits and is comprised of interbedded sand, clay, and mudstone;
- According to New Mexico Office of the State Engineer (NMOSE) records a well is located about 1.5 miles south in Unit J, Section 24, Township 23 South, Range 29 East with groundwater reported at about 54 feet below ground surface (bgs).

1.3 Recommended Remediation Action Levels

Recommended remediation action levels (RRCL) were calculated for benzene, BTEX and TPH based on the following criteria by the OCD in "Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993":

Criteria	Result	Score
Depth-to-Groundwater	50 - 99 feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1,000 Horizontal Feet	0

The following RRAL apply to the release for ranking score: 10

Benzene 10 mg/Kg
 BTEX 50 mg/Kg
 TPH 1,000 mg/Kg

2.0 SPILL DELINEATION

On March 13 – 14, 2017, LAI personnel used direct push technology (DPT) to collect soil samples at twelve (12) locations (DP-1 through DP-12). Soil samples were collected in one foot increments (i.e., 0 to 1, 1 to 2, 2 to 3 feet, etc.) to approximately one (1) foot bgs at location DP-1, 2 feet bgs at locations DP-5 and DP-9, six (6) feet bgs at locations DP-2, DP-4, DP-8, and DP-11, seven (7) feet bgs at location DP-6 and eight (8) feet bgs at locations DP-3, DP-7, DP-10 and DP-12. The samples were screened for organic vapors using the ambient temperature headspace method and reported vapor concentrations above 100 parts per million (ppm) in the following samples:

- DP-2, 0 to 1 foot (1,380 ppm)
- DP-2, 1 to 2 feet (232.3 ppm)
- DP-3, 0 to 1 foot (1,236 ppm)
- DP-3, 3 to 4 feet (141.3 ppm)
- DP-3, 4 to 5 feet (198.3 ppm)
- DP-3, 7 to 8 feet (231.2 ppm)
- DP-3, 4 to 5 feet (198.3 ppm)
- DP-4, 0 to 1 foot (1,250 ppm)

- DP-6, 2 to 3 feet (1,622 ppm)
- DP-6, 3 to 4 feet (1,328 ppm)
- DP-6, 4 to 5 feet (841.9 ppm)
- DP-8, 0 to 1 foot (1,104 ppm)
- Di 0,0 to 1 loot (1,104 ppill)
- DP-8, 1 to 2 feet (1,334 ppm)
- DP-8, 2 to 3 feet (115.8 ppm)
- DP-10, 0 to 1 foot (116.7 ppm)
- DP-10, 1 to 2 feet (590.5 ppm)

- DP-10, 4 to 5 feet (367.4 ppm)
- DP-11, 5 to 6 feet (101.3 ppm)
- DP-12, 7 to 8 feet (103 ppm)

- DP-4, 1 to 2 feet (118.6 ppm)
- DP-6, 0 to 1 foot (1,155 ppm)
- DP-6, 1 to 2 feet (1,836 ppm)

Laboratory samples were collected in 4 ounce jars that were hand delivered under preservation and chain of custody to Permian Basin Environmental Laboratory (PBEL), a National Laboratory Accreditation Program (NELAP) certified laboratory, located in Midland, Texas. PBEL analyzed samples exhibiting headspace readings above 100 ppm for benzene, toluene, ethylbenzene, xylenes (BTEX) by EPA SW-846 Method 8021B. The laboratory analyzed samples for total petroleum hydrocarbons (TPH) by SW-846 Method 8015M, including gasoline range organics, diesel range organics and oil range organics and chloride by Method 300. Table 1 presents the delineation soil sample analytical data summary. Figure 3 present the DPT sample locations and approximate spill area.

Benzene exceeded the RRAL (10 mg/Kg) in soil samples DP-6, 1 to 2 feet (18.9 mg/Kg). BTEX exceeded the RRAL (50 mg/Kg) in soil samples DP-2, 0 to 1 foot (147.75 mg/Kg), DP-3, 0 to 1 foot (140.53 mg/Kg), DP-6, 0 to 1 foot (230.27 mg/Kg), DP-6, 1 to 2 feet (439.6 mg/Kg), DP-6, 2 to 3 feet (254.36 mg/Kg) and DP-8, 0 to 1 foot (110.56 mg/Kg). TPH exceeded the RRAL (1,000 mg/Kg) in the following soil samples:

- DP-2, 0 to 1 foot (25,400 mg/Kg)
- DP-3, 0 to 1 foot (17,800 mg/Kg)
- DP-4, 0 to 1 foot (6,900 mg/Kg)
- DP-6, 0 to 1 foot (31,700 mg/Kg)
- DP-6, 1 to 2 feet (30,800 mg/Kg)
- DP-6, 2 to 3 feet (25,100 mg/Kg)
- DP-6, 3 to 4 feet (3,720 mg/Kg)
- DP-7, 0 to 1 foot (4,160 mg/Kg)
- DP-8, 0 to 1 foot (23,100 mg/Kg)
- DP-8, 1 to 2 feet (21,300 mg/Kg)
- DP-10, 0 to 1 foot (37,000 mg/Kg)

The delineation report was submitted to the OCD on May 23, 2017 and later revised (July 28, 2017) to include remediation for a produced water spill that occurred on June 14, 2017 (1RP-4235).

3.0 SPILL REMEDIATION

On July 27, 2017, OCD District 2 approved the remediation plan for 2RP-3976 and 2RP-4253 (Appendix A). On August 8 – 9, 2017, XTO personnel shut-in the production and removed above ground piping and electrical from the remediation area. On August 10, 2017, XTO removed the gun barrel and overflow tanks. Scarborough Drilling, Inc. (SDI) mobilized an air rotary rig immediately following removal of the tanks and used a jam tube sampler to collect soil samples for chloride delineation at DP-11, as requested by OCD District 2. Soil samples were collected every 5 feet (5, 10, 15, 20 feet etc.) to approximately 30 feet bgs. PBEL analyzed the samples for chloride by EPA Method 300 and reported chloride below 600

mg/Kg in all samples. The poly liner was removed from the remediation area. Soil excavation began near the southwest corner of the remediation area and progressed east and north until the entire area measuring approximately 3,978 square feet was excavated to a depth of approximately 18 inches. Soil was excavated to approximately 5 feet bgs at DP-6. Soil was excavated in the vicinity of DP-5 where holes were observed in the poly liner. The area around the gun barrel tank (S-15) was excavated to about 5 feet bgs. Additional soil was excavated near DP-8 and near the southwest corner of the excavation (S-14) to about 2 feet bgs. Soil was scraped to about 0.5 feet bgs from the north of DP-12 where the recent produced water spill (2RP-4253) had encroached.

On August 11, 2017, LAI personnel used a stainless steel hand auger and trowel to collect soil samples from the bottom of the excavations at sixteen (16) locations (S-1 through S-16) including the area north of DP-12 where soil was scraped from the recent spill (S-16). Sidewall samples were collected from the deeper excavations. The samples were analyzed for BTEX, TPH and chloride by EPA SW-846 Methods 8021B (BTEX) 8015 (TPH) including GRO, DRO and ORO and chloride by Method 300.

The Laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following bottom samples:

- S-5, 5.0' 5.5' (5,450 mg/Kg)
- S-10, 1.5' 2.0' (3,953 mg/Kg)
- S-6, 4.5' 5.0' (9,780 mg/Kg)
- S-14 1.5' 2.0' (1,598.7 mg/Kg)

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following sidewall samples:

• S-5, 2' East (3,580 mg/Kg)

S-6, 2' South (18,450 mg/Kg)

S-6, 4' North (1,310 mg/Kg)

S-6, 2' East (2,558 mg/Kg)

The laboratory reported chloride above 600 mg/Kg in the following bottom samples:

- S-13, 1.5' 2.0' (8,210 mg/Kg)
- S-16, 0.5' 1.0' (3,810 mg/Kg)
- S-14, 1.5' 2.0' (1,050 mg/Kg)

Additional soil was excavated at S-5, S-6, S-10 and S-14. TPH was below the RRAL in the final confirmation samples. Chloride was 247 mg/Kg in the bottom (5.0' - 5.5') at S-14.

On August 14, 2017, SDI collected samples for chloride delineation at locations S-13 and S-16. Soil samples were collected every 5 feet (5, 10, 15, 20 feet, etc.) to 30 feet bgs at S-13 and to 20 feet bgs at S-16. Chloride was below 600 mg/Kg in all samples from S-13 and below 250 mg/Kg in all samples from S-16. Approximately 805.82 tons/ cubic yards of soil was excavated and hauled to Lea Land Landfill, LLC. Clean caliche was hauled back from Lea Land for backfilling the excavation. On August 18, 2017, OCD District 2 approved backfilling the excavation which occurred between August 21 – 23, 2017. Table 2 presents the confirmation soil sample analytical data summary. Figure 3 presents the excavation and confirmation sample location map. Appendix A presents OCD correspondence. Appendix B presents the

laboratory reports. Appendix C presents he waste manifests. Appendix D presents photographs. Appendix E presents the initial and final C-141.

4.0 CONCLUSIONS

XTO performed soil remediation according to the remediation plan approved by OCD District 2, on July 27, 2017 and XTO requests no further action for 2RP-3976.

Tables

Table 1 2RP-3976

Assessment Soil Sample Analytical Data Summary XTO Energy, Inc., Nash Draw #42 CTB Crude Oil Spill UL N (SE/4, SW/4), S-8, T-26 South, R-31 East N32° 18' 23.14277" W103° 55' 29.89976" Eddy County, New Mexico

Sample	Depth	Collection	Status	PID	Benzene	ВТЕХ	GRO	DRO	ORO	ТРН	Chloride
	(Feet)	Date		(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	*250
DP-1	0 - 1	03/14/2017	In-situ	1.8		1	<27.5	<27.5	<27.5	<27.5	17.4
DP-2	0 - 1	03/14/2017	In-situ	1,380	4.75	147.75	5,730	16,900	2,760	25,400	62.9
	1 - 2	03/14/2017	In-situ	232.3	0.00702	0.1863	72.9	614	102	788.9	53.9
	2 - 3	03/14/2017	In-situ	16.3	I	1	<28.7	<28.7	<28.7	<28.7	33.9
	3 - 4	03/14/2017	In-situ	2.9	1	1	1	1	1	;	;
	4 - 5	03/14/2017	In-situ	1.8	I	1	1	1	1	1	1
		03/14/2017	In-situ	1.8	<0.00116	<0.00794	<29.1	<29.1	<29.1	<29.1	<1.16
DP-3	0 - 1	03/14/2017	In-situ	1,236	5.23	140.53	5,380	10,800	1,650	17,800	10.5
	- 1	03/14/2017	In-situ	90.2	0.0127	0.1708	<30.1	112	<301.	112	11.6
	2 - 3	03/14/2017	In-situ	29.5	l	1	<29.4	<29.4	<29.4	<29.4	12.4
		03/14/2017	In-situ	141.3	ŀ	1	<29.1	<29.1	<29.1	<29.1	9.45
	4 - 5	03/14/2017	In-situ	198.3	ŀ	1	1	1	1	1	1
		03/14/2017	In-situ	13.6	I	1	1	1	1	;	1
	2 - 9	03/14/2017	In-situ	25	1	1	1	1	1	1	;
	7 - 8	03/14/2017	In-situ	231.2	<0.00116	<0.00794	<29.1	<29.1	<29.1	<29.1	8.31
DP-4	0 - 1	03/14/2017	In-situ	1,250	0.807	10.86	666	2,060	844	6,900	43.4
	1 - 2	03/14/2017	In-situ	118.6	0.0056	0.0056	<29.8	<29.8	<29.8	<29.8	33.9
	2 - 3	03/14/2017	In-situ	39.4	ŀ	1	<28.4	<28.4	<28.4	<28.4	22.1
	3 - 4	03/14/2017	In-situ	12.5	ŀ	1	1	1	1	1	1
	4 - 5	03/14/2017	In-situ	26.8	1	1	1	1	ł	1	;
	9 - 9	03/14/2017	In-situ	53.5	<0.00112	<0.00786	<28.1	<28.1	<28.1	<28.1	106
DP-5	0 - 1	03/14/2017	ln-situ	2.2	ı	-	<27.5	<27.5	<27.5	<27.5	12.5

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Table 1 2RP-3976

Assessment Soil Sample Analytical Data Summary XTO Energy, Inc., Nash Draw #42 CTB Crude Oil Spill UL N (SE/4, SW/4), S-8, T-26 South, R-31 East N32° 18' 23.14277" W103° 55' 29.89976" Eddy County, New Mexico

Sample	Depth	Collection	Status	PID	Benzene	ВТЕХ	GRO	DRO	ORO	TPH	Chloride
	(Feet)	Date		(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	*250
	1 - 2	03/14/2017	In-situ	3.7	-	1	<27.8	<27.8	<27.8	<27.8	9.41
DP-6	0 - 1	03/13/2017	In-situ	1,155	8.87	230.27	7,900	20,400	3,330	31,700	145
	- 1	03/13/2017	In-situ	1,836	18.9	439.6	12,800	15,200	2,780	30,800	9.57
	2 - 3	03/13/2017	In-situ	1,622	9.16	254.36	10,500	12,300	2,240	25,100	9.72
	3 - 4	03/13/2017	In-situ	1,328	0.54	19.414	1,160	2,210	358	3,720	8.75
	- 1	03/13/2017	In-situ	841.9	<0.00115	0.05052	95.2	363	60.2	518.4	8.86
	2 - 6	03/13/2017	In-situ	11.5	<0.00115	<0.04945	<28.7	129	47.3	176.3	<1.16
	2 - 9	03/13/2017	In-situ	54	<0.00114	<0.00796	<28.4	<28.4	<28.4	<28.4	<1.14
DP-7	0 - 1	03/13/2017	In-situ	4.1		-	239	3,300	625	4,160	22.4
	1 - 2	03/13/2017	In-situ	1.9		-	<29.1	78.8	<29.1	78.8	19.3
	2 - 3	03/13/2017	In-situ	1.9	1	1	1	1	1	1	1
	3 - 4	03/13/2017	In-situ	4.2	!	1	1	1	1	1	1
	4 - 5	03/13/2017	In-situ	4.7	1	1	1	1	1	1	1
	2 - 6	03/13/2017	In-situ	12.2	I	1	1	1	1	1	1
	6 - 7	03/13/2017	In-situ	5.6	1	1	1	1	1	-	1
	7 - 8	03/13/2017	In-situ	39.5	<0.00111	<0.00777	<27.8	<27.8	<27.8	<27.8	137
DP-8	0 - 1	03/13/2017	In-situ	1,104	4.16	110.56	7,320	13,600	2,190	23,100	32.1
	1 - 2	03/13/2017	In-situ	1,334	1.42	28.47	8,260	11,100	1,910	21,300	13.5
	2 - 3	03/13/2017	In-situ	115.8		1	38	238	58	334	6.29
	3 - 4	03/13/2017	In-situ	43.1	I	1	1	1	1	1	1
	4 - 5	03/13/2017	In-situ	86.2	1	1	1	1	1	1	1
	2 - 6	03/13/2017	In-situ	8.5	<0.00111	<0.00777	<27.8	<27.8	<27.8	<27.8	<1.11

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Table 1 2RP-3976

Assessment Soil Sample Analytical Data Summary XTO Energy, Inc., Nash Draw #42 CTB Crude Oil Spill UL N (SE/4, SW/4), S-8, T-26 South, R-31 East N32° 18' 23.14277" W103° 55' 29.89976" Eddy County, New Mexico

Sample	Depth	Collection	Status	Old (max)	Benzene	BTEX	GRO	DRO	ORO	TPH	Chloride
	(reet)	Date		(mdd)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/ kg)
OCD RRAL:					10	20				1,000	*250
6-dQ	0 - 1	03/13/2017	In-situ	9.5		1	<2.7.2	<27.2	<27.2	<27.2	16.0
	1 - 2	03/13/2017	In-situ	4.5	ŀ	1	<28.1	<28.1	<28.1	<28.1	9.15
DP-10	0 - 1	03/13/2017	In-situ	116.7	1.53	49.730	10,400	22,900	3,720	37,000	7.34
	1 - 2	03/13/2017	In-situ	590.5	0.195	4.571	152	531	<144	683	7.48
	2 - 3	03/13/2017	In-situ	48.7	1	1	<29.4	<29.4	<29.4	<29.4	5.28
	3 - 4	03/13/2017	In-situ	24	ŀ	1	1	1	1	1	1
	4 - 5	03/13/2017	In-situ	367.4	1	1	1	1	1	1	1
	2 - 6	03/13/2017	In-situ	12.7	1	1	1	1	1	1	1
	2 - 9	03/13/2017	In-situ	20.3	ŀ	1	1	1	1	1	1
	7 - 8	03/13/2017	In-situ	3.4	<0.00111	<0.00777	44.5	<27.8	<27.8	44.5	174
DP-11	0 - 1	03/13/2017	In-situ	11.2		1	<27.8	<27.8	<27.8	<27.8	14.8
	- 1	03/13/2017	In-situ	6.4	ŀ	1	<29.4	<29.4	<29.4	<29.4	162
	2 - 3	03/13/2017	In-situ	6.4	ŀ	1	1	1	1	+	1
	3 - 4	03/13/2017	In-situ	1.8	I	1	1	1	1	1	1
	- 1	03/13/2017	In-situ	4.2	ŀ	1	1	1	1	1	1
	9 - 9	03/13/2017	In-situ	101.3	I	l	<27.8	156	50.3	206.3	702
								I			
DP-12	0 - 1	03/13/2017	In-situ	2.5	l	1	<27.2	122	45.1	167.1	104
	- 1	03/13/2017	In-situ	4.7	ŀ	1	<28.1	49.1	<28.1	49.1	145
	2 - 3	03/13/2017	In-situ	21.9	ŀ	1	!	1	1	1	1
	3 - 4	03/13/2017	In-situ	15.2	ŀ	1	!	1	!	1	1
	4 - 5	03/13/2017	In-situ	7	ŀ	1	!	1	1	1	1
	2 - 6	03/13/2017	In-situ	4.9	1	1	1	1	1	1	1
	6 - 7	03/13/2017	In-situ	27.6	1	-	1	-	1	-	-

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Table 1 2RP-3976

Assessment Soil Sample Analytical Data Summary XTO Energy, Inc., Nash Draw #42 CTB Crude Oil Spill UL N (SE/4, SW/4), S-8, T-26 South, R-31 East N32° 18' 23.14277" W103° 55' 29.89976"

Eddy County, New Mexico

Sample	Depth	Collection	Status	PID	Benzene	BTEX	GRO	DRO	ORO	TPH	Chloride
	(Feet)	Date		(ppm)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	*250
	7 - 8	03/13/2017	ln-situ	103	<0.00112	<0.0079	<28.1	<28.1	<28.1	<28.1	72.7

Notes: analysis performed by Permian Basin Environmental Lab, Midland, Texas, by EPA SW-846 method 8021B (BTEX) and 8015M (TPH) Depth in inches below ground surface (bgs)

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

Bold and highlighted denotes analyte detected at concentration above the OCD Recommended Remediation Action Level (RRAL)

^{*:} OCD delineation limit

P: Laboratory results pending

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Table 2
2RP-3976 and 2RP-4253
Remediation Soil Sample Analytical Data Summary
XTO Energy, Inc., Nash Draw #42 CTB Spills
UL E (SW/4, NW/4), S-18, T-23 South, R-30 East
N32° 18' 23.14277" W103° 55' 29.89976"
Eddy County, New Mexico

Sample	Depth	Collection	Position	Status	Benzene	BTEX	GRO	DRO	ORO	TPH	Chloride
	(Feet)	Date			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	**600
S-1	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0244	<0.1708	<30.5	<30.5	<30.5	<30.5	62.7
S-2	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0241	<0.1687	<30.1	57.4	<30.1	57.4	103
S-3	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0235	<0.1047	<29.4	<29.4	<29.4	<29.4	13.7
S-4	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0230	<0.161	<28.7	<28.7	<28.7	<28.7	<1.15
S-5	1.5 - 2.0	08/11/2017	Bottom	Excavated	0.0664	13.7464	755	3,970	720	5,450	147
	5.0 - 5.5	08/14/2017	Bottom	In-situ	1	1	<28.7	209	84.9	293.9	19.3
	2	08/14/2017	Side (N)	In-situ	1	1	43.1	764	152	959.1	48.0
	2	08/14/2017	Side (S)	In-situ	1	1	<27.2	<27.2	<27.2	<27.2	<1.09
	*2	08/14/2017	Side (E)	Excavated	1	;	356	2,700	524	3,580	161
	2	08/14/2017	Side (W)	In-situ	1	1	<30.1	66.2	<30.1	66.2	16.8
S-6	4.5 - 5.0	08/11/2017	Bottom	Excavated	0.199	688.6	2,850	5,710	1,210	9,780	<1.14
	12.0 - 12.5	08/14/2017	Bottom	In-situ	1	1	<28.1	200	36.5	236.5	35.2
	2	08/11/2017	Side (N)	In-situ	<0.0244	<0.1708	<30.5	131	38.8	169.8	<1.22
	4	08/14/2017	Side (N)	Excavated	1	;	246	906	160	1,310	30.3
	4	08/16/2017	Side (N)	In-situ	1	1	<26.9	<26.9	<26.9	<26.9	20.2
	∞	08/14/2017	Side (N)	In-situ	1	1	<29.8	<29.8	<29.8	<29.8	20.1
	2	08/11/2017	Side (S)	Excavated	0.388	36.718	4,770	11,400	2,280	18,450	102
	4	08/14/2017	Side (S)	In-situ	1	1	<28.1	<28.1	<28.2	<28.1	61.5
	∞	08/14/2017	Side (S)	In-situ	1	1	<27.8	<27.8	<27.8	<27.8	954
	*2	08/11/2017	Side (W)	In-situ	<0.0227	<0.1591	42.7	534	122	698.7	15.0

Table 2

2RP-3976 and 2RP-4253

Remediation Soil Sample Analytical Data Summary
XTO Energy, Inc., Nash Draw #42 CTB Spills
UL E (SW/4, NW/4), S-18, T-23 South, R-30 East
N32° 18' 23.14277" W103° 55' 29.89976"
Eddy County, New Mexico

/ Mexico		
Eddy County, New M		

Page 2 of 4

Sample	Depth	Collection	Position	Status	Benzene	BTEX	GRO	DRO	ORO	ТРН	Chloride
	(Feet)	Date			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	**600
	4	08/14/2017	Side (W)	In-situ	ł	1	<28.7	281	48.5	329.5	21.6
	∞	08/14/2017	Side (W)	In-situ	ŀ	I	<28.7	61.4	<28.7	61.4	18.1
	2	08/11/2017	Side (E)	Excavated	<0.0244	0.9416	358	1,830	370	2,558	780
	4	08/14/2017	Side (E)	In-situ	1	1	<26.9	<26.9	<26.9	<26.9	13.8
	∞	08/14/2017	Side (E)	In-situ	ŀ	1	<27.2	<27.2	<27.2	<27.2	43.8
2-3	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0227	.0568	<28.4	390	76.3	466.3	152
8-8	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0227	<0.1591	<28.4	8.99	<28.4	8.99	13.7
8-9	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0230	<0.161	<28.7	<28.7	<28.7	<28.7	<1.15
S-10	1.5 - 2.0	08/11/2017	Bottom	Excavated	<0.0230	2.525	286	2,900	467	3,953	629
	5.0 - 5.5	08/14/2017	Bottom	In-situ	1	1	<27.5	177	32.1	209.1	4.88
	2	08/14/2017	Side (N)	In-situ	ł	1	<29.1	<29.1	<29.1	<29.1	7.66
	2	08/14/2017	Side (S)	In-situ	ŀ	1	33.2	553	95.2	681.4	68.4
	2	08/14/2017	Side (E)	In-situ	ŀ	1	<28.7	92.9	<28.7	92.9	79.3
	2	08/14/2017	Side (W)	In-situ	ŀ	1	<29.1	<29.1	<29.1	<29.1	19.4
S-11	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0238	<0.1666	<29.8	42.9	<29.8	42.9	53.3
											!
S-12	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0235	<0.1047	<29.4	50.4	<29.4	50.4	459
S-13	1.5 - 2.0	08/11/2017	Bottom	In-situ	<0.0233	<0.1629	<29.1	114	<29.4	114	8,210

Table 2
2RP-3976 and 2RP-4253
Remediation Soil Sample Analytical Data Summary
XTO Energy, Inc., Nash Draw #42 CTB Spills
UL E (SW/4, NW/4), S-18, T-23 South, R-30 East
N32° 18' 23.14277" W103° 55' 29.89976"
Eddy County, New Mexico

Page 3 of 4

Sample	Depth	Collection	Position	Status	Benzene	BTEX	GRO	DRO	ORO	ТРН	Chloride
	(Feet)	Date			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
OCD RRAL:					10	20				1,000	**
	9 - 9	08/14/2017	Bottom	In-situ	:	+		1	1	1	169
	10 - 11	08/14/2017	Bottom	In-situ	ŀ	ŀ	ŀ	ŀ	ŀ	1	290
	15 - 16	08/14/2017	Bottom	In-situ	;	ŀ	ł	ŀ	ŀ	ł	520
	20 - 21	08/14/2017	Bottom	In-situ	1	1	1	1	1	1	64.3
	25 - 26	08/14/2017	Bottom	In-situ	1	1	1	1	1	1	21.2
	30 - 31	08/14/2017	Bottom	In-situ	1	1	1	1	1	ł	26.1
S-14	1.5 - 2.0	08/11/2012	Bottom	Excavated	<0.0225	<0.1573	44.7	1,270	284	1,598.7	1,050
	5.0 - 5.5	08/14/2017	Bottom	In-situ	1	1	<30.9	<30.9	<30.9	<30.9	247
	2	08/14/2017	Side (N)	In-situ	1	1	<28.1	<28.1	<28.1	<28.1	105
	2	08/14/2017	Side (S)	In-situ	ł	1	<31.2	<31.2	<31.2	<31.2	192
	2	08/14/2017	Side (E)	In-situ	1	1	<30.5	<30.5	<30.5	<30.5	139
	2	08/14/2017	Side (W)	In-situ	1	ŀ	<29.1	<29.1	<29.1	<29.1	412
S-15	4.5 - 5.0	08/11/2012	Bottom	In-situ	<0.0235	<0.1647	4. 62>	<29.4	<29.4	<29.4	34.5
	2	08/11/2017	Side (North)	In-situ	<0.0227	<0.1591	<28.4	<28.4	<28.4	<28.4	14.2
	2		Side (South)	In-situ	<0.0238	<0.1666	<29.8	<29.8	<29.8	<29.8	5.11
	7	08/11/2017	Side (West)	In-situ	<0.0227	<0.1591	<28.4	<28.4	<28.4	<28.4	112
	2	08/11/2017	Side (East)	In-situ	<0.0227	<0.1591	<28.4	<28.4	<28.4	<28.4	11.4
S-16	0.5 - 1.0	08/11/2017	Bottom	In-situ	<0.0213	<0.1278	>26.6	<26.6	<26.6	<26.6	3,810
	2 - 6	08/14/2017	Bottom	In-situ	1	1	1	1	1	1	70.7
	10 - 11	08/14/2017	Bottom	In-situ	1	1	1	1	1	!	95.2
	15 - 16	08/14/2017	Bottom	In-situ	1	1	1	1	1	1	413

2RP-3976 and 2RP-4253 Table 2

Remediation Soil Sample Analytical Data Summary UL E (SW/4, NW/4), S-18, T-23 South, R-30 East XTO Energy, Inc., Nash Draw #42 CTB Spills N32° 18' 23.14277" W103° 55' 29.89976" **Eddy County, New Mexico**

Page 4 of 4	Chloride	(mg/Kg)	009**	63.8
	НД	(mg/Kg)	1,000	:
	ORO	(mg/Kg)		:
	DRO	(mg/Kg)		:
	GRO	(mg/Kg)		:
	BTEX	(mg/Kg)	20	:
	Benzene	(mg/Kg)	10	:
	Status			In-situ
	Position			Bottom
	Collection Position	Date		20 - 21 08/14/2017
	Depth	(Feet)		20 - 21
	Sample		OCD RRAL:	

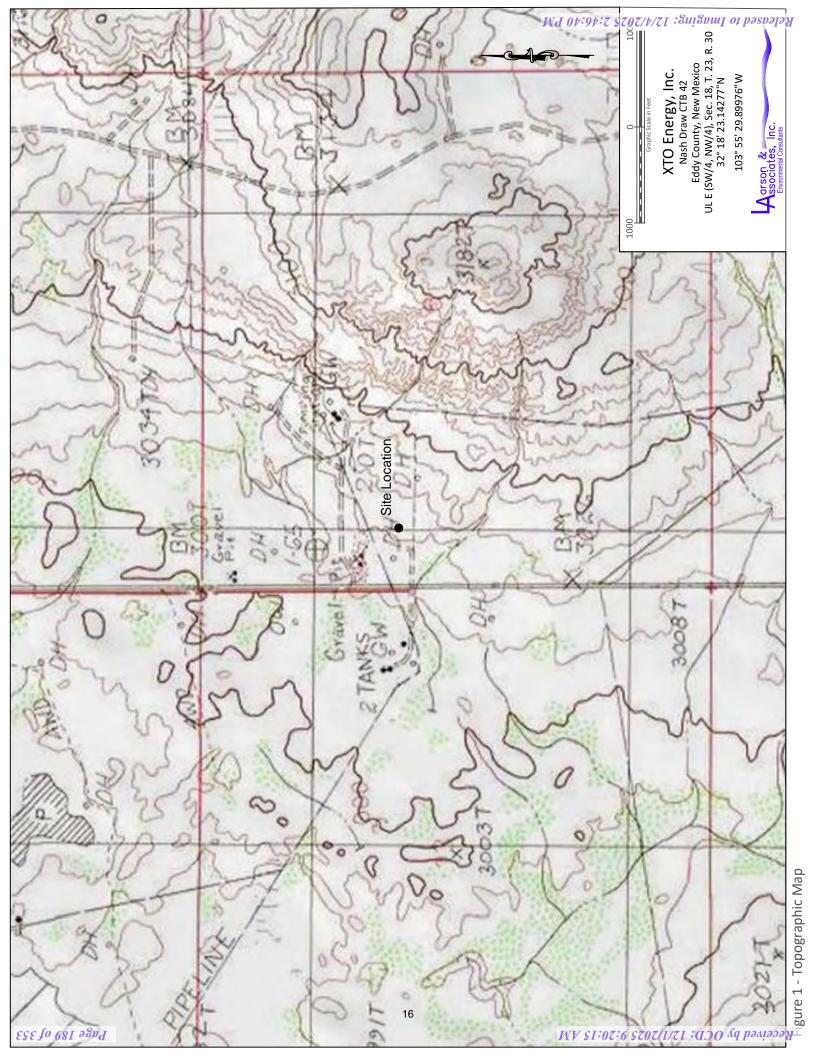
Notes: analysis\ by Permian Basin Environmental Lab, Midland, Texas, by EPA SW-846 Method 8021B (BTEX), Method 8015M (TPH) and Method 300 (chloride)

Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
* East side of excavation (5-5) joined to west side of adjoining excavation (5-6)

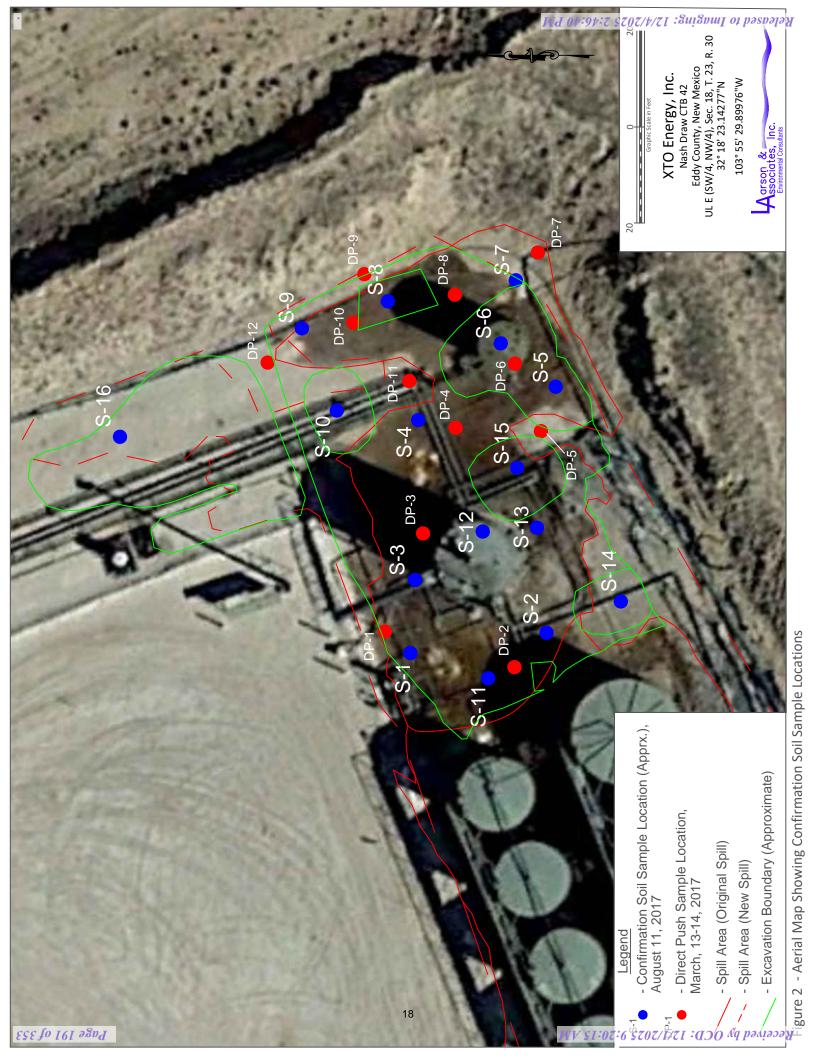
**: OCD delineation limit

P Laboratory analysis pending Bold and highlighted denotes analyte detected at concentration above the OCD Recommended Remediation Action Level (RRAL)

Figures







Appendix A

OCD Approval

From: Mark Larson
To: Sarah Johnson

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Date: Tuesday, August 22, 2017 8:03:50 AM
Attachments: Location Drawing for Berm.pdf

Sarah,

Good morning! Here's the approval for backfilling the excavations. The attached drawing shows the location for the new berm on the north side of the excavation. Please have SDR build a berm from caliche to the same height as the existing berm on the north side of the tanks. Have SDR tie the west end of the berm into the berm on the north side of the tanks and on the east end where the berm turns north (east of DP-1). Please call me if you have questions.

Mark

From: Bratcher, Mike, EMNRD [mailto:mike.bratcher@state.nm.us]

Sent: Friday, August 18, 2017 4:39 PM

To: Mark Larson; Weaver, Crystal, EMNRD; 'Groves, Amber'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

RE: 2RP-3976 & 2RP-4235

Mark,

Based on data provided, you are approved to commence backfill operations. Sorry for a perceived delayed response, but if we actually worked everything in the order received, it would be at least a few weeks before you got a response. We do appreciate the thorough job and uncomplicated reporting you provide, along with XTO's willingness and cooperation in maintaining an environmentally solid operation. I do understand the urgency for this particular project and apologize for any inconvenience.

Mike Bratcher NMOCD District 2 811 South First Street Artesia, NM 88210 575~748~1283 Ext 108

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.

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 18, 2017 8:27 AM

To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; 'Groves, Amber' <agroves@slo.state.nm.us>

Cc: 'McMinn, Dudley' <Dudley_McMinn@xtoenergy.com>; 'Williams, Luke' <Luke_Williams@xtoenergy.com>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal/Mike,

This summary is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of XTO Energy Inc. (XTO) to present the delineation and remediation of two (2) spills (2RP-3976 and 2RP-4253) at the Nash Draw CTB #42. LAI requests approval to backfill the excavations so that XTO may install a spray-in liner and resume production. The final reports for 2RP-3976 and 2RP-4253 will be submitted after the excavations area backfilled along with the final C-141s.

On August 8 - 9, 2017, XTO personnel shut-in the production and removed above ground piping and electrical from the remediation area. On August 10, 2017, XTO had the gun barrel and overflow tanks removed from the remediation area. Immediately following removal of the tanks, Scarborough Drilling mobilized an air rotary rig to DP-11 for the purpose of delineating chloride as requested by OCD. Soil samples were collected with a jam tube sampler at 10, 15, 20, 25 and 30 feet below ground surface (bgs) and were analyzed for chloride by EPA Method 300. Chloride was below 250 mg/Kg in all samples concluding successful vertical delineation. The ploy liner was removed from the remediation area and disposed at Lea Land Landfill. Soil excavation began near the southwest corner of the remediation area and progressed east and north until the entire area was excavated to a depth of approximately 18 inches. Soil was excavated to approximately 5 feet bgs at DP-6. Additional soil was excavated in the vicinity of DP-5 where holes were observed in the poly liner and from areas beneath the tanks and where staining was observed beneath the liner. The area around DP-8 was excavated to about 2 feet bgs. Soil was scraped to about 0.5 feet bgs from the area north of DP-12 where the recent produced water spill (2RP-4253) had encroached. On August 11, 2017, LAI personnel used a stainless steel hand auger and trowel to collect soil samples from the bottom of the excavations at sixteen (16) locations (S-1 through S-16) including the area north of DP-12 where was scraped from the recent spill (S-16). Sidewall samples were collected from the deeper excavations. The samples were analyzed for BTEX, TPH and chloride by Methods SW-846=-8021B, SW-846-8015M and 300, respectively.

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following bottom samples:

S-5, 5.0' - 5.5' (5,450 mg/Kg)

S-6, 4.5' - 5.0' (9,780 mg/Kg)

S-10, 1.5' - 2.0' (3,953 mg/Kg)

S-14, 1.5' - 2.0'(1,598.7 mg/Kg)

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following sidewall samples:

S-5, 2' East (3,580 mg/Kg)

S-6, 4' North (1,310 mg/Kg)

S-6, 2' South (18,450 mg/Kg)

S-6,2' East (2,558 mg/Kg)

The laboratory reported chloride above 600 mg/Kg in the following bottom samples:

S-13, 1.5' – 2.0' (8,210 mg/Kg) S-14, 1.5' – 2.0' (1,050 mg/Kg) S-16, 0.5' – 1.0' (3,810 mg/Kg)

Between August 14 – 16, 2017, additional soil was excavated at S-5, S-6, S-10 and S-14. TPH was below the RRAL in the final confirmation samples. Chloride was 247 mg/Kg in the bottom sample (5.0′ – 5.5′) at S-14. Scarborough Drilling collected samples every 5 feet (5, 10. 15, 20 feet, etc.) to 30 feet at S-13 and 20 feet at S-16. Chloride was below 600 mg/Kg in all samples from S-13 and below 250 mg/Kg in all samples from S-16. Please refer to Table 2. The excavation and sample location drawing is presented as Figure 2. Photographs are attached. Approximately 525.5 tons/cubic yards of contaminated soil was hauled to Le Land Landfill, LLC. Clean caliche was hauled back from Lea Land for backfilling the excavations. LAI, on behalf of XTO, requests OCD approval to backfill the excavations so that XTO may begin installing the spray-in liner and resume production. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or Dudley_McMinn@xtoenergy.com or me if you have questions. Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Wednesday, August 09, 2017 7:01 PM

To: 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Crystal,

The tanks (gun barrel and overflow) were emptied today and will be removed on Thursday morning to allow access for equipment to perform remediation. We plan to collect additional samples tomorrow from SB-11 for vertical delineation.

Mark

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Monday, August 07, 2017 9:27 AM

To: Mark Larson

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Good morning,

Thank you Mark. I may try to make it out to this one if Amber can not.

Crystal Weaver

Environmental Specialist

OCD – Artesia District II

811 S. 1st Street

Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Sunday, August 6, 2017 6:58 PM

To: Weaver, Crystal, EMNRD < <u>Crystal.Weaver@state.nm.us</u>>; 'Groves, Amber'

<agroves@slo.state.nm.us>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke'

<<u>Luke Williams@xtoenergy.com</u>>

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Crystal/Amber,

This is to inform you that remediation of 2RP-3976 and 2RO-4253 will commence on Monday, August 9, 2017. Please contact Dudley McMinn with XTO Energy, Inc., at (432) 682-8873 or Dudley_McMinn@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.
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mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 27, 2017 5:21 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'McMinn, Dudley'; 'Williams, Luke'

Cc: 'Tucker, Shelly'; Groves, Amber

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

First off thank you Mark for your answers to my questions.

I was checking a few clerical details and I wanted to bring a few more things to all of your attention. On the first spill, given case number 2RP-3976, there was no API number provided on the initial C-141 and since it was mentioned that the release was involving a battery our administrative personnel entered this in our system and gave it a facility number instead of relating it to the API for this location. However, on the second spill, given case number 2RP-4253, an API number was provided on the initial C-141 so our administrative personnel entered this one into our system under the API number. So now we have records for two spills recorded in two different places in our system that in fact actually happened at this same site. Please try to remain consistent on what you go with for C-141 documentation and of course for any documentation.

Also I show in my records that this site is on State Land Office administered service but when I look back in the well file history for this site I see documents being provided to the BLM for this facility. Since I have this site as SLO land I am adding Amber Groves, from the State Land Office, to this email chain and I am thus requesting that someone please help to clarify this matter. So Shelly or Amber can you all please clear up who is the surface owner for this location?

Finally, getting back to Mark's answers to my questions.

OCD accepts your proposal for remediation of the above mentioned releases (2RP-3976 and 2RP-4235) with the following conditions:

• Within the answers provided below it is stated that Larson Associates Inc. on behalf of XTO will be submitting samples for laboratory testing of "total petroleum hydrocarbons (TPH) as determined by EPA SW-846 Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The confirmation samples will be analyzed Method 300. Additional vertical samples

will be collected to delineate chloride to 600 mg/Kg." However, OCD notes that testing for BTEX was not mentioned in either of these statements. OCD requires that all sampling points related to the remediation of this site start out with testing for all required constituents that are mentioned within the Conditions of Approval document that was provided by OCD to you all for each of these releases.

- Since the second release spanned beyond the extent of the first release it is OCD's understanding that all impacted areas will be delineated during remedial activities. Excavation depths may vary based on new analytical data.
- Again as mentioned above in bullet point 1, because your response statement below, to my
 sampling request for areas where there are holes in the liner, does not include the
 mentioning of sampling for BTEX I want to make it clear that OCD requires that all sampling
 points related to the remediation of this site start out with testing for all required constituents
 that are mentioned within the Conditions of Approval document that was provided by OCD to
 you all for each of these releases.
- OCD concurs with the answer provided below regarding sampling point DP-11.

Please advise once remedial activities have been scheduled. If this is Federal surface then it will require like approval from BLM, if this is State Land Office surface than it will require like approval from SLO.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia. NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720 **From:** Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, July 21, 2017 7:24 AM

To: Weaver, Crystal, EMNRD <<u>Crystal.Weaver@state.nm.us</u>>; Bratcher, Mike, EMNRD <<u>mike.bratcher@state.nm.us</u>>; 'McMinn, Dudley' <<u>Dudley_McMinn@xtoenergy.com</u>>; 'Williams, Luke' <<u>Luke_Williams@xtoenergy.com</u>>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

The following is submitted on behalf of XTO Energy, Inc. (XTO) in response to your questions below:

Question: All sampling mentioned in the current work plan (happened on 3/13/17 and

3/14/17) is sampling that relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional sampling

being done on its behalf prior to excavation?

Response: it is my opinion that the depth of excavation will be similar to what is proposed since

the initial spill was mostly crude oil with an small amount of produced water and the recent spill is mostly produced water with a small amount of crude oil. Soil will be excavated until total petroleum hydrocarbons (TPH) as determined by EPA SW-846

Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The

confirmation samples will be analyzed Method 300. Additional vertical samples will

be collected to delineate chloride to 600 mg/Kg.

Question: Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.

Response: The area east of the tank battery covered by the initial spill is unlined. The recent

spill east of the tank battery occurred the lined area where holes are shown in the liner. Soil samples will be collected from the lined area covered by the spill where holes are observed. The soil samples will be will be analyzed for TPH as determined by EPA SW-846 Method 8015 for GR, DRO and ORO and chloride by Method 300. Soil will be excavated until TPH in bottom sample and sidewall samples where the excavation exceeds 2 feet is below the RRAL (1,000 mg/Kg). Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question: Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

Response: A backhoe may be used to confirmed the chloride concentration in soil at DP-11, 5 –

6 feet. The sample will be analyzed by Method 300. Additional vertical samples will

be collected to delineate chloride to 600 mg/Kg.

Question: also just noticed one last thing, the label on your Table 1 says that the table is for 2RP-1486, is that a typo?

Response: Good catch! I used an earlier table as a template and didn't change the remediation

permit number. Please find the corrected table attached.

Question: also just noticed one last thing, the remediation permit number you refer to for the recent spill (2RP-4235), is that a typo?

Response: This remediation permit (2RP-4235) is for a release at the Devon Energy Production

Company Cotton Draw Unit 84! It appears the 3 and 5 were juxtaposed and should

be 2RP-4253.

Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Project Manager
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"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 13, 2017 2:07 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'Tucker, Shelly'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

Thank you for the submission of this most recent plan and for the submission of the prior one as well.

OCD is fine with the idea of remediating both spills at the same time while you have equipment and workers mobilized, etc. and we are fine with both releases being written about in the same work plan and closure report etc., however, the spills will still be treated as separate cases as far as each will be referred to by its individual tracking number and DOR, and each will have to be closed out on our end as individual incidents. So each will need final C-141s.

With that being said, I have looked things over and I have a few questions for you all:

- All sampling mentioned in the current work plan (happened on 3/13/17 and 3/14/17) is sampling that relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional sampling being done on its behalf prior to excavation?
- Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.
- Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

I look forward to receiving a response to my questions/requests.

If you have any need for clarification or have any questions of your own please contact myself or Mike Bratcher here at the District II Office.

Thank you,

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Monday, July 3, 2017 4:06 PM

To: Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us >; Weaver, Crystal, EMNRD

<<u>Crystal.Weaver@state.nm.us</u>>; 'Tucker, Shelly' <<u>stucker@blm.gov</u>>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke'

<<u>Luke Williams@xtoenergy.com</u>>

Subject: Re: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

Mike/Crystal/Shelly,

Larson & Associates, Inc. (LAI) submits the delineation report and remediation plan for a crude oil spill at the XTO Energy, Inc. (XTO) Nash Draw 42 CTB. Since submitting the plan on May 23, 2017, XTO reported another spill at the facility on June 14, 2017, prior to receiving OCD approval of the remediation plan for the crude oil spill. XTO would like the OCD to consider allowing remediation of both spills under the remediation plan presented herein. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or Dudley_McMinn@xtoenergy.com or me if you have questions.

Link: https://files.acrobat.com/a/preview/aac0757d-4e60-4e7d-b88c-f8ac9693cab9

Mark J. Larson, P.G.
President/Sr. Project Manager
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mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Tuesday, May 23, 2017 8:24 AM

To: 'Bratcher, Mike, EMNRD'; 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: Re: XTO CTB 42 Revised Delineation Report

Mike/Crystal,

Please use the link below to download the revised delineation report for 2RP-3976. The report was revised to include additional photographs for exposing the liner inside the firewall. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/af3a731c-13d6-4830-8201-6944cbd5f9aa

Respectfully,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office - 432-687-0901 Cell - 432-556-8656 Fax - 432-687-0456

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"Serving the Permian Basin Since 2000"

Appendix B

Laboratory Reports

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



Analytical Report

Prepared for:

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

Project: Nash Draw 42
Project Number: 17-0124-01
Location: New Mexico

Lab Order Number: 7H12002



NELAP/TCEQ # T104704516-16-7

Report Date: 08/13/17

Larson & Associates, Inc.Project:Nash Draw 42P.O. Box 50685Project Number:17-0124-01Midland TX, 79710Project Manager:Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-1 1.5-2'	7H12002-01	Soil	08/11/17 14:45	08-11-2017 20:00
S-2 1.5-2'	7H12002-02	Soil	08/11/17 14:46	08-11-2017 20:00
S-3 1.5-2'	7H12002-03	Soil	08/11/17 14:46	08-11-2017 20:00
S-4 1.5-2'	7H12002-04	Soil	08/11/17 14:50	08-11-2017 20:00
S-5 1.5-2'	7H12002-05	Soil	08/11/17 15:22	08-11-2017 20:00
S-6 4.5-5'	7H12002-06	Soil	08/11/17 15:25	08-11-2017 20:00
S-6 N-2'	7H12002-07	Soil	08/11/17 15:40	08-11-2017 20:00
S-6 S-2'	7H12002-08	Soil	08/11/17 15:44	08-11-2017 20:00
S-6 W-2'	7H12002-09	Soil	08/11/17 15:46	08-11-2017 20:00
S-6 E-2'	7H12002-10	Soil	08/11/17 15:47	08-11-2017 20:00
S-7 1.5-2'	7H12002-11	Soil	08/11/17 14:54	08-11-2017 20:00
S-8 1.5-2'	7H12002-12	Soil	08/11/17 14:57	08-11-2017 20:00
S-9 1.5-2'	7H12002-13	Soil	08/11/17 15:01	08-11-2017 20:00
S-10 1.5-2'	7H12002-14	Soil	08/11/17 15:05	08-11-2017 20:00
S-11 1.5-2'	7H12002-15	Soil	08/11/17 15:08	08-11-2017 20:00
S-12 1.5-2'	7H12002-16	Soil	08/11/17 15:10	08-11-2017 20:00
S-13 1.5-2'	7H12002-17	Soil	08/11/17 15:11	08-11-2017 20:00
S-14 1.5-2'	7H12002-18	Soil	08/11/17 15:13	08-11-2017 20:00
S-15 4.5-5'	7H12002-19	Soil	08/11/17 15:18	08-11-2017 20:00
S-15 N 2'	7H12002-20	Soil	08/11/17 15:36	08-11-2017 20:00
S-15 S 2'	7H12002-21	Soil	08/11/17 15:34	08-11-2017 20:00
S-15 W-2'	7H12002-22	Soil	08/11/17 15:38	08-11-2017 20:00
S-15 E 2'	7H12002-23	Soil	08/11/17 15:39	08-11-2017 20:00
S-16 0.5-1'	7H12002-24	Soil	08/11/17 15:27	08-11-2017 20:00

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-1 1.5-2' 7H12002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin F	Environmen	ıtal Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		45.2 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		104 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EPA	Standard Methods	s							
Chloride	ND	30.5	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	18.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 l	by EPA Method 801	15M							
C6-C12	ND	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		110 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		138 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	30.5	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-2 1.5-2' 7H12002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin F	Environmen	tal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0241	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0482	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0241	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0482	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0241	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		98.7 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		48.8 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EP	A / Standard Methods	S							
Chloride	139	30.1	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	17.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	5M							
C6-C12	ND	30.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	57.4	30.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	30.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		103 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		127 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	57.4	30.1	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-3 1.5-2' 7H12002-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		97.4 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		37.6 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA /	Standard Method	ls							
Chloride	ND	29.4	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	15.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	oy EPA Method 80	15M							
C6-C12	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		108 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		136 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-4 1.5-2' 7H12002-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		98.0 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		41.9 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA /	Standard Method	ls							
Chloride	ND	28.7	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	oy EPA Method 80	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		111 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		135 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-5 1.5-2' 7H12002-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perr	nian Basin F	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	0.0664	0.0222	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	2.25	0.0444	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	2.35	0.0222	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	5.80	0.0444	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	3.28	0.0222	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.9 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		35.4 %	6 75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by El	PA / Standard Method	ls							
Chloride	ND	27.8	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	10.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	755	139	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	3970	139	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	720	139	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		114 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		125 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	5450	139	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-6 4.5-5' 7H12002-06 (Soil)

	D 1	Reporting	TT '4	D'1 4'	D . 1	D 1		Mala	NT 4
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	0.199	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	2.52	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	1.88	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	4.23	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	1.06	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		35.2 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		91.2 %	6 75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EF	A / Standard Method	s							
Chloride	53.1	28.4	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	35 by EPA Method 80	15M							
C6-C12	2850	142	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	5710	142	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	1210	142	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	<u> </u>
Surrogate: o-Terphenyl		123 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon	9780	142	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	
C6-C35									

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-6 N-2' 7H12002-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.9 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by El	PA / Standard Method	ls							
Chloride	ND	30.5	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	18.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	ND	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	131	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	38.8	30.5	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		109 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		130 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	170	30.5	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-6 S-2' 7H12002-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	0.338	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	7.71	0.0449	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	4.30	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	16.1	0.0449	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	8.27	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		44.6 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		97.6 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EP	A / Standard Method	ls							
Chloride	ND	28.1	mg/kg dry	25	P7H1215	08/12/17	08/12/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 80	15M							
C6-C12	4770	140	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	11400	140	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	2280	140	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		103 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		124 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	18400	140	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-6 W-2' 7H12002-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	0.0959	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	0.0570	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.2 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		94.8 %	5 75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	ls							
Chloride	ND	28.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	42.7	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	534	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	122	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		121 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		145 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	699	28.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-6 E-2' 7H12002-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Timaryte						Trepared	7 mary zec	Wethod	Trotes
	Pern	nian Basin F	Cnvironmer	ıtal Lab, 1	L .P.				
Organics by GC									
Benzene	ND	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	0.0707	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	0.0959	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	0.582	0.0488	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	0.193	0.0244	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		66.7 %	75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		91.6 %	% 75-125		P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	ls							
Chloride	780	30.5	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	18.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	358	152	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	1830	152	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	370	152	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		111 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		128 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	2560	152	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-7 1.5-2' 7H12002-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin F	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	0.0568	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.7 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		98.8 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	ls							
Chloride	ND	28.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	235 by EPA Method 80	15M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	390	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	76.3	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		139 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	467	28.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-8 1.5-2' 7H12002-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	ital Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		102 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		56.8 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by El	PA / Standard Method	ls							
Chloride	ND	28.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	66.8	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		135 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	66.8	28.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-9 1.5-2' 7H12002-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	nian Basin E	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		52.6 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		100 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EPA /	Standard Method	s							
Chloride	ND	28.7	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 k	oy EPA Method 80	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		111 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		139 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-10 1.5-2' 7H12002-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perr	nian Basin E	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	0.293	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	1.54	0.0460	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	0.692	0.0230	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		97.4 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		38.0 %	75-1.	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EF	PA / Standard Method	ls							
Chloride	629	28.7	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	35 by EPA Method 80	15M							
C6-C12	586	144	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	2900	144	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	467	144	mg/kg dry	5	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		115 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		139 %	70-1.	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	3950	144	mg/kg dry	5	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-11 1.5-2' 7H12002-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	ıtal Lab, l	L.P.				
Organics by GC									
Benzene	ND	0.0238	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0476	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0238	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0476	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0238	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		49.0 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		99.2 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by El	PA / Standard Method	ls							
Chloride	ND	29.8	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	16.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	ND	29.8	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	42.9	29.8	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.8	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		100 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		124 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	42.9	29.8	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-12 1.5-2' 7H12002-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		50.0 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		100 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EP	A / Standard Method	s							
Chloride	459	29.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	15.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	35 by EPA Method 80	15M							
C6-C12	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	50.4	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		151 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	50.4	29.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-13 1.5-2' 7H12002-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0233	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0465	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0233	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0465	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0233	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		54.4 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		96.3 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by El	PA / Standard Method	ls							
Chloride	8210	58.1	mg/kg dry	50	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	14.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	ND	29.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	114	29.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		113 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		140 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	114	29.1	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-14 1.5-2' 7H12002-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Invironme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0449	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0449	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0225	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		37.5 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		101 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by E	PA / Standard Method	ls							
Chloride	1050	28.1	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	44.7	28.1	mg/kg dry	1	P7H1204	08/12/17	08/13/17	TPH 8015M	
>C12-C28	1270	28.1	mg/kg dry	1	P7H1204	08/12/17	08/13/17	TPH 8015M	
>C28-C35	284	28.1	mg/kg dry	1	P7H1204	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		56.5 %	70-1	30	P7H1204	08/12/17	08/13/17	TPH 8015M	S-GC
Surrogate: o-Terphenyl		72.3 %	70-1	30	P7H1204	08/12/17	08/13/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	1600	28.1	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-15 4.5-5' 7H12002-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0471	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0235	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		46.5 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		97.5 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
General Chemistry Parameters by EPA / St	andard Method	ls							
Chloride	ND	29.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	15.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 80	15M							
C6-C12	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		86.9 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		106 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-15 N 2' 7H12002-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	mian Basin E	Environme	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		96.9 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		50.3 %	75-1	25	P7H1205	08/12/17	08/12/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA / Sta	ndard Metho	ds							
Chloride	79.0	28.4	mg/kg dry	25	P7H1215	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by E	PA Method 80)15M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: 1-Chlorooctane		122 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	
Surrogate: o-Terphenyl		145 %	70-1	30	P7H1204	08/12/17	08/12/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	08/12/17	08/12/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-15 S 2' 7H12002-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	nian Basin F	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0238	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Toluene	ND	0.0476	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Ethylbenzene	ND	0.0238	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (p/m)	ND	0.0476	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (o)	ND	0.0238	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		96.8 %	75-1.	25	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.8 %	75-1.	25	P7H1206	08/12/17	08/13/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA	Standard Method	s							
Chloride	ND	29.8	mg/kg dry	25	P7H1216	08/12/17	08/13/17	EPA 300.0	
% Moisture	16.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	29.8	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C12-C28	ND	29.8	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C28-C35	ND	29.8	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		80.7 %	70-1.	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: o-Terphenyl		96.0 %	70-1.	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.8	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-15 W-2' 7H12002-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmen	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		44.7 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		93.8 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	
General Chemistry Parameters by EPA /	Standard Method	ls							
Chloride	ND	28.4	mg/kg dry	25	P7H1216	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		111 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: o-Terphenyl		127 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

S-15 E 2' 7H12002-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	Environmer	ıtal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Toluene	ND	0.0455	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		47.2 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		102 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	
General Chemistry Parameters by EPA / St	andard Method	ls							
Chloride	ND	28.4	mg/kg dry	25	P7H1216	08/12/17	08/13/17	EPA 300.0	
% Moisture	12.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 80	015M							
C6-C12	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: o-Terphenyl		150 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

> S-16 0.5-1' 7H12002-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	Environmer	ntal Lab, l	L .P.				
Organics by GC									
Benzene	ND	0.0213	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Toluene	ND	0.0426	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Ethylbenzene	ND	0.0213	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (p/m)	ND	0.0426	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Xylene (o)	ND	0.0213	mg/kg dry	20	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-1	25	P7H1206	08/12/17	08/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		43.8 % 75-125		25	P7H1206	08/12/17	08/13/17	EPA 8021B	S-GC
General Chemistry Parameters by EPA/	Standard Method	ls							
Chloride	3810	26.6	mg/kg dry	25	P7H1216	08/12/17	08/13/17	EPA 300.0	
% Moisture	6.0	0.1	%	1	P7H1307	08/13/17	08/13/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 80	15M							
C6-C12	ND	26.6	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: 1-Chlorooctane		75.8 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Surrogate: o-Terphenyl		89.9 %	70-1	30	P7H1203	08/12/17	08/13/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	08/12/17	08/13/17	calc	

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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

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

Batch P7H1205 - General Preparation										
Blank (P7H1205-BLK1)				Prepared &	Analyzed:	08/12/17				
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	0.00132	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0604		"	0.0600		101	75-125			
Surrogate: 4-Bromofluorobenzene	0.0350		"	0.0600		58.4	75-125			S-GC
LCS (P7H1205-BS1)				Prepared &	Analyzed:	08/12/17				
Benzene	0.115	0.00100	mg/kg wet	0.100		115	70-130			
Toluene	0.112	0.00200	"	0.100		112	70-130			
Ethylbenzene	0.110	0.00100	"	0.100		110	70-130			
Xylene (p/m)	0.197	0.00200	"				70-130			
Xylene (o)	0.0951	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	0.0708		"	0.0600		118	75-125			
Surrogate: 4-Bromofluorobenzene	0.0349		"	0.0600		58.1	75-125			S-GC
LCS Dup (P7H1205-BSD1)				Prepared &	Analyzed	08/12/17				
Benzene	0.119	0.00100	mg/kg wet	0.100		119	70-130	3.16	20	
Toluene	0.118	0.00200	"	0.100		118	70-130	5.00	20	
Ethylbenzene	0.106	0.00100	"	0.100		106	70-130	4.16	20	
Xylene (p/m)	0.200	0.00200	"				70-130		20	
Xylene (o)	0.102	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0687		"	0.0600		114	75-125			
Surrogate: 4-Bromofluorobenzene	0.0361		"	0.0600		60.2	75-125			S-GC
Matrix Spike (P7H1205-MS1)	Sour	rce: 7H12002	2-20	Prepared: 08	8/12/17 A	nalyzed: 08	3/13/17			
Benzene	0.190	0.0227	mg/kg dry	0.227	ND	83.8	80-120	<u> </u>		
Toluene	0.210	0.0455	"	0.227	ND	92.3	80-120			
Ethylbenzene	0.167	0.0227	"	0.227	ND	73.4	80-120			QM-07
Xylene (p/m)	0.370	0.0455	"		ND		80-120			
Xylene (o)	0.130	0.0227	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	0.0325		"	0.0682		47.6	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0719		"	0.0682		105	75-125			

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

0.0425

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

Result Result		Pern	nian Basin	Enviro	nmental l	Lab, L.P	2.				
Matrix Spike Dup (P7H1205-MSD1) Source: 7H1200-2-7 Prepared: 08/12/17 Analyzed: 08/13/17 20 20 20 20 20 20 20 2					•		a/PEG		222		
Matrix Spike Dup (P7H1205-MSD1) Source: 7H12002 - 20 Prepared: 08/12/17 Analyzed: 08/13/17 Benzene 0.213 0.0227 mg/kg dry 0.227 ND 93.9 80-120 11.4 20 Toluene 0.230 0.0455 " 0.0227 ND 10 10 80-120 9.20 20 Ethylbenzene 0.206 0.0227 " 0.0227 ND 90.5 80-120 20 20 Xylene (p/m) 0.467 0.0455 " ND ND 80-120 20 20 Xylene (p/m) 0.168 0.0227 " ND ND 80-120 20 20 Xylene (p/m) 0.168 0.0227 " ND ND 80-120 20 20 Xylene (p/m) 0.0467 0.0455 " ND ND 80-120 20 20 Xylene (p/m) 0.0467 0.0455 " ND ND 80-120 20 20 Xylene (p/m) 0.0412 " ND 0.0682 " ND 108 75-125 20 Surrogate: 1.4-Diffuorobenzene 0.0412 " ND 0.0682 " ND 108 13/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17 108 12/17	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	20 20 20 20 20 20 20	Notes
Benzene 0.213 0.0227 mg/kg dry 0.227 ND 93.9 80-120 11.4 20	Batch P7H1205 - General Preparation (GC)										
Toluene 0.230 0.0455 " 0.227 ND 101 80-120 9.20 20	Matrix Spike Dup (P7H1205-MSD1)	Sou	rce: 7H12002	2-20	Prepared: (08/12/17 A	nalyzed: 08	3/13/17			
Ethylbenzene 0.206 0.0227 " 0.227 ND 90.5 80-120 20.9 20 20 20 20 20 20 20 2	Benzene	0.213	0.0227	mg/kg dry	0.227	ND	93.9	80-120	11.4	20	
Xylene (p/m)	Toluene	0.230	0.0455	"	0.227	ND	101	80-120	9.20	20	
Xylene (o) 0.168 0.0227 " ND 80-120 20	Ethylbenzene	0.206	0.0227	"	0.227	ND	90.5	80-120	20.9	20	QM-07
Surrogate: 1,4-Difluorobenzene 0.0740 " 0.0682 108 75-125	Xylene (p/m)	0.467	0.0455	"		ND		80-120		20	
Surrogate: 4-Bromofluorobenzene	Xylene (o)	0.168	0.0227	"		ND		80-120		20	
Batch P7H1206 - General Preparation (GC) Prepared: 08/12/17 Analyzed: 08/13/17	Surrogate: 1,4-Difluorobenzene	0.0740		"	0.0682		108	75-125			
Prepared: 08/12/17 Analyzed: 08/13/17	Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0682		60.4	75-125			S-GC
Benzene ND 0.00100 mg/kg wet	Batch P7H1206 - General Preparation (GC)										
Toluene ND 0.00200 "	Blank (P7H1206-BLK1)				Prepared: (08/12/17 A	nalyzed: 08	3/13/17			
Ethylbenzene ND 0.00100 " Xylene (p/m) ND 0.00200 " Xylene (o) ND 0.00100 " Surrogate: 1,4-Difluorobenzene 0.0564 " 0.0600 94.0 75-125 Surrogate: 4-Bromofluorobenzene 0.0354 " 0.0600 59.0 75-125 LCS (P7H1206-BS1) Prepared: 08/12/17 Analyzed: 08/13/17 Benzene 0.118 0.00100 mg/kg wet 0.100 118 70-130 Toluene 0.119 0.00200 " 0.100 119 70-130 Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.0979 0.00200 " 0.100 114 70-130 Xylene (o) 0.0979 0.00100 " 70-130	Benzene	ND	0.00100	mg/kg wet							
Xylene (p/m) ND 0.00200 " Xylene (o) ND 0.00100 " Surrogate: 1,4-Difluorobenzene 0.0564 " 0.0600 94.0 75-125 Surrogate: 4-Bromofluorobenzene 0.0354 " 0.0600 59.0 75-125 LCS (P7H1206-BS1) Prepared: 08/12/17 Analyzed: 08/13/17 Benzene 0.118 0.00100 mg/kg wet 0.100 118 70-130 Toluene 0.119 0.00200 " 0.100 119 70-130 Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.199 0.00200 " " 70-130 Xylene (o) 0.0979 0.00100 " " 70-130	Toluene	ND	0.00200	"							
Xylene (o) ND 0.00100 " Surrogate: 1,4-Diffuorobenzene 0.0564 " 0.0600 94.0 75-125 Surrogate: 4-Bromofluorobenzene 0.0354 " 0.0600 59.0 75-125 LCS (P7H1206-BS1) Prepared: 08/12/17 Analyzed: 08/13/17 Benzene 0.118 0.00100 mg/kg wet 0.100 118 70-130 Toluene 0.119 0.00200 " 0.100 119 70-130 Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.199 0.00200 " " 70-130 Xylene (o) 0.0979 0.00100 " " 70-130	Ethylbenzene	ND	0.00100	"							
Experience (b) NB 0.00100 Surrogate: 1,4-Diffuorobenzene 0.0564 " 0.0600 94.0 75-125 Surrogate: 4-Bromofluorobenzene 0.0354 " 0.0600 59.0 75-125 LCS (P7H1206-BS1) Prepared: 08/12/17 Analyzed: 08/13/17 Benzene 0.118 0.00100 mg/kg wet 0.100 118 70-130 Toluene 0.119 0.00200 " 0.100 119 70-130 Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.199 0.00200 " 70-130 Xylene (o) 0.0979 0.00100 " 70-130	Xylene (p/m)	ND	0.00200	"							
Surrogate: 4-Bromofluorobenzene 0.0354 " 0.0600 59.0 75-125 LCS (P7H1206-BS1) Prepared: 08/12/17 Analyzed: 08/13/17 Benzene 0.118 0.00100 mg/kg wet 0.100 118 70-130 Toluene 0.119 0.00200 " 0.100 119 70-130 Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.199 0.00200 " 70-130 Xylene (o) 0.0979 0.00100 " 70-130	Xylene (o)	ND	0.00100	"							
LCS (P7H1206-BS1) Prepared: 08/12/17 Analyzed: 08/13/17 Benzene 0.118 0.00100 mg/kg wet 0.100 118 70-130 Toluene 0.119 0.00200 " 0.100 119 70-130 Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.199 0.00200 " 70-130 Xylene (o) 0.0979 0.00100 " 70-130	Surrogate: 1,4-Difluorobenzene	0.0564		"	0.0600		94.0	75-125			
Benzene 0.118 0.00100 mg/kg wet 0.100 118 70-130 Toluene 0.119 0.00200 " 0.100 119 70-130 Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.199 0.00200 " 70-130 Xylene (o) 0.0979 0.00100 " 70-130	Surrogate: 4-Bromofluorobenzene	0.0354		"	0.0600		59.0	75-125			S-GC
Toluene 0.119 0.00200 " 0.100 119 70-130 Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.199 0.00200 " 70-130 Xylene (o) 0.0979 0.00100 " 70-130	LCS (P7H1206-BS1)				Prepared: (08/12/17 A	nalyzed: 08	3/13/17			
Ethylbenzene 0.114 0.00100 " 0.100 114 70-130 Xylene (p/m) 0.199 0.00200 " 70-130 Xylene (o) 0.0979 0.00100 " 70-130	Benzene	0.118	0.00100	mg/kg wet	0.100		118	70-130			
Xylene (p/m) 0.199 0.00200 " 70-130 Xylene (o) 0.0979 0.00100 " 70-130	Toluene	0.119	0.00200	"	0.100		119	70-130			
Xylene (o) 0.0979 0.00100 " 70-130	Ethylbenzene	0.114	0.00100	"	0.100		114	70-130			
· · · · ·	Xylene (p/m)	0.199	0.00200	"				70-130			
Surrogate: 1,4-Difluorobenzene 0.0766 " 0.0600 128 75-125	Xylene (o)	0.0979	0.00100	"				70-130			
	Surrogate: 1,4-Difluorobenzene	0.0766		"	0.0600		128	75-125			S-GCI

0.0600

DRAFT REPORT

Surrogate: 4-Bromofluorobenzene

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

70.8

75-125

S-GC

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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 P7H1206 - General Preparation (G	GC)									
LCS Dup (P7H1206-BSD1)				Prepared: 0	08/12/17 A	nalyzed: 08	3/13/17			
Benzene	0.0975	0.00100	mg/kg wet	0.100		97.5	70-130	19.2	20	
Toluene	0.0960	0.00200	"	0.100		96.0	70-130	21.0	20	R2
Ethylbenzene	0.0933	0.00100	"	0.100		93.3	70-130	20.1	20	R2
Xylene (p/m)	0.165	0.00200	"				70-130		20	
Xylene (o)	0.0816	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0603		"	0.0600		100	75-125			
Surrogate: 4-Bromofluorobenzene	0.0331		"	0.0600		55.2	75-125			S-GC
Matrix Spike (P7H1206-MS1)	Sou	rce: 7H12002	2-24	Prepared: 0	08/12/17 A	nalyzed: 08	/13/17			
Benzene	0.244	0.0213	mg/kg dry	0.213	ND	115	80-120			
Toluene	0.236	0.0426	"	0.213	ND	111	80-120			
Ethylbenzene	0.199	0.0213	"	0.213	ND	93.4	80-120			
Xylene (p/m)	0.435	0.0426	"		ND		80-120			
Xylene (o)	0.194	0.0213	"		ND		80-120			
Surrogate: 1,4-Difluorobenzene	0.0663		"	0.0638		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.0274		"	0.0638		42.9	75-125			S-GC
Matrix Spike Dup (P7H1206-MSD1)	Sou	rce: 7H12002	2-24	Prepared: 0	08/12/17 A	nalyzed: 08	3/13/17			
Benzene	0.185	0.0213	mg/kg dry	0.213	ND	87.1	80-120	27.4	20	R3
Toluene	0.197	0.0426	"	0.213	ND	92.4	80-120	18.3	20	
Ethylbenzene	0.189	0.0213	"	0.213	ND	88.8	80-120	5.05	20	
Xylene (p/m)	0.430	0.0426	"		ND		80-120		20	
Xylene (o)	0.151	0.0213	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.0624		"	0.0638		97.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.0244		"	0.0638		38.2	75-125			S-GC

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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
Analyte	Result	LIIIII	Units	Level	Resuit	70KEC	Lillits	KPD	Limit	Notes
Batch P7H1215 - *** DEFAULT PREP ***										
Blank (P7H1215-BLK1)				Prepared &	& Analyzed:	08/12/17				
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1215-BS1)				Prepared &	& Analyzed:	08/12/17				
Chloride	424	1.00	mg/kg wet	400		106	80-120			
LCS Dup (P7H1215-BSD1)				Prepared &	& Analyzed:	08/12/17				
Chloride	422	1.00	mg/kg wet	400		105	80-120	0.598	20	
Duplicate (P7H1215-DUP1)	Sour	ce: 7H12002	-01	Prepared &	& Analyzed:	08/12/17				
Chloride	ND	30.5	mg/kg dry		19.5				20	
Duplicate (P7H1215-DUP2)	Sour	ce: 7H12002	-11	Prepared: (08/12/17 A	nalyzed: 08	/13/17			
Chloride	ND	28.4	mg/kg dry		ND				20	
Matrix Spike (P7H1215-MS1)	Sour	ce: 7H12002	-01	Prepared &	& Analyzed:	08/12/17				
Chloride	2450	30.5	mg/kg dry	2440	19.5	99.8	80-120			
Batch P7H1216 - *** DEFAULT PREP ***										
Blank (P7H1216-BLK1)				Prepared: (08/12/17 A:	nalyzed: 08	/13/17			
Chloride	ND	1.00	mg/kg wet			-				
LCS (P7H1216-BS1)				Prepared: (08/12/17 A	nalyzed: 08	/13/17			
Chloride	432	1.00	mg/kg wet	400		108	80-120			
LCS Dup (P7H1216-BSD1)				Prepared: (08/12/17 A:	nalvzed: 08	/13/17			
LCS Dup (1 /111210-DSD1)										

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1216 - *** DEFAULT PREP ***										
Duplicate (P7H1216-DUP1)	Sour	ce: 7H12002	-21	Prepared: (08/12/17 Ar	nalyzed: 08	/13/17			
Chloride	ND	29.8	mg/kg dry		ND				20	
Duplicate (P7H1216-DUP2)	Sour	се: 7Н09006	-08	Prepared: ()8/12/17 Ar	nalyzed: 08	/13/17			
Chloride	7310	29.1	mg/kg dry		7550			3.15	20	
Matrix Spike (P7H1216-MS1)	Sour	ce: 7H12002	-21	Prepared: (08/12/17 Ar	nalyzed: 08	/13/17			
Chloride	2170	29.8	mg/kg dry	2380	ND	91.3	80-120			
Batch P7H1307 - *** DEFAULT PREP ***										
Blank (P7H1307-BLK1)				Prepared &	Analyzed:	08/13/17				
% Moisture	19.0	0.1	%							
Duplicate (P7H1307-DUP1)	Sour	ce: 7H12002	-01	Prepared &	Analyzed:	08/13/17				
% Moisture	ND	0.1	%		18.0			200	20	

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	1.01 20 1.17 20	Notes
Batch P7H1203 - TX 1005										
Blank (P7H1203-BLK1)				Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	112		"	100		112	70-130			
Surrogate: o-Terphenyl	67.0		"	50.0		134	70-130			S-GC
LCS (P7H1203-BS1)				Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	932	25.0	mg/kg wet	1000		93.2	75-125			
>C12-C28	941	25.0	"	1000		94.1	75-125			
Surrogate: 1-Chlorooctane	124		"	100		124	70-130			
Surrogate: o-Terphenyl	60.4		"	50.0		121	70-130			
LCS Dup (P7H1203-BSD1)				Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	941	25.0	mg/kg wet	1000		94.1	75-125	1.01	20	
>C12-C28	952	25.0	"	1000		95.2	75-125	1.17	20	
Surrogate: 1-Chlorooctane	125		"	100		125	70-130			
Surrogate: o-Terphenyl	61.1		"	50.0		122	70-130			
Matrix Spike (P7H1203-MS1)	Sour	ce: 7H12002	2-24	Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	967	26.6	mg/kg dry	1060	ND	90.9	75-125			
>C12-C28	990	26.6	"	1060	11.6	92.0	75-125			
Surrogate: 1-Chlorooctane	127		"	106		120	70-130			
Surrogate: o-Terphenyl	62.9		"	53.2		118	70-130			
Matrix Spike Dup (P7H1203-MSD1)	Sour	ce: 7H12002	2-24	Prepared: (08/12/17 Aı	nalyzed: 08	/13/17			
C6-C12	984	26.6	mg/kg dry	1060	ND	92.5	75-125	1.75	20	
>C12-C28	1020	26.6	"	1060	11.6	94.6	75-125	2.84	20	
Surrogate: 1-Chlorooctane	132		"	106		124	70-130			
Surrogate: o-Terphenyl	64.3		"	53.2		121	70-130			

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1204 - TX 1005										
Blank (P7H1204-BLK1)				Prepared &	Analyzed:	08/12/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	112		"	100		112	70-130			
Surrogate: o-Terphenyl	68.6		"	50.0		137	70-130			S-GC
LCS (P7H1204-BS1)				Prepared &	Analyzed:	08/12/17				
C6-C12	861	25.0	mg/kg wet	1000		86.1	75-125			
>C12-C28	904	25.0	"	1000		90.4	75-125			
Surrogate: 1-Chlorooctane	129		"	100		129	70-130			
Surrogate: o-Terphenyl	57.0		"	50.0		114	70-130			
LCS Dup (P7H1204-BSD1)				Prepared &	Analyzed:	08/12/17				
C6-C12	897	25.0	mg/kg wet	1000		89.7	75-125	4.10	20	
>C12-C28	929	25.0	"	1000		92.9	75-125	2.83	20	
Surrogate: 1-Chlorooctane	123		"	100		123	70-130			
Surrogate: o-Terphenyl	58.9		"	50.0		118	70-130			
Matrix Spike (P7H1204-MS1)	Sou	rce: 7H12002	2-20	Prepared: (08/12/17 A:	nalyzed: 08	/13/17			
C6-C12	1070	28.4	mg/kg dry	1140	ND	93.8	75-125			
>C12-C28	1090	28.4	"	1140	ND	95.8	75-125			
Surrogate: 1-Chlorooctane	139		"	114		122	70-130			
Surrogate: o-Terphenyl	68.9		"	56.8		121	70-130			
Matrix Spike Dup (P7H1204-MSD1)	Sou	rce: 7H12002	2-20	Prepared: (08/12/17 A	nalyzed: 08	/13/17			
C6-C12	1040	28.4	mg/kg dry	1140	ND	91.7	75-125	2.28	20	
>C12-C28	1060	28.4	"	1140	ND	93.2	75-125	2.67	20	
Surrogate: 1-Chlorooctane	136		"	114		120	70-130			
Surrogate: o-Terphenyl	66.9		"	56.8		118	70-130			

DRAFT REPORT

Larson & Associates, Inc.

Project: Nash Draw 42

Project Number: 17-0124-01

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

Notes and Definitions

S-GC1 Surrogate recovery outside of control limits. A second analysis confirmed the original results..

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

R3 The RPD exceeded the acceptance limit due to sample matrix effects.

R2 The RPD exceeded the acceptance limit.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS

recovery.

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

	Bren Darron		
Report Approved By:		Date:	8/13/2017

Brent Barron, Laboratory Director/Technical Director

DRAFT REPORT

P.O. Box 50685 Project Number: 17-0124-01 Midland TX, 79710 Project Manager: Mark Larson

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

DRAFT REPORT

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



Analytical Report

Prepared for:

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

Project: Nash Draw 42 CTB Project Number: 17-0124-02

Location:

Lab Order Number: 7H15001



NELAP/TCEQ # T104704516-16-7

Report Date: 08/16/17

Fax: (432) 687-0456

Larson & Associates, Inc.

Project: Nash Draw 42 CTB
P.O. Box 50685

Project Number: 17-0124-02

Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-13 5'-6'	7H15001-01	Soil	08/14/17 10:10	08-15-2017 08:25
S-13 10'-11'	7H15001-02	Soil	08/14/17 10:12	08-15-2017 08:25
S-13 15'-16'	7H15001-03	Soil	08/14/17 10:17	08-15-2017 08:25
S-13 20'-21'	7H15001-04	Soil	08/14/17 10:23	08-15-2017 08:25
S-13 25'-26'	7H15001-05	Soil	08/14/17 10:25	08-15-2017 08:25
S-13 30'-31'	7H15001-06	Soil	08/14/17 10:27	08-15-2017 08:25
S-16 5'-6'	7H15001-07	Soil	08/14/17 12:01	08-15-2017 08:25
S-16 10'-11'	7H15001-08	Soil	08/14/17 12:03	08-15-2017 08:25
S-16 15'-16'	7H15001-09	Soil	08/14/17 12:06	08-15-2017 08:25
S-16 20'-21'	7H15001-10	Soil	08/14/17 12:09	08-15-2017 08:25
S-5 5'-5.5'	7H15001-11	Soil	08/14/17 13:50	08-15-2017 08:25
S-5 N2'	7H15001-12	Soil	08/14/17 14:00	08-15-2017 08:25
S-5 S2'	7H15001-13	Soil	08/14/17 15:38	08-15-2017 08:25
S-5 E2'	7H15001-14	Soil	08/14/17 15:43	08-15-2017 08:25
S-5 W2'	7H15001-15	Soil	08/14/17 15:40	08-15-2017 08:25
S-6 12'-12.5'	7H15001-16	Soil	08/14/17 13:53	08-15-2017 08:25
S-6 N4'	7H15001-17	Soil	08/14/17 14:30	08-15-2017 08:25
S-6 S4'	7H15001-18	Soil	08/14/17 14:22	08-15-2017 08:25
S-6 E4'	7H15001-19	Soil	08/14/17 14:26	08-15-2017 08:25
S-6 W4'	7H15001-20	Soil	08/14/17 14:34	08-15-2017 08:25
S-6 N8'	7H15001-21	Soil	08/14/17 14:28	08-15-2017 08:25
S-6 S8'	7H15001-22	Soil	08/14/17 14:20	08-15-2017 08:25
S-6 E8'	7H15001-23	Soil	08/14/17 14:24	08-15-2017 08:25
S-6 W8'	7H15001-24	Soil	08/14/17 14:32	08-15-2017 08:25
S-10 5'-5.5'	7H15001-25	Soil	08/14/17 15:55	08-15-2017 08:25
S-10 N2'	7H15001-26	Soil	08/14/17 15:58	08-15-2017 08:25
S-10 S2'	7H15001-27	Soil	08/14/17 15:50	08-15-2017 08:25
S-10 E2'	7H15001-28	Soil	08/14/17 15:52	08-15-2017 08:25
S-10 W2'	7H15001-29	Soil	08/14/17 15:56	08-15-2017 08:25

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 5'-6' 7H15001-01 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	169	1.05 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	5.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 10'-11' 7H15001-02 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	290	1.05 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	5.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 15'-16' 7H15001-03 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	520	1.08 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	7.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 20'-21' 7H15001-04 (Soil)

									I .
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	64.3	1.00 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	ND	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 25'-26' 7H15001-05 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	21.2	1.00 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	ND	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-13 30'-31' 7H15001-06 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	26.1	1.01 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	1.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

S-16 5'-6'

7H15001-07 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	70.7	1.10 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	9.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

Permian Basin Environmental Lab, L.P.

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

S-16 10'-11' 7H15001-08 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	95.2	1.10 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	9.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-16 15'-16' 7H15001-09 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	413	1.11 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	10.0	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

Larson & Associates, Inc. Project: Nash Draw 42 CTB Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-16 20'-21' 7H15001-10 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	63.8	1.00 mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	ND	0.1 %	1	P7H1602	08/16/17	08/16/17	ASTM D2216

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

S-5 5'-5.5' 7H15001-11 (Soil)

			`	·					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Perm	ian Basin I	Environme	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA	A / Standard Method	s							
Chloride	19.3	1.15	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 80	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	209	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	84.9	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.1 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		112 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	294	28.7	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

S-5 N2' 7H15001-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Perm	ian Basin F	Environme	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA	A / Standard Methods	5							
Chloride	48.0	1.12	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3:	5 by EPA Method 801	5M							
C6-C12	43.1	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	764	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	152	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		103 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		122 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	959	28.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-5 S2' 7H15001-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

General Chemistry Parameters by EPA / Sta	<u>ndard Methods</u>	1							
Chloride	ND	1.09	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	8.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by E	PA Method 801	5M							
C6-C12	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.7 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		112 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	
5 <i>1</i> /	ND			1					

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-5 E2' 7H15001-14 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian	Basin	Environ	mental	Lab.	L.P.

	Perm	ian basin i	Luvironmenta	ıı Lab,	, L.P.			
General Chemistry Parameters by EP	A / Standard Methods	S						
Chloride	161	1.12	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	5M						
C6-C12	356	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	2700	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	524	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		109 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		108 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	3580	28.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

S-5 W2' 7H15001-15 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmer	ital Lab,	L.P.				
General Chemistry Parameters by EPA	\ / Standard Method	s							
Chloride	16.8	1.20	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	17.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	5 by EPA Method 801	15M							
C6-C12	ND	30.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	66.2	30.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	30.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		77.5 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		89.9 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	66.2	30.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

S-6 12'-12.5' 7H15001-16 (Soil)

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Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Perm	nian Basin F	Environme	ntal Lab,	L.P.				
General Chemistry Parameters by EPA	A / Standard Method	s							
Chloride	35.2	1.12	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C3:	5 by EPA Method 80	15M							
C6-C12	ND	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	200	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	36.5	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		91.8 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		105 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	237	28.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

S-6 N4'

7H15001-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin E	Environmen	ıtal Lab,	L.P.				
General Chemistry Parameters by El	PA / Standard Method	S							
Chloride	30.3	1.16	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	14.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C	35 by EPA Method 80	15M							
C6-C12	246	29.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	906	29.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	160	29.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		94.4 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		105 %	70-1	30	P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	1310	29.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

S-6 S4' 7H15001-18 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.	P	ermian	Basin	Environmental	Lab.	L.P.
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	1 (1111)	ian Dasin I	ziivii oninentai	Lab,	, ш.т.				
General Chemistry Parameters by EPA / S	tandard Methods								
Chloride	61.5	1.12	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 801	5M							
C6-C12	ND	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		91.8 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		106 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 E4' 7H15001-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Pern	nian Basin E	nvironm	ental Lab, I	P.				

General Chemistry Parameters by EPA / Sta	ındard Methods	1						
Chloride	13.8	1.08	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	7.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 by H	EPA Method 801	5M						
C6-C12	ND	26.9	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	ND	26.9	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	26.9	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		87.3 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		102 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 W4' 7H15001-20 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

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General Chemistry Parameters by EPA	A / Standard Methods	S						
Chloride	21.6	1.15	mg/kg dry	1	P7H1503	08/15/17	08/16/17	EPA 300.0
% Moisture	13.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C3 :	5 by EPA Method 801	5M						
C6-C12	ND	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	281	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	48.5	28.7	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		88.3 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		102 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	330	28.7	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

S-6 N8' 7H15001-21 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin E	nvironmental	Lab,	L.P.
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General Chemistry Parameters by EPA /	Standard Methods							
Chloride	20.1	1.19	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	16.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 by	y EPA Method 801	5M						
C6-C12	ND	29.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	ND	29.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	29.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		90.9 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		107 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	29.8	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

S-6 S8' 7H15001-22 (Soil)

Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes			Reporting							
	Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	954	1.11	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	10.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 801	15M						
C6-C12	ND	27.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	ND	27.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	27.8	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		92.8 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		109 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

S-6 E8' 7H15001-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin E	nvironmental	Lab,	L.P.
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Chloride	andard Methods 43.8		mg/kg dry	1	P7H1507	00/15/17	00/16/17	EPA 300.0
		1.09		1		08/15/17	08/16/17	
% Moisture	8.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 by I	PA Method 801	5M						
C6-C12	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C12-C28	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	27.2	mg/kg dry	1	P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		108 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		125 %	70-130		P7H1508	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 W8' 7H15001-24 (Soil)

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

Chloride	18.1	1.15	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	13.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	5M						
C6-C12	ND	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C12-C28	61.4	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		98.5 %	70-130)	P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		114 %	70-130)	P7H1601	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	61.4	28.7	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-10 5'-5.5' 7H15001-25 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmen	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA	/ Standard Method	s							
Chloride	4.88	1.10	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	9.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 80	15M							
C6-C12	ND	27.5	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C12-C28	177	27.5	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C28-C35	32.1	27.5	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		97.8 %	70-1.	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		114 %	70-1.	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	209	27.5	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

S-10 N2' 7H15001-26 (Soil)

		. .							
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin E	nvironmental	Lab,	L.P.
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		245 2			. 2011				
General Chemistry Parameters by EPA / S	tandard Methods	S							
Chloride	99.7	1.16	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	14.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 801	5M							
C6-C12	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.5 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		113 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-10 S2' 7H15001-27 (Soil)

Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes			Reporting							
	Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

Chloride	68.4	1.20	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	17.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 801	15M						
C6-C12	33.2	30.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C12-C28	553	30.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C28-C35	95.2	30.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		97.0 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		113 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	681	30.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

S-10 E2' 7H15001-28 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmen	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA	/ Standard Methods	S							
Chloride	79.3	1.15	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	13.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35	by EPA Method 801	15M							
C6-C12	ND	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C12-C28	92.9	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-1.	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		126 %	70-1.	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	92.9	28.7	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

S-10 W2' 7H15001-29 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin Er	ıvironm	ental Lab, L	P.				

General Chemistry Parameters by EPA/ Chloride	Standard Methods 19.4	1.16	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	14.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 801	15M						
C6-C12	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C12-C28	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
>C28-C35	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: 1-Chlorooctane		109 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Surrogate: o-Terphenyl		129 %	70-130		P7H1601	08/15/17	08/15/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 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 P7H1503 - *** DEFAULT PREP ***										
Blank (P7H1503-BLK1)				Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1503-BS1)				Prepared: (08/15/17 A	nalyzed: 08	8/16/17			
Chloride	362	1.00	mg/kg wet	400		90.5	80-120			
LCS Dup (P7H1503-BSD1)				Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	366	1.00	mg/kg wet	400		91.5	80-120	1.07	20	
Duplicate (P7H1503-DUP1)	Sour	ce: 7H15001	-01	Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	169	1.05	mg/kg dry	-	169	-		0.0873	20	
Duplicate (P7H1503-DUP2)	Sour	ce: 7H15001	-11	Prepared: (08/15/17 A	nalyzed: 08	8/16/17			
Chloride	20.4	1.15	mg/kg dry		19.3			5.61	20	
Matrix Spike (P7H1503-MS1)	Sour	ce: 7H15001	-01	Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	4460	26.3	mg/kg dry	4210	169	102	80-120			
Batch P7H1507 - *** DEFAULT PREP ***										
Blank (P7H1507-BLK1)				Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1507-BS1)				Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
Chloride	371	1.00	mg/kg wet	400		92.7	80-120			
LCS Dup (P7H1507-BSD1)				Prepared: (08/15/17 A	analyzed: 08	3/16/17			
Chloride	371	1.00	mg/kg wet	400		92.8	80-120	0.0835	20	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

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

	Reporting			Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1602 - *** DEFAULT PREP ***										
Blank (P7H1602-BLK1)				Prepared &	Analyzed:	08/16/17				
% Moisture	ND	0.1	%							
Duplicate (P7H1602-DUP1)	Sourc	e: 7H15001-2	26	Prepared &	Analyzed:	08/16/17				
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P7H1602-DUP2)	Sourc	e: 7H15010-	01	Prepared &	Analyzed:	08/16/17				
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P7H1602-DUP3)	Sourc	e: 7H15016-	01	Prepared &	Analyzed:	08/16/17				
% Moisture	ND		1.0			200	20			

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 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 P7H1508 - TX 1005										
Blank (P7H1508-BLK1)				Prepared &	& Analyzed:	08/15/17				
C6-C12	ND	25.0	mg/kg wet	•						
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	122		"	100		122	70-130			
Surrogate: o-Terphenyl	71.1		"	50.0		142	70-130			S-GC
LCS (P7H1508-BS1)				Prepared &	& Analyzed:	08/15/17				
C6-C12	911	25.0	mg/kg wet	1000		91.1	75-125			
>C12-C28	870	25.0	"	1000		87.0	75-125			
Surrogate: 1-Chlorooctane	147		"	120		123	70-130			
Surrogate: o-Terphenyl	71.0		"	60.0		118	70-130			
LCS Dup (P7H1508-BSD1)				Prepared &	& Analyzed:	08/15/17				
C6-C12	912	25.0	mg/kg wet	1000		91.2	75-125	0.0669	20	
>C12-C28	884	25.0	"	1000		88.4	75-125	1.54	20	
Surrogate: 1-Chlorooctane	148		"	120		123	70-130			
Surrogate: o-Terphenyl	74.2		"	60.0		124	70-130			
Duplicate (P7H1508-DUP1)	Sou	rce: 7H15001	1-23	Prepared &	& Analyzed:	08/15/17				
C6-C12	ND	27.2	mg/kg dry		ND				20	
>C12-C28	16.7	27.2	"		18.1			8.04	20	
Surrogate: 1-Chlorooctane	110		"	109		101	70-130			
Surrogate: o-Terphenyl	66.6		"	54.3		123	70-130			
Batch P7H1601 - TX 1005										
Blank (P7H1601-BLK1)				Prepared &	& Analyzed:	08/15/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	114		"	100		114	70-130			
Surrogate: o-Terphenyl	66.4		"	50.0		133	70-130			S-GC

Permian Basin Environmental Lab, L.P.

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

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1601 - TX 1005										
LCS (P7H1601-BS1)				Prepared &	k Analyzed:	: 08/15/17				
C6-C12	855	25.0	mg/kg wet	1000		85.5	75-125			
>C12-C28	880	25.0	"	1000		88.0	75-125			
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	64.2		"	50.0		128	70-130			
LCS Dup (P7H1601-BSD1)				Prepared &	k Analyzed:	08/15/17				
C6-C12	857	25.0	mg/kg wet	1000		85.7	75-125	0.211	20	
>C12-C28	869	25.0	"	1000		86.9	75-125	1.18	20	
Surrogate: 1-Chlorooctane	111		"	100		111	70-130			
Surrogate: o-Terphenyl	62.6		"	50.0		125	70-130			
Duplicate (P7H1601-DUP1)	Sou	rce: 7H07000	6-21	Prepared: (08/15/17 A	nalyzed: 08	3/16/17			
C6-C12	53.6	125	mg/kg dry		ND				20	
>C12-C28	14500	125	"		2730			137	20	
Surrogate: 1-Chlorooctane	93.2		"	100		93.2	70-130			
Surrogate: o-Terphenyl	49.8		"	50.0		99.7	70-130			

Larson & Associates, Inc.

Project: Nash Draw 42 CTB

Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

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

Duplicate

MS Matrix Spike

Dup

	R & Barron		
Report Approved By:	July Comme	Date:	8/16/2017

Brent Barron, Laboratory Director/Technical Director

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

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

Permian Basin Environmental Lab, L.P.

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

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



Analytical Report

Prepared for:

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

Project: Nash Draw 42 CTB Project Number: 17-0124-02

Location:

Lab Order Number: 7H15002



NELAP/TCEQ # T104704516-16-7

Report Date: 08/16/17

Larson & Associates, Inc.

Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-14 5'-5.5'	7H15002-01	Soil	08/14/17 15:10	08-15-2017 08:25
S-14 N2'	7H15002-02	Soil	08/14/17 15:30	08-15-2017 08:25
S-14 S2'	7H15002-03	Soil	08/14/17 15:22	08-15-2017 08:25
S-14 E2'	7H15002-04	Soil	08/14/17 15:28	08-15-2017 08:25
S-14 W2'	7H15002-05	Soil	08/14/17 15:20	08-15-2017 08:25

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 5'-5.5' 7H15002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environmen	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA / S	standard Methods	1							
Chloride	247	1.23	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	19.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by	EPA Method 801	5M							
C6-C12	ND	30.9	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C12-C28	ND	30.9	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
>C28-C35	ND	30.9	mg/kg dry	1	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: 1-Chlorooctane		109 %	70-1	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Surrogate: o-Terphenyl		129 %	70-1	30	P7H1601	08/15/17	08/15/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	30.9	mg/kg dry	1	[CALC]	08/15/17	08/15/17	calc	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 N2' 7H15002-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
,	Down	ian Dasin I		stal I ab i	. D	•			
C ICI 'A D A LEDA A		ian Basin I	Lnvironmei	itai Lad, i	L.P.				
<u>General Chemistry Parameters by EPA /</u> Chloride	Standard Method	1.12	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	11.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 b	oy EPA Method 801	15M							
C6-C12	ND	28.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
Surrogate: 1-Chlorooctane		102 %	70-1	30	P7H1601	08/15/17	08/16/17	TPH 8015M	
Surrogate: o-Terphenyl		121 %	70-1	30	P7H1601	08/15/17	08/16/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	08/15/17	08/16/17	calc	

 $Surrogate: o\hbox{-}Terphenyl$

Total Petroleum Hydrocarbon C6-C35

Fax: (432) 687-0456

Larson & Associates, Inc. Project: Nash Draw 42 CTB

ND

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 S2' 7H15002-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Perm	ian Basin I	Environme	ntal Lab,	L.P.				
General Chemistry Parameters by	EPA / Standard Methods	S							
Chloride	192	1.25	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0	
% Moisture	20.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216	
Total Petroleum Hydrocarbons C6	6-C35 by EPA Method 801	5M							
C6-C12	ND	31.2	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
>C12-C28	ND	31.2	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
>C28-C35	ND	31.2	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M	
Surrogate: 1-Chlorooctane		95.7 %	70-1	30	P7H1601	08/15/17	08/16/17	TPH 8015M	

70-130

P7H1601

[CALC]

08/15/17

08/15/17

08/16/17

08/16/17

TPH 8015M

calc

114 %

31.2 mg/kg dry

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 E2' 7H15002-04 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA/	Standard Methods							
Chloride	139	1.22	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0
% Moisture	18.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216
Total Petroleum Hydrocarbons C6-C35 b	y EPA Method 801	5M						
C6-C12	ND	30.5	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M
>C12-C28	ND	30.5	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M
>C28-C35	ND	30.5	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M
Surrogate: 1-Chlorooctane		98.8 %	70-130		P7H1601	08/15/17	08/16/17	TPH 8015M
Surrogate: o-Terphenyl		116 %	70-130		P7H1601	08/15/17	08/16/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	30.5	mg/kg dry	1	[CALC]	08/15/17	08/16/17	calc

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-14 W2' 7H15002-05 (Soil)

		Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
Permian Rasin Environmental Lah L.P.											

General Chemistry Parameters by EPA / Standard Methods												
Chloride	412	1.16	mg/kg dry	1	P7H1507	08/15/17	08/16/17	EPA 300.0				
% Moisture	14.0	0.1	%	1	P7H1602	08/16/17	08/16/17	ASTM D2216				
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M												
C6-C12	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M				
>C12-C28	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M				
>C28-C35	ND	29.1	mg/kg dry	1	P7H1601	08/15/17	08/16/17	TPH 8015M				
Surrogate: 1-Chlorooctane		97.5 %	70-130		P7H1601	08/15/17	08/16/17	TPH 8015M				
Surrogate: o-Terphenyl		116 %	70-130		P7H1601	08/15/17	08/16/17	TPH 8015M				
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	08/15/17	08/16/17	calc				

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

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

Analyta	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Analyte	Result	Limit	Units	Level	Kesuit	70REC	Limits	KLD	Limit	inotes
Batch P7H1507 - *** DEFAULT PREP ***										
Blank (P7H1507-BLK1)				Prepared: (08/15/17 A	nalyzed: 08	/16/17			
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1507-BS1)				Prepared: (08/15/17 A	nalyzed: 08	/16/17			
Chloride	371	1.00	mg/kg wet	400		92.7	80-120			
LCS Dup (P7H1507-BSD1)				Prepared: 08/15/17 Analyzed: 08/16/17						
Chloride	371	1.00	mg/kg wet	400		92.8	80-120	0.0835	20	
Batch P7H1602 - *** DEFAULT PREP ***										
Blank (P7H1602-BLK1)				Prepared & Analyzed: 08/16/17						
% Moisture	ND	0.1	%							
Duplicate (P7H1602-DUP1)	Sour	ce: 7H15001	-26	Prepared &	Analyzed:	08/16/17				
% Moisture	14.0	0.1	%		14.0			0.00	20	
Duplicate (P7H1602-DUP2)	Sour	ce: 7H15010)-01	Prepared & Analyzed: 08/16/17						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P7H1602-DUP3)	Sour	ce: 7H15016	5-01	Prepared & Analyzed: 08/16/17						
% Moisture	ND	0.1	%		1.0			200	20	

Larson & Associates, Inc. Project: Nash Draw 42 CTB

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1601 - TX 1005										
Blank (P7H1601-BLK1)				Prepared &	Analyzed:	08/15/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	114		"	100		114	70-130			
Surrogate: o-Terphenyl	66.4		"	50.0		133	70-130			S-GC
LCS (P7H1601-BS1)				Prepared &	analyzed:	08/15/17				
C6-C12	855	25.0	mg/kg wet	1000		85.5	75-125			
>C12-C28	880	25.0	"	1000		88.0	75-125			
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	64.2		"	50.0		128	70-130			
LCS Dup (P7H1601-BSD1)				Prepared &	Analyzed:	08/15/17				
C6-C12	857	25.0	mg/kg wet	1000		85.7	75-125	0.211	20	
>C12-C28	869	25.0	"	1000		86.9	75-125	1.18	20	
Surrogate: 1-Chlorooctane	111		"	100		111	70-130			
Surrogate: o-Terphenyl	62.6		"	50.0		125	70-130			
Duplicate (P7H1601-DUP1)	Sou	Source: 7H07006-21			08/15/17 A	nalyzed: 08	/16/17			
C6-C12	53.6	125	mg/kg dry		ND				20	
>C12-C28	14500	125	"		2730			137	20	
Surrogate: 1-Chlorooctane	93.2		"	100		93.2	70-130			
Surrogate: o-Terphenyl	49.8		"	50.0		99.7	70-130			

Larson & Associates, Inc. Project: Nash Draw 42 CTB Fax: (432) 687-0456

P.O. Box 50685 Project Number: 17-0124-02
Midland TX, 79710 Project Manager: Mark Larson

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

	Dren	Darlor		
Report Approved By:			Date:	8/16/2017

0 aR.

Brent Barron, Laboratory Director/Technical Director

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

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

Permian Basin Environmental Lab, L.P.

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

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



Analytical Report

Prepared for:

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

Project: XTO Nash Draw Battery 42

Project Number: 17-0124-02 Location: New Mexico

Lab Order Number: 7H17002



NELAP/TCEQ # T104704516-16-7

Report Date: 08/17/17

Fax: (432) 687-0456

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-6 N 0-4'	7H17002-01	Soil	08/16/17 16:45	08-17-2017 08:16

Fax: (432) 687-0456

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

> S-6 N 0-4' 7H17002-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Peri	nian Basin E	Environme	ıtal Lab,	L.P.				
General Chemistry Parameters by EPA / Sta	ndard Metho	ds							
Chloride	20.2	1.08	mg/kg dry	1	P7H1714	08/17/17	08/17/17	EPA 300.0	
% Moisture	7.0	0.1	%	1	P7H1701	08/17/17	08/17/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by E	PA Method 8	015M							
C6-C12	ND	26.9	mg/kg dry	1	P7H1706	08/17/17	08/17/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7H1706	08/17/17	08/17/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7H1706	08/17/17	08/17/17	TPH 8015M	
Surrogate: 1-Chlorooctane		91.2 %	70-1	30	P7H1706	08/17/17	08/17/17	TPH 8015M	
Surrogate: o-Terphenyl		109 %	70-1	30	P7H1706	08/17/17	08/17/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	08/17/17	08/17/17	calc	

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson Fax: (432) 687-0456

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

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1701 - *** DEFAULT PREP ***										
Blank (P7H1701-BLK1)				Prepared &	Analyzed:	08/17/17				
% Moisture	ND	0.1	%							
Duplicate (P7H1701-DUP1)	Sour	ce: 7H16006	-01	Prepared &	Analyzed:	08/17/17				
% Moisture	5.0	0.1	%		5.0			0.00	20	
Batch P7H1714 - *** DEFAULT PREP ***										
Blank (P7H1714-BLK1)				Prepared &	Analyzed:	08/17/17				
Chloride	ND	1.00	mg/kg wet							
LCS (P7H1714-BS1)				Prepared &	Analyzed:	08/17/17				
Chloride	330	1.00	mg/kg wet	400		82.5	80-120			
LCS Dup (P7H1714-BSD1)				Prepared &	Analyzed:	08/17/17				
Chloride	350	1.00	mg/kg wet	400		87.5	80-120	5.88	20	

Fax: (432) 687-0456

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P7H1706 - TX 1005										
Blank (P7H1706-BLK1)				Prepared &	Analyzed:	08/17/17				
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	109		"	100		109	70-130			
Surrogate: o-Terphenyl	63.3		"	50.0		127	70-130			
LCS (P7H1706-BS1)				Prepared &	Analyzed:	08/17/17				
C6-C12	970	25.0	mg/kg wet	1000		97.0	75-125			
>C12-C28	1020	25.0	"	1000		102	75-125			
Surrogate: 1-Chlorooctane	122		"	100		122	70-130			
Surrogate: o-Terphenyl	56.7		"	50.0		113	70-130			
LCS Dup (P7H1706-BSD1)				Prepared &	Analyzed:	08/17/17				
C6-C12	970	25.0	mg/kg wet	1000		97.0	75-125	0.0814	20	
>C12-C28	1010	25.0	"	1000		101	75-125	0.990	20	
Surrogate: 1-Chlorooctane	126		"	100		126	70-130			
Surrogate: o-Terphenyl	62.9		"	50.0		126	70-130			
Duplicate (P7H1706-DUP1)	Sou	rce: 7H17002	2-01	Prepared &	Analyzed:	08/17/17				
C6-C12	ND	26.9	mg/kg dry		ND				20	
>C12-C28	ND	26.9	"		ND				20	
Surrogate: 1-Chlorooctane	107		"	108		99.2	70-130			
Surrogate: o-Terphenyl	63.9		"	53.8		119	70-130			

Fax: (432) 687-0456

Larson & Associates, Inc. Project: XTO Nash Draw Battery 42

P.O. Box 50685 Project Number: 17-0124-02 Midland TX, 79710 Project Manager: Mark Larson

Notes and Definitions

BULK Samples received in Bulk soil containers

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

	Barron		
Report Approved By:	July C	Date:	8/17/2017

Brent Barron, Laboratory Director/Technical Director

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

Permian Basin Environmental Lab, L.P.

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

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Appendix C

Waste Manifests

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON	I-HAZARDOUS WASTE MANIF	EST	NO 1	19281	1. PAG	GE_OI	3	2. TRAIL	ER NO.	20
	3. COMPANY NAME	4. ADD	RESS	TO THE STREET	7. TELY	5.	PICK-	UP DATE		
G	XTO-Energy	will see	W Illinois	Andrew March		ZIP 6.		CC I.D. NO	444	12 A
	PHONE NO.	CITY		STATE			INKC	C I.D. NO		20111
E	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:	and	- A. I.	8. CON	TAINERS		TOTAL	10. UNIT	11. TEXAS
N.T	3				No.	Туре		ANTITY	Wt/Vol.	WASTE ID#
N	Non-Regulated, Non Hazardous Was	te	~	1	- 1	CM				
TO	b. 41,420						O STREET			
E	c.									
R	d. 49720 480	04() 3	960				Single		
	12. COMMENTS OR SPECIAL INSTRUCTIONS:						13.	WASTE P	ROFILE N	
A	NASH UNIT CTB # 42 H			C 179,38	0					910623
				ENCY OR SPIL		NTACT	,			
T	NAME JOE ONTIVEROS		NE NO 887-4048					24-HOUR	EMERGE	NCY NO.
	15.GENERATOR'S CERTIFICATION:	I Hereby	declare that	the contents of this co	nsignmer	nt are full	v and	accurately	described a	bove by proper
0	shipping name and are classified, packed, marked, an international and national government regulations, in	d labeled	, and are in al	l respects in proper co	ndition fo	or transpo	rt by h	ighway acc	ording to a	pplicable
R	PRINTED/TYPED NAME			SIGNATURE	A Control of					DATE
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T R	16. TRANSPORTER (1)			17.	TI	RANSP	ORT	ER (2)		
A	NAME: OF ENTERPRISE LLC / MARI	LARS	EA.A.HOS	NAME:						
N S	TEXAS I.D. NO.			TEXAS I.D. NO.						
P	IN CASE OF EMERGENCY CONTACT:			IN CASE OF EME	RGENC	Y CONT	ACT:			
O R	EMERGENCY PHONE:		5) 441-733	EMERGENCY PH		(2)				
T	18. TRANSPORTER (1): Acknowledgment	of receipt	t of material	19. TRANSPO	RTER	(2): Ack	nowle	agment of	receipt of n	naterial
E R	PRINTED/TYPED NAME	34 34	LEAR	PRINTED/TYPED	NAME	-				
S	SIGNATURE	DATE	8/14	SIGNATURE				I	DATE	
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D F	Lea Land, LLC			Marker 64, U.		*			575-88	37-4048
I A	PERMIT NO.		30 N	Ailes East of Ca	arisbac	ı, MM				
S C P I	WM-01-035 - New Mex	cico		20. COMMENTS						
O L S I A T	21. DISPOSAL FACILITY'S CERTIFIC facility is authorized and permitted to receive such v		N: I Hereby o	ertify that the above of	lescribed	wastes w	vere de	livered to t	his facility,	that the
L Y	AUTHORIZED SIGNATURE			CELL NO.	-	DA	TE		TI	IME
	Dato Cha						8.	14/2017	1	135

GENERATOR: COPIES 1 & 6

DISPOSAL SILE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

			110000					Sn.
NON	N-HAZARDOUS WASTE MANIF	EST NO	119282	1. PAG	EOF_	_ 2. TRAIL	ER NO.	741
6	3. COMPANY NAME	4. ADDRESS	and the same of		100	CK-UP DATE		
G	XTO-Energy	500 W/ Illine				8/11/2017		
	PHONE NO.	CITY	STATE	7	CIP 6. TI	NRCC I.D. NO		
E	(817) 870-2800	Midland	Tz	8. CONT		9. TOTAL	10. UNIT	11. TEXAS
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:		No.	Type	QUANTITY	Wt/Vol.	WASTE ID#
N	a. Non-Regulated, Non Hazardous Was	te		1	CM			
	b. 11911)							
E	c.							
	d. vr 10011 570115	\ \AA	201					
R	12. COMMENTS OR SPECIAL INSTRUCTIONS:) 14,	240			12 WASTE D	DOEH E M	0
	12. COMMENTS OR SPECIAL INSTRUCTIONS:		T 109 C	M	-	13. WASTE P	KOFILE N	910623
A			16 180'0	Hall				
	14. IN CA	SE OF EMEI	RGENCY OR SPIL	L, CON	TACT	24-HOUR	EMERGE	NCV NO
T	JOE ONTIVEROS	576-987-40				24-11001	LIVILICOL	NOT NO.
	15.GENERATOR'S CERTIFICATION:	I Hereby declare t	hat the contents of this co	onsignmen	t are fully	and accurately	described a	bove by proper
0	shipping name and are classified, packed, marked, an international and national government regulations, in	d labeled, and are a cluding applicable	n all respects in proper co state regulations, and are	the same	r transport materials p	by highway accoreviously appro	cording to a oved by LE	pplicable A LAND, LLC
R	PRINTED/TYPED NAME		SIGNATURE					DATE
K								
T	16. TRANSPORTER (1)		17.	TR	ANSPO	RTER (2)		
R A	NAME: OR ENTERPRISE LLC / MARK	LARSON &	NAME:					
N	TEXAS I.D. NO.		TEXAS I.D. NO.					
S P	IN CASE OF EMERGENCY CONTACT:	ANNOH RUS	IN CASE OF EMI	ERGENCY	CONTAC	CT:		
0	EMERGENCY PHONE:	(675) 441-7	EMERGENCIFI					
R T	18. TRANSPORTER (1): Acknowledgment of	of receipt of mater	al 19. TRANSPO	RTER (2): Ackno	wledgment of	receipt of n	naterial
E R	PRINTED/TYPED NAME	101219	PRINTED/TYPE	NAME_				
S	SIGNATURE	DATE	SIGNATURE			I	DATE	
		ADDRESS:				PHONE:	-	
	Lea Land, LLC	The second secon	lile Marker 64, U	S. Hw	y 62/18			37-4048
DF			Miles East of C					
I A S C	PERMIT NO.		20. COMMENTS					
PI	WM-01-035 - New Mex	rico						
O L S I	21.DISPOSAL FACILITY'S CERTIFIC		by certify that the above	described	wastes wer	e delivered to	his facility,	that the
AT	facility is authorized and permitted to receive such v	vastes.						
LY	AUTHORIZED SIGNATURE		CELL NO.		DATI	3	TI	IME
	1)111-111 - 1/200S		- Commence of the Commence of			8/14/2017		Software .

GENERATOR: COPIES 1 & 6

DISPOSAL SITE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

	1300 WEST MAIN ST	KEET •	OKLAHOMA	CII 1, OK /3100 • P	HONE (103) 230-42	.51	51)R
NON	N-HAZARDOUS WASTE MANIF	EST	NO	19283	1. PA	GEOF_	_ 2. TRAII	ER NO.	006
	3. COMPANY NAME	4. ADD		or material on	of balan	5. P	ICK-UP DATE	45 7 119	8 1/4 / LE
G	XTO-Energy	500	W Illinois	# 100		Professional	8/14/2017	/*cr. 1	A 17/1/11
	PHONE NO.	CITY		STATE		ZIP 6. T	NRCC I.D. NC	it) III(ass	S MOTH
E	(817) 870-2800	Mid	and	Tx.	79	701		1	
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:		min - mignic or the	8. CON No.	TAINERS Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
N	a. Non-Regulated, Non Hazardous Was	ha .	market I do no	mer I sleaf	110.	CM	Quantita	Wa ron	WHOTE ID
	b. / / / / / / / / / / / / / / / / / / /	dust =	el.		A.m.l	elutini ar	min brold = k	4	
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E	c. same har government as same a second of	THE CO.		(Fi	- Whi	Stelland - do	nt unumerny v		
	dur 19/100 1001	1	10	ZQA	-	-		43	
R	4190 42,19	U	The long !	200	pulanoj	Ministra	and received	d with	6,1K3/1,1
	12. COMMENTS OR SPECIAL INSTRUCTIONS: NASH UNIT CTB #42 H					10000	13. WASTE P	ROFILE N	0. 910623
A	14/201 (214) (216) (42)		masal/Arssm						010023
	14. IN CA			ENCY OR SPIL	L, CO	NTACT			
T	NAME JOE ONTIVEROS		NE NO 887-1048				24-HOUR	EMERGE	NCY NO.
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0	15.GENERATOR'S CERTIFICATION: shipping name and are classified, packed, marked, an international and national government regulations, in	d labeled	, and are in al	l respects in proper co	ndition fo	or transport	by highway acc	cording to a	oplicable
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R				d family set and than 20					EDON
T	16. TRANSPORTER (1)	- HOIL		17.	TF	RANSPO	RTER (2)		
R	NAME: DR ENTERPRISE LLC / MARK	LADE	ON A AG	NAME:			(_)		
A N		CARL ST. No.	Cont. D. Ath. C. York						
S	TEXAS I.D. NO.	ASINIM	NI ENGRESSE	TEXAS I.D. NO.					111
P	IN CASE OF EMERGENCY CONTACT:	61.41.4.7.7.	N RUSK	IN CASE OF EME	RGENC	Y CONTAC	CT:		nerve A
O R	EMERGENCY PHONE:	(575	1) 441-733	EMERGENCY PH					
T	18. TRANSPORTER (1): Acknowledgment of	of receipt	of material	19. TRANSPO					aterial
E R	PRINTED/TYPED NAME	CN	CE	PRINTED/TYPED	NAME	1414	U.1	1 1 1	11/41
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	San San San San San San San San San San		DEGG	SIGNATURE	Total Section				
	Lea Land, LLC	ADD	RESS:	Marker 64, U.	C Hw	x 62/18	PHONE:		7-4048
D F	Lea Land, LLC			Ailes East of Ca		•	0,	373-00	7-4040
I A S C	PERMIT NO.		30 1	20. COMMENTS	1115040	1, 1 11/1			
S C P I	WM-01-035 - New Mex	ico							
O L	21.DISPOSAL FACILITY'S CERTIFIC	ATION	V• I Hausha	artify that the all are	anguilt a d	wastaa	a daliyonad to t	hie facility	that the
AT	facility is authorized and permitted to receive such w		1. I Hereby c	errify that the above of	escribed	wastes wer	e delivered to t	ins racinty,	mat the
LY	AUTHORIZED SIGNATURE		- 1 1	CELL NO.		DATI	3	TI	ME
	DINHOS WINTIVEROS					a Jacob	8/14/2017		
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GENERATOR: COPIES 1 & 6

DISPOSAL SITE COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

	1300 WEST MAIN STE	(EET • OKLAHOWH C	** ** (845)	1			390 467 7	125/1
	-HAZARDOUS WASTE MANIFI	EST NO 1	19309	1. PAC	GEOF_		ILER NO.	UKI
		4. ADDRESS	The water matery tolt	of India	5. PI	CK-UP DAT	ΓE	etv at
	3. COMPANY NAME		400		anni inno	8/15/201		015.111
G	KTO-Energy	500 Willings#	STATE		ZIP 6. T	NRCC I.D. 1	VO.	10.001
	PHONE NO.	CITY	on edi sole I I ari		701			
_	(0.57) 870, 5800	Midland	TV		TAINERS	9. TOTAL	10. UNIT	11. TEXAS
E	7. NAME OR DESCRIPTION OF WASTE SHIPPE	ED:		No.	Туре	QUANTIT	Y Wt/Vol.	WASTE ID#
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N	a. Non-Regulated, Non Hazardous Was	ite		-63	and a	Anni Inc	70	
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E	c.	partition 18 1		, south	1/1/1			
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R	45,000	100	China			13. WAS7	TE PROFILE	
	12. COMMENTS OR SPECIAL INSTRUCTIONS	in to any altered (we all						910623
A	NASH UNIT CTB # 42 H	amanishi In edi	ot - 5 Miles					-
A	INC	ASE OF EMERG	ENCY OR SPIL	LL, CC	NTACT	24 11	OUR EMERG	ENCY NO.
	14. NAME	PHONE NO	ingelia e			24-11	OUK LIVILICE	2
T		575-887-4048	Marie Marie 19					l l see her proper
45 mg	CERTIFICATION	1: I Hereby declare that	the contents of this	consignn	nent are full	y and accura	ately described	applicable
0	15. GENERATOR'S CERTIFICATION shipping name and are classified, packed, marked, international and national government regulations,	and labeled, and are in al	l respects in proper	condition re the sai	ne material	s previously	approved by	LEA LAND, LLC
	international and national government regulations,	including applicable sta		- 17		16-22-9-6		DATE
	PRINTED/TYPED NAME		SIGNATURE					
R	appeth all tally							
	16. TRANSPORTER (1)	on a should also keeps	17.		TRANSI	PORTER	(2)	
T	10.		NAME:					
RA	NAME	RK LARSON & AS	NAME.					
N			TEXAS I.D. NO					
S		SHANNON RUSK	IN CASE OF E	MERGE	NCY CON	TACT:		
P	the state of the s	Y575Y 441-73	EMERGENCY	PHONE		0 10	(1.5)(5.0)	
0	EMERGENCY PHONE:	ent of receipt of material		ORTE	R (2): A	eknowledgm	ent of receipt	of material
R		ent of receipt of material						
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F			SIGNATURE			4	DATE	16 16 17
	S SIGNATURE	DATE	- SIGNATURE			l p	HONE:	
-		ADDRESS:			(0	100		-887-4048
	Lea Land, LLC	M	ile Marker 64,	U.S.	Hwy 62	/180,	315	1-007 1010
l _D	F	30	Miles East of	f Carls	sbad, NI	$\sqrt{1}$		
I	Δ		20. COMMENT	S				
S	C PERMIT NO.	Mexico	and the second second					
P	I WW-01-033 - New 1		Co. A. et the ab	ove desc	ribed waste	s were deliv	ered to this fa	cility, that the
100	L 21.DISPOSAL FACILITY'S CERTI	IFICATION: I Herel	by certify that the ab	ove desc	11000 Hubte	SUNIE.		
S	facility is authorized and permitted to receive s	such wastes.		_	-	DATE		TIME 00
	Y AUTHORIZED SIGNATURE	0	CELL NO.		11		*	4.
	Manta 10	nzalla					5/2017	1 ,
	1)(1)(1)	The state of the s	OVER CODIES 2 &	2			TRANSPORT	TERS: COPIES 4 &

GENERATOR: COPIES 1 & 6
Released to Imaging: 12/4/2025 2:46:40 PM

DISPOSALISITE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NIO	V II A Z A DD O V O TO			110210		ORIST FILE	177 3 1670	maril balls	INDIAN .
NOI	N-HAZARDOUS WASTE MANIF	EST	NO	113310	1. PAG	GEOF	2. TRAIL	ER NO.	000
~	3. COMPANY NAME	4. ADD		d or Internation was a soft	vot bein	5. 1	PICK-UP DATE	ENTERIOR	S WITH
G	MTO-Energy man prime human raths	7 10 10 10 10	W. Illinois		77	WEDGE WIFE	8/15/2017	I Tolly	0 W (P)
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E	(817) 870-2900	Mid	and	Tx.		701	L a momit	Lio rnym	
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:			No.	TAINERS Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
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	14. IN CA			ENCY OR SPIL	L, CON	NTACT	24 7707	E) (E) C	VOLVIC
T	JOE ONTIVEROS!	PHON	887-4048				24-HOUR	EMERGE	NCY NO.
	15.GENERATOR'S CERTIFICATION:	T TTl	distant dist	dia contra Cali	•	C 11		1 7 1	The state of the s
0	shipping name and are classified, packed, marked, and	d labeled,	and are in al	I respects in proper con	ndition fo	r transport	by highway acc	ording to a	pplicable
	international and national government regulations, in	cluding a	pplicable sta	te regulations, and are	the same	materials	previously appro	oved by LE	A LAND, LLC
R	PRINTED/TYPED NAME			SIGNATURE					DATE
	A service of the serv	IIIE IMI a		A STATE OF STREET	1				
T	16. TRANSPORTER (1)	on and	IC was large	17.	TR	ANSPO	ORTER (2)	or of the	
R A	NAME DR ENTERPRISE LLC / MARK	LARS	ON 8. AS	NAME:					41,600 (1)
N	TEXAS I.D. NO.			TEXAS I.D. NO.					
S P	IN CASE OF EMERGENCY CONTACT:	MINO	V RUSK	produce a series on	DCENCY	CONTA	CT.		
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R	EMERGENCY PHONE: 18. TRANSPORTER (1): Acknowledgment o	f receipt	of material	19. TRANSPOR		2): Ackn	owledgment of r	receipt of m	aterial
T E								eccipt of it	atterial
R	PRINTED/TYPED NAME	1		PRINTED/TYPED	NAME				
S	PRINTED/TYPED NAME	DATE	8/15	SIGNATURE			D	ATE	# 10×10
			RESS:			ale fo	PHONE:	/ Laboratoria	
	Lea Land, LLC	וטטווי		Marker 64, U.S	S. Hw	v 62/18	The second second	575-88	7-4048
D F				Ailes East of Ca			,	373 00	, 1010
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PI	WM-01-035 - New Mex	ico	, _ 1	ere are all to				23	
O L S I	21.DISPOSAL FACILITY'S CERTIFICA	ATION	I: I Hereby c	ertify that the above de	escribed a	wastes we	re delivered to the	nis facility	that the
AT	facility is authorized and permitted to receive such w	astes.	I Holody C	orang mar me above di	coorroed '	rasios wel	o delivered to ti	no monney,	mat the
rv	AUTHORIZED SIGNATURE	۸		CELL NO.	-	DAT	E	TI	ME //5
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GENERATOR: COPIES 1 & 6

DISPOSAL SITE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON	N-HAZARDOUS WASTE MANIF	110211	1. PA	GE_OI	7	2. TRAIL	ER NO.	(17.1)			
HOI	3. COMPANY NAME	4. ADDI		119311	5. PICK-UP DATE					INU	
G	XTO-Energy	1000	// Ulinois	# 100		3.		5/2017		are for	
	PHONE NO.	CITY		STATE		ZIP 6.		CC I.D. NO			
E	(817) 870-2800	Midle	and			701				100	
E	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:		TENTE DE LOS	8. CON	TAINERS		TOTAL	10. UNIT	11. TEXAS	
					No.	Туре		ANTITY	Wt/Vol.	WASTE ID#	
N	a. Non-Regulated, Non Hazardous Was	te			1	CM	SI WILLIAM				
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E	c.										
									4 12		
R	d. 47.2 4 0280 47.2	0380						VICTOR 1			
	12. COMMENTS OR SPECIAL INSTRUCTIONS:						13.	WASTE P	ROFILE N		
A	NASH UNIT CTB #42 H			To 103	1777)				910623	
**	IN CA	CE OF	EMED	NENCY OD SPIL	I CO	NTACT	,				
T	NAME	PHON	E NO	GENCY OR SPIL	L, COI	VIACI		24-HOUR	EMERGE	NCY NO.	
Т	JOE ONTIVEROS		887-404								
	15.GENERATOR'S CERTIFICATION:	I Hereby	declare tha	t the contents of this co	onsignme	nt are full	y and	accurately	described a	bove by proper	
0	O shipping name and are classified, packed, marked, and labeled, and are in all respects in proper international and national government regulations, including applicable state regulations, and a						rt by h	ighway account ously appropriately	cording to a oved by LE	pplicable A LAND, LLC	
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R	TRINTED/TITED NAME			SIGNATURE						DATE	
T	16 TDANSDODTED (1)			17	TI	DANICD	OPT	FD (2)		-	
T R	16. TRANSPORTER (1)			17. TRANSPORTER (2)							
A	NAME: DR ENTERPRISE LLC / MARK	LANS	ON & A	NAME:	NAME:						
N S	TEXAS I.D. NO.			TEXAS I.D. NO.							
P	IN CASE OF EMERGENCY CONTACT:	ANNO	N RUSE	IN CASE OF EMERGENCY CONTACT:							
0	EMERGENCY PHONE:	(575) 441-73	EMERGENCY PHONE:							
R	18. TRANSPORTER (1): Acknowledgment	of receipt	of material	19. TRANSPO	RTER	(2): Ack	nowled	dgment of	receipt of n	naterial	
E	PRINTED/TYPED NAME	PRINTED/TYPED NAME									
R		E POLZ									
3	SIGNATURE	SIGNATURE		-]	DATE				
		ADD	RESS:					PHONE:		1	
D E	Lea Land, LLC			e Marker 64, U.			80,	1-	575-88	37-4048	
D F I A			30	Miles East of Carlsbad, NM							
S C	PERMIT NO.			20. COMMENTS							
P I O L	WM-01-035 - New Mex										
SI	21.DISPOSAL FACILITY'S CERTIFIC facility is authorized and permitted to receive such v		N: I Hereby	certify that the above of	described	wastes w	ere de	livered to	his facility,	that the	
LY	AUTHORIZED SIGNATURE	1,		CELL NO.		DA	TE		TI	ME 20	
	Winter / 1000	- Op		The state of the s				16/2017	16	1	
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GENERATOR: COPIES 1 & 6

DISPOSAL SITE! COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

				10000	_	_	_			And the second		
NON	N-HAZARDOUS WASTE MANIF		119312	1. PA	GE		2. TRAILER NO.5					
	3. COMPANY NAME	4. ADD		or research and selection to	767 D9lin	THE -		K-UP DATE	PHE KIN	AND BEET		
G	XTO-Energy	500	√ Illinois	# 100		- 1	8	15/2017		0 M301 3		
	PHONE NO.	CITY		STATE		ZIP	6. TNR	CC I.D. NO				
	(817) 870-2800 Midland Tx					79701						
E	Sensitives in Surel follows Eventure 15 (6) Tenut Sureling	ussoine si	reminings and	Importante in the	8. CON		RS	9. TOTAL	10. UNIT	11. TEXAS		
	7. NAME OR DESCRIPTION OF WASTE SHIPPE	D:			No.	Тур		UANTITY	Wt/Vol.	WASTE ID #		
N	a.Non-Regulated, Non Hazardous Was	te		4	1	C	M					
, 5	b 1 - 1 F	- unles			2.00	Lalum I	01-2-10		0.0			
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R	408	30	44	-140					in town	CM944		
WATER OF B	12. COMMENTS OR SPECIAL INSTRUCTIONS:			1110	e Zithio Li	E III	13	B. WASTE P	ROFILE N	0.		
	NASH UNIT CTB # 42 H						95 9 A	11/07	1771 1186 1	11 11 91 0623		
A	Name and the state of the state	- 40	respective to all	Label Z - Unit								
	14. IN CA	SE OF	EMERG	ENCY OR SPIL	L, CO	NTAC	CT	4.000				
Т	NAME PHONE NO 24-HOUR EMERGENCY NO.											
	JOE ONTIVEROS	379-	8874048									
	15.GENERATOR'S CERTIFICATION: I Hereby declare that the contents of this consignment are fully and accurately described above by proper											
0	shipping name and are classified, packed, marked, and	respects in proper co	ndition fo	or trans	port by	highway acc	cording to a	pplicable				
d)	international and national government regulations, in	ate regulations, and are the same materials previously approved by LEA LAND, LLC										
R	PRINTED/TYPED NAME			SIGNATURE						DATE		
			nal fello s eje li	to consess transport to the property of the state of the								
Т	16. TRANSPORTER (1)	17. TRANSPORTER (2)										
R		LAMO	CM P AC									
A	NAME OR ENTERPRISE LLC / MARK	MIT'S WA	NAME:									
N	TEXAS I.D. NO.		De A. F. and A	TEXAS I.D. NO.								
S P	IN CASE OF EMERGENCY CONTACT:	AMMO	V RUSK	IN CASE OF EMERGENCY CONTACT:								
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	Lea Land, LLC			Marker 64, U.	S. Hw	y 62	/180.		575-88	37-4048		
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GENERATOR: COPIES 1 & 6

DISPOSAL SITE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

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DISPOSAL SITE: COPIES 2 & 3

COPY 4

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC
1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

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DISPOSAL SITE: COPIES 2 & 3

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

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1/	international and national government regulations, in	pplicable stat	ate regulations, and are the same materials previously approved by LEA LAND, LLC								
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Appendix D

Photographs



Location Sign August 10, 2017



Location Viewing South Prior to Excavation, April 12, 2017



Location Viewing North, June 2, 2017



Location Viewing East Prior to Remediation and Chloride Delineation at DP-11, August 10, 2017



Soil Excavation near DP-7 Viewing Southwest, August 10, 2017



Soil Excavation along South Side of Spill Area Viewing East, August 10, 2017



Soil Excavation at S-15 Viewing North, August 11, 2017



Excavation Area Viewing West, August 11, 17



Final Excavation Area Viewing West, August 16, 2017



Final Excavation Area Viewing South, August 16, 2017



Backfill of Excavation Viewing Southwest, August 21, 2017



Backfill of Excavation Viewing Southwest, August 22, 2017



Water Packing of Excavation Viewing South, August 22, 2017



Backfill of Excavation Viewing South, August 23, 2017



Final Backfill Viewing Southwest, August 23, 2017



Final Backfill Viewing North, August 23, 2017



New Firewall Viewing Northwest, August 23, 2017

Appendix E

Initial and Final C-141

District I 1625 N. French Dr., Hobbs, NM 88240

NM OIL CONSERVATION

State of New Mexico

ARTESIA DISTRICT

Energy Minerals and Natural Resources NUV 0 3 2016

Form C-141 Revised August 8, 2011

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

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

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

	n and Corrective Action	on							
DAR1030929201	OPERATOR	X Initial Report Final Report							
Name of Company XTO Energy, Inc. 334313	Contact John Robinson	A minar Report rum Report							
Address 500 West Illinois, Suite 100 Midland, TX 79701	Telephone No. 575-44-5199								
Facility Name Nash 42 CTB	Facility Type Battery								
Surface Owner BLM Mineral Owner		API No.							
LOCATIO	N OF RELEASE								
		t/West Line County Eddy							
18 23 S 30 E	<u></u>	Ludy							
LatitudeLongitude									
NATURI	E OF RELEASE	<u> </u>							
Type of Release Oil	Volume of Release:	Volume Recovered							
Source of Release Pop off tank	Date and Hour of Occurrence	Date and Hour of Discovery							
Was Immediate Notice Given?	10-27-16 9:00pm	10-28-16 7:30am							
Was immediate Notice Given? X Yes No Not Required	If YES, To Whom? Shelly Tucker BLM and Heather	r Patterson NMOCD							
By Whom? John Robinson	Date and Hour 10-28-16 11:00								
Was a Watercourse Reached? U Yes X No	If YES, Volume Impacting the W	atercourse.							
If a Watercourse was Impacted, Describe Fully.*	<u> </u>								
100									
Describe Cause of Problem and Remedial Action Taken.*		un all ail possible and nummed into spare							
Rod between float and oil dump broke causing FWKO to dome out and water tank to be circulated through system.	overnow 210 pop on tank. Cleaned t	ap an on possible and pumped into spare							
10 mm + 10 mm									
The state of the s									
Describe Area Affected and Cleanup Action Taken.*									
Leak stayed inside berm. Will clean up according to BLM and NMQCD	standards								
I hereby certify that the information given above is true and complete to	the best of the lineariledge and under	tund that our uset to NMOCD rules and							
regulations all operators are required to report and/or file certain release	notifications and perform corrective a	actions for releases which may endanger							
public health or the environment. The acceptance of a C-141 report by	he NMOCD marked as "Final Report	" does not relieve the operator of liability							
should their operations have failed to adequately investigate and remedior the environment. In addition, NMOCD acceptance of a C-141 report	ate contamination that pose a threat to does not relieve the operator of respo	o ground water, surface water, human health							
federal, state, or local laws and/or regulations.	aces, not regioned and operations of respo								
	OIL CONSER	RVATION DIVISION							
Signature: John Hulm									
Printed Napre: John Robinson	Approved by Environmental Specia	list: MM							
Title: Maintenance Foreman	Approval Date: 11416	Expiration Date: NIA							
		1111							
E-mail Address: john robinson@xtoenergy.com	Conditions of Approval:	Attached 💆							
Date: 11-3-16 Phone: 575-441-5199 * Attach Additional Sheets If Necessary		200. 3011							

Ratterson, Heather, EMNRD

Robinson, John < John_Robinson@xtoenergy.com> Sent: Thursday, November 03, 2016 1:52 PM

To: stucker@blm.gov; Patterson, Heather, EMNRD

Subject: FW: form Form-C141.pdf **Attachments:**

From: Snyder, Kathy

Sent: Thursday, November 03, 2016 2:48 PM

To: Robinson, John Subject: form

Kathy Snyder

Office Clerk XTO Energy, Inc **PO Box 700**

Eunice, NM 88231 Phone: 575-394-2089 Fax: 575-394-3362

Email: Kathy snyder@xtoenergy.com

An ExxonMobil Subsidiary

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

Facility Name Nash 42

Surface Owner State

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised August 8, 2011

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

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 XTO Energy Inc. 324373 Contact Luke Williams Address 500 West Illinois, Suite 100 Midland TX 79701 Telephone No. 423-682-8873 Facility Type Battery

Mineral Owner State API No. LOCATION OF RELEASE Unit Letter Section Township Range Feet from the North/South Line Feet from the East/West Line County E 18 23 S 30 E 2100 North 615 West Eddy

	OF RELEASE					
ype of Release Oil	Volume of Release 124.71 barrels	Volume Recovered 121 barrels				
ource of Release Pop off tank	Date and Hour of Occurrence 10-27-16 9:00pm	Date and Hour of Discovery 10-28-16 7:30am				
/as Immediate Notice Given? ☐ Yes ☐ No ☐ Not Required	If YES, To Whom? Shelly Tucker BLM and Heather Patterson NMOCD					
y Whom?	Date and Hour 10-28-16 11:00am					
/as a Watercourse Reached? ☐ Yes ☑ No	If YES, Volume Impacting the Watercourse.					
nk to be circulated through system.	ternow 210 pop on tante electrica a	p an on possione and pumped into space water				
escribe Area Affected and Cleanup Action Taken.* oil samples were collected at 12 locations (DP-1 through DP-12 with direction report was submitted to OCD and SLO on June 30, 2017 and a D17, and included removal of soil to a depth of 18 inches over the spill account surface (bgs). Confirmation samples were collected from the exca	ect push technology. Lateral and ve approved on July 27, 2017. Remedi- rea, additional soil removal to about avation bottom and from the sidewal	ertical extent of impact was defined and ation was performed between August 10 – 23 5 feet (S-15) and 12 feet (DP-6) below				
ploride was delineated vertically to below 600 mg/Kg in soil samples from	Lea Land Landfill, LLC. Excavation	detween 20 and 30 feet bgs. Approximately				

or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other

Signature:	OIL CON	NSERVATION DIVISION	1			
Printed Name: Luke Williams	Approved by Environmental Specialist:					
Title: EHS Coordinator	Approval Date:	Expiration Date:				
E-mail Address: luke_williams@xtoenergy.com	Conditions of Approval:	Attached				
Date: August 24, 2017 Phone: (432) 682-8873	2RP-3976					

^{*} Attach Additional Sheets If Necessary

Littrell, Kyle

From: Williams, Luke

Sent: Monday, January 22, 2018 4:24 PM

To: Littrell, Kyle

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation

Plan, June 30, 2017

Follow Up Flag: Follow up Flag Status: Flagged

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, January 18, 2018 4:13 PM

To: Mark Larson <Mark@laenvironmental.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; 'Groves,

Amber' <agroves@slo.state.nm.us>

Cc: Williams, Luke <Luke_Williams@xtoenergy.com>; MNaranjo@slo.state.nm.us; Honea, Tammy

<thonea@slo.state.nm.us>

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash Draw #42 CTB * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

Because Mark has attested to the integrity of the rest of the liner I will go ahead and move forward with the rest of this approval, however, if next time photos can be taken of the liner after the tanks are removed, gravel/fill material is removed etc. that would be very helpful. When secondary lined containment is said to have contained some or have fully contained all of a spill the integrity check efforts combined with the integrity statement as well as before (pics of standing fluid) after photos (pics of liner after secondary containment is cleaned out and inspection of liner is completed) are something we will need to see every time secondary containment is involved.

Also in order to achieve approval from the State Land Office, now that Amber Groves is no longer working there, I believe either Mark Naranjo or Tammy Honea may be members of the SLO who are helping out with that at the current moment. I am not certain so I made sure to at least tag them on this email so that you could figure it out with them from here.

Thank you.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Wednesday, December 27, 2017 11:47 AM

To: Weaver, Crystal, EMNRD < Crystal. Weaver@state.nm.us >; Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us >;

'Groves, Amber' agroves@slo.state.nm.us>

Cc: 'Williams, Luke' < Luke Williams@xtoenergy.com>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

First I want to apologize for not responding sooner as your email was caught up in our mail server and took IT to free up. The attached photographs were presented in the delineation report (June 30, 2017). The loose poly liner beneath the remediation area where large holes were observed was removed prior to performing remediation in the area east of the tanks. The liner under the tanks west of the remediation area appeared intact. Fluid was removed from the liner beneath the tanks with a vacuum truck. A roust-a-bout crew removed gravel from the liner with shovels, wheel borrows and a hydrovac truck. LAI inspected the liner after gravel was removed and observed a few small punctures where the roust-a-bout crew nicked the liner while removing gravel. Standing fluid was observed in the lined sumps between the tanks near the center of the battery and in the northeast corner of the battery prior to removing fluids with a vacuum truck. Standing fluid confirms liner integrity. No nicks or cuts were observed in the liner within the sumps. The liner appeared anchored on all sides. The spray-in liner was installed without removing the tanks. Please contact Luke Williams with XTO at (432) 682-8873 or email Luke Williams@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, November 30, 2017 1:01 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'Groves, Amber'

Cc: Sarah Johnson

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash Draw #42 CTB * 30-015-37194 * 2RP-3976 & 2RP-4253

Mark,

I was just thinking about this one on the ride home yesterday after I sent the email below and I was wondering a few other things on it. I haven't closed it out in our system or anything yet so I wanted to get your answers on my questions below before I do.

I know there was breaks/tears in the liner in the area in between the battery tanks and that one overflow tank but I noticed all the rest of the area around the actual tanks of the battery no sampling or excavating was done. Those battery tanks were taken out so that the spray in secondary containment could be installed correct? So I am assuming then that no further issues were found with the liner in and around or under the battery tanks correct? Or anywhere else for that matter regarding that liner? I noticed also that once the liner went under all of the pipeline that are along side the battery tanks it looked really loose and not pulled tight or anything does it end up keying in at all or does it just stop existing once you get to the bermed edge of the well pad?

Please advise.

Thank you,

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia. NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Weaver, Crystal, EMNRD

Sent: Wednesday, November 29, 2017 2:00 PM

To: 'Mark Larson' < <u>Mark@laenvironmental.com</u>>; Bratcher, Mike, EMNRD < <u>mike.bratcher@state.nm.us</u>>; 'Groves,

Amber' <agroves@slo.state.nm.us>

Cc: 'Dudley_McMinn@xtoenergy.com' < <u>Dudley_McMinn@xtoenergy.com</u>>; 'Williams, Luke' < Luke_Williams@xtoenergy.com>; Sarah Johnson < SJohnson@laenvironmental.com>

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash Draw #42 CTB * 30-015-37194 * 2RP-3976 & 2RP-4253

Dudley/Mark,

Your request for closure of the above referenced releases are approved. State Land Office locations will require like approval from SLO.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

As a side note item doing a delineation on the fly during excavation efforts is not something that OCD is prone to regularly agree to. OCD would prefer to have the impacted areas fully delineated prior to implementation of remedial actions.*

Crystal Weaver

Environmental Specialist
OCD – Artesia District II
811 S. 1st Street

Artesia, NM 88210 Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 25, 2017 12:23 PM

To: Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us; Weaver, Crystal, EMNRD < crystal.Weaver@state.nm.us;

'Groves, Amber' agroves@slo.state.nm.us

Cc: 'Dudley_McMinn@xtoenergy.com' < Dudley_McMinn@xtoenergy.com>; 'Williams, Luke'

<<u>Luke_Williams@xtoenergy.com</u>>; Sarah Johnson <<u>SJohnson@laenvironmental.com</u>>

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

All,

Please use the link below to download the remediation reports for 2RP-3976 and 2RP-4253 relating to the crude oil and produced water spills at the XTO Energy, Inc., Nash Draw #42 CTB in Eddy County, New Mexico. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/882fafa7-e31b-4edd-b47d-2fefae38aa11

Respectfully,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office – 432-687-0901 Cell – 432-556-8656 Fax – 432-687-0456 mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Bratcher, Mike, EMNRD [mailto:mike.bratcher@state.nm.us]

Sent: Friday, August 18, 2017 4:39 PM

To: Mark Larson; Weaver, Crystal, EMNRD; 'Groves, Amber'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

RE: 2RP-3976 & 2RP-4235

Mark,

Based on data provided, you are approved to commence backfill operations. Sorry for a perceived delayed response, but if we actually worked everything in the order received, it would be at least a few weeks before you got a response. We do appreciate the thorough job and uncomplicated reporting you provide, along with XTO's willingness and cooperation in maintaining an environmentally solid operation. I do understand the urgency for this particular project and apologize for any inconvenience.

Mike Bratcher NMOCD District 2 811 South First Street Artesia, NM 88210 575-748-1283 Ext 108

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.

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 18, 2017 8:27 AM

To: Bratcher, Mike, EMNRD < <u>mike.bratcher@state.nm.us</u>>; Weaver, Crystal, EMNRD < <u>Crystal.Weaver@state.nm.us</u>>; 'Groves, Amber' < <u>agroves@slo.state.nm.us</u>>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < <u>Luke Williams@xtoenergy.com</u>> Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal/Mike,

This summary is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of XTO Energy Inc. (XTO) to present the delineation and remediation of two (2) spills (2RP-3976 and 2RP-4253) at the Nash Draw CTB #42. LAI

requests approval to backfill the excavations so that XTO may install a spray-in liner and resume production. The final reports for 2RP-3976 and 2RP-4253 will be submitted after the excavations area backfilled along with the final C-141s.

On August 8 - 9, 2017, XTO personnel shut-in the production and removed above ground piping and electrical from the remediation area. On August 10, 2017, XTO had the gun barrel and overflow tanks removed from the remediation area. Immediately following removal of the tanks, Scarborough Drilling mobilized an air rotary rig to DP-11 for the purpose of delineating chloride as requested by OCD. Soil samples were collected with a jam tube sampler at 10, 15, 20, 25 and 30 feet below ground surface (bgs) and were analyzed for chloride by EPA Method 300. Chloride was below 250 mg/Kg in all samples concluding successful vertical delineation. The ploy liner was removed from the remediation area and disposed at Lea Land Landfill. Soil excavation began near the southwest corner of the remediation area and progressed east and north until the entire area was excavated to a depth of approximately 18 inches. Soil was excavated to approximately 5 feet bgs at DP-6. Additional soil was excavated in the vicinity of DP-5 where holes were observed in the poly liner and from areas beneath the tanks and where staining was observed beneath the liner. The area around DP-8 was excavated to about 2 feet bgs. Soil was scraped to about 0.5 feet bgs from the area north of DP-12 where the recent produced water spill (2RP-4253) had encroached. On August 11, 2017, LAI personnel used a stainless steel hand auger and trowel to collect soil samples from the bottom of the excavations at sixteen (16) locations (S-1 through S-16) including the area north of DP-12 where was scraped from the recent spill (S-16). Sidewall samples were collected from the deeper excavations. The samples were analyzed for BTEX, TPH and chloride by Methods SW-846=-8021B, SW-846-8015M and 300, respectively.

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following bottom samples:

S-5, 5.0' - 5.5' (5,450 mg/Kg)

S-6, 4.5' - 5.0' (9,780 mg/Kg)

S-10, 1.5' - 2.0' (3,953 mg/Kg)

S-14, 1.5' - 2.0'(1,598.7 mg/Kg)

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following sidewall samples:

S-5, 2' East (3,580 mg/Kg)

S-6, 4' North (1,310 mg/Kg)

S-6, 2' South (18,450 mg/Kg)

S-6,2' East (2,558 mg/Kg)

The laboratory reported chloride above 600 mg/Kg in the following bottom samples:

S-13, 1.5' - 2.0' (8,210 mg/Kg)

S-14, 1.5' - 2.0' (1,050 mg/Kg)

S-16, 0.5' - 1.0' (3,810 mg/Kg)

Between August 14 – 16, 2017, additional soil was excavated at S-5, S-6, S-10 and S-14. TPH was below the RRAL in the final confirmation samples. Chloride was 247 mg/Kg in the bottom sample (5.0′ – 5.5′) at S-14. Scarborough Drilling collected samples every 5 feet (5, 10. 15, 20 feet, etc.) to 30 feet at S-13 and 20 feet at S-16. Chloride was below 600 mg/Kg in all samples from S-13 and below 250 mg/Kg in all samples from S-16. Please refer to Table 2. The excavation and sample location drawing is presented as Figure 2. Photographs are attached. Approximately 525.5 tons/cubic yards of contaminated soil was hauled to Le Land Landfill, LLC. Clean caliche was hauled back from Lea Land for backfilling the excavations. LAI, on behalf of XTO, requests OCD approval to backfill the excavations so that XTO may begin installing the spray-in liner and resume production. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or Dudley McMinn@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office – 432-687-0901 Cell – 432-556-8656 Fax – 432-687-0456 mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Wednesday, August 09, 2017 7:01 PM

To: 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

The tanks (gun barrel and overflow) were emptied today and will be removed on Thursday morning to allow access for equipment to perform remediation. We plan to collect additional samples tomorrow from SB-11 for vertical delineation. Mark

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Monday, August 07, 2017 9:27 AM

To: Mark Larson

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Good morning,

Thank you Mark. I may try to make it out to this one if Amber can not.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Sunday, August 6, 2017 6:58 PM

To: Weaver, Crystal, EMNRD < Crystal.Weaver@state.nm.us >; 'Groves, Amber' < agroves@slo.state.nm.us > Cc: 'McMinn, Dudley' < Dudley McMinn@xtoenergy.com >; 'Williams, Luke' < Luke Williams@xtoenergy.com > Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal/Amber,

This is to inform you that remediation of 2RP-3976 and 2RO-4253 will commence on Monday, August 9, 2017. Please contact Dudley McMinn with XTO Energy, Inc., at (432) 682-8873 or Dudley_McMinn@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432-556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 27, 2017 5:21 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'McMinn, Dudley'; 'Williams, Luke'

Cc: 'Tucker, Shelly'; Groves, Amber

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

First off thank you Mark for your answers to my questions.

I was checking a few clerical details and I wanted to bring a few more things to all of your attention. On the first spill, given case number 2RP-3976, there was no API number provided on the initial C-141 and since it was mentioned that the release was involving a battery our administrative personnel entered this in our system and gave it a facility number instead of relating it to the API for this location. However, on the second spill, given case number 2RP-4253, an API number was provided on the initial C-141 so our administrative personnel entered this one into our system under the API number. So now we have records for two spills recorded in two different places in our system that in fact actually happened at this same site. Please try to remain consistent on what you go with for C-141 documentation and of course for any documentation.

Also I show in my records that this site is on State Land Office administered service but when I look back in the well file history for this site I see documents being provided to the BLM for this facility. Since I have this site as SLO land I am adding Amber Groves, from the State Land Office, to this email chain and I am thus requesting that someone please help to clarify this matter. So Shelly or Amber can you all please clear up who is the surface owner for this location?

Finally, getting back to Mark's answers to my questions.

OCD accepts your proposal for remediation of the above mentioned releases (2RP-3976 and 2RP-4235) with the following conditions:

- Within the answers provided below it is stated that Larson Associates Inc. on behalf of XTO will be submitting samples for laboratory testing of "total petroleum hydrocarbons (TPH) as determined by EPA SW-846 Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The confirmation samples will be analyzed Method 300. Additional vertical samples will be collected to delineate chloride to 600 mg/Kg." However, OCD notes that testing for BTEX was not mentioned in either of these statements. OCD requires that all sampling points related to the remediation of this site start out with testing for all required constituents that are mentioned within the Conditions of Approval document that was provided by OCD to you all for each of these releases.
- Since the second release spanned beyond the extent of the first release it is OCD's understanding that all
 impacted areas will be delineated during remedial activities. Excavation depths may vary based on new
 analytical data.
- Again as mentioned above in bullet point 1, because your response statement below, to my sampling request
 for areas where there are holes in the liner, does not include the mentioning of sampling for BTEX I want to
 make it clear that OCD requires that all sampling points related to the remediation of this site start out with
 testing for all required constituents that are mentioned within the Conditions of Approval document that was
 provided by OCD to you all for each of these releases.
- OCD concurs with the answer provided below regarding sampling point DP-11.

Please advise once remedial activities have been scheduled. If this is Federal surface then it will require like approval from BLM, if this is State Land Office surface than it will require like approval from SLO.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720 From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, July 21, 2017 7:24 AM

To: Weaver, Crystal, EMNRD < <u>Crystal.Weaver@state.nm.us</u>>; Bratcher, Mike, EMNRD < <u>mike.bratcher@state.nm.us</u>>; 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < <u>Luke Williams@xtoenergy.com</u>>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

The following is submitted on behalf of XTO Energy, Inc. (XTO) in response to your questions below:

Question:

All sampling mentioned in the current work plan (happened on 3/13/17 and 3/14/17) is sampling that relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional sampling being done on its behalf prior to excavation?

Response:

it is my opinion that the depth of excavation will be similar to what is proposed since the initial spill was mostly crude oil with an small amount of produced water and the recent spill is mostly produced water with a small amount of crude oil. Soil will be excavated until total petroleum hydrocarbons (TPH) as determined by EPA SW-846 Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The confirmation samples will be analyzed Method 300. Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question: Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.

Response:

The area east of the tank battery covered by the initial spill is unlined. The recent spill east of the tank battery occurred the lined area where holes are shown in the liner. Soil samples will be collected from the lined area covered by the spill where holes are observed. The soil samples will be will be analyzed for TPH as determined by EPA SW-846 Method 8015 for GR, DRO and ORO and chloride by Method 300. Soil will be excavated until TPH in bottom sample and sidewall samples where the excavation exceeds 2 feet is below the RRAL (1,000 mg/Kg). Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question: Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

Response:

A backhoe may be used to confirmed the chloride concentration in soil at DP-11, 5 – 6 feet. The sample will be analyzed by Method 300. Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question:

Response:

also just noticed one last thing, the label on your Table 1 says that the table is for 2RP-1486, is that a

typo?

Good catch! I used an earlier table as a template and didn't change the remediation permit

number. Please find the corrected table attached.

Question: also just noticed one last thing, the remediation permit number you refer to for the recent spill (2RP-4235), is that a typo?

Response: This remediation permit (2RP-4235) is for a release at the Devon Energy Production Company Cotton

Draw Unit 84! It appears the 3 and 5 were juxtaposed and should be 2RP-4253.

Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 13, 2017 2:07 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'Tucker, Shelly'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

Thank you for the submission of this most recent plan and for the submission of the prior one as well.

OCD is fine with the idea of remediating both spills at the same time while you have equipment and workers mobilized, etc. and we are fine with both releases being written about in the same work plan and closure report etc., however, the spills will still be treated as separate cases as far as each will be referred to by its individual tracking number and DOR, and each will have to be closed out on our end as individual incidents. So each will need final C-141s.

With that being said, I have looked things over and I have a few questions for you all:

- All sampling mentioned in the current work plan (happened on 3/13/17 and 3/14/17) is sampling that relates to
 the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be
 determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as
 both oil and produced water fluids were released) without any additional sampling being done on its behalf
 prior to excavation?
- Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.

• Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

I look forward to receiving a response to my questions/requests.

If you have any need for clarification or have any questions of your own please contact myself or Mike Bratcher here at the District II Office.

Thank you,

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Monday, July 3, 2017 4:06 PM

To: Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us; Weaver, Crystal, EMNRD < crystal.Weaver@state.nm.us;

'Tucker, Shelly' < stucker@blm.gov>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < <u>Luke Williams@xtoenergy.com</u>> Subject: Re: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Mike/Crystal/Shelly,

Larson & Associates, Inc. (LAI) submits the delineation report and remediation plan for a crude oil spill at the XTO Energy, Inc. (XTO) Nash Draw 42 CTB. Since submitting the plan on May 23, 2017, XTO reported another spill at the facility on June 14, 2017, prior to receiving OCD approval of the remediation plan for the crude oil spill. XTO would like the OCD to consider allowing remediation of both spills under the remediation plan presented herein. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/aac0757d-4e60-4e7d-b88c-f8ac9693cab9

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office – 432-687-0901 Cell – 432-556-8656 Fax – 432-687-0456

mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Tuesday, May 23, 2017 8:24 AM

To: 'Bratcher, Mike, EMNRD'; 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: Re: XTO CTB 42 Revised Delineation Report

Mike/Crystal,

Please use the link below to download the revised delineation report for 2RP-3976. The report was revised to include additional photographs for exposing the liner inside the firewall. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/af3a731c-13d6-4830-8201-6944cbd5f9aa

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

Sarah Johnson

From: Mark Larson

Sent: Friday, August 25, 2017 1:23 PM

To: 'Bratcher, Mike, EMNRD'; 'Weaver, Crystal, EMNRD'; 'Groves, Amber'
Cc: 'Dudley_McMinn@xtoenergy.com'; 'Williams, Luke'; Sarah Johnson

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan,

June 30, 2017

All,

Please use the link below to download the remediation reports for 2RP-3976 and 2RP-4253 relating to the crude oil and produced water spills at the XTO Energy, Inc., Nash Draw #42 CTB in Eddy County, New Mexico. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or Dudley McMinn@xtoenergy.com or me if you have questions.

Link: https://files.acrobat.com/a/preview/882fafa7-e31b-4edd-b47d-2fefae38aa11

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Bratcher, Mike, EMNRD [mailto:mike.bratcher@state.nm.us]

Sent: Friday, August 18, 2017 4:39 PM

To: Mark Larson; Weaver, Crystal, EMNRD; 'Groves, Amber'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

RE: 2RP-3976 & 2RP-4235

Mark,

Based on data provided, you are approved to commence backfill operations. Sorry for a perceived delayed response, but if we actually worked everything in the order received, it would be at least a few weeks before you got a response. We do appreciate the thorough job and uncomplicated reporting you provide, along with XTO's willingness and cooperation in maintaining an environmentally solid operation. I do understand the urgency for this particular project and apologize for any inconvenience.

Mike Bratcher

NMOCD District 2 811 South First Street Artesia, NM 88210 575~748~1283 Ext 108

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.

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 18, 2017 8:27 AM

To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; 'Groves, Amber' <agroves@slo.state.nm.us>

Cc: 'McMinn, Dudley' <Dudley_McMinn@xtoenergy.com>; 'Williams, Luke' <Luke_Williams@xtoenergy.com> Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal/Mike,

This summary is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of XTO Energy Inc. (XTO) to present the delineation and remediation of two (2) spills (2RP-3976 and 2RP-4253) at the Nash Draw CTB #42. LAI requests approval to backfill the excavations so that XTO may install a spray-in liner and resume production. The final reports for 2RP-3976 and 2RP-4253 will be submitted after the excavations area backfilled along with the final C-141s.

On August 8 - 9, 2017, XTO personnel shut-in the production and removed above ground piping and electrical from the remediation area. On August 10, 2017, XTO had the gun barrel and overflow tanks removed from the remediation area. Immediately following removal of the tanks, Scarborough Drilling mobilized an air rotary rig to DP-11 for the purpose of delineating chloride as requested by OCD. Soil samples were collected with a jam tube sampler at 10, 15, 20, 25 and 30 feet below ground surface (bgs) and were analyzed for chloride by EPA Method 300. Chloride was below 250 mg/Kg in all samples concluding successful vertical delineation. The ploy liner was removed from the remediation area and disposed at Lea Land Landfill. Soil excavation began near the southwest corner of the remediation area and progressed east and north until the entire area was excavated to a depth of approximately 18 inches. Soil was excavated to approximately 5 feet bgs at DP-6. Additional soil was excavated in the vicinity of DP-5 where holes were observed in the poly liner and from areas beneath the tanks and where staining was observed beneath the liner. The area around DP-8 was excavated to about 2 feet bgs. Soil was scraped to about 0.5 feet bgs from the area north of DP-12 where the recent produced water spill (2RP-4253) had encroached. On August 11, 2017, LAI personnel used a stainless steel hand auger and trowel to collect soil samples from the bottom of the excavations at sixteen (16) locations (S-1 through S-16) including the area north of DP-12 where was scraped from the recent spill (S-16). Sidewall samples were collected from the deeper excavations. The samples were analyzed for BTEX, TPH and chloride by Methods SW-846=-8021B, SW-846-8015M and 300, respectively.

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following bottom samples:

S-5, 5.0' - 5.5' (5,450 mg/Kg)

S-6, 4.5' - 5.0' (9,780 mg/Kg)

S-10, 1.5' - 2.0' (3,953 mg/Kg)

S-14, 1.5' - 2.0'(1,598.7 mg/Kg)

The laboratory reported TPH above the RRAL (1,000 mg/Kg) in the following sidewall samples:

S-5, 2' East (3,580 mg/Kg)

S-6, 4' North (1,310 mg/Kg)

S-6, 2' South (18,450 mg/Kg)

S-6,2' East (2,558 mg/Kg)

The laboratory reported chloride above 600 mg/Kg in the following bottom samples:

S-13, 1.5' – 2.0' (8,210 mg/Kg) S-14, 1.5' – 2.0' (1,050 mg/Kg) S-16, 0.5' – 1.0' (3,810 mg/Kg)

Between August 14 – 16, 2017, additional soil was excavated at S-5, S-6, S-10 and S-14. TPH was below the RRAL in the final confirmation samples. Chloride was 247 mg/Kg in the bottom sample (5.0′ – 5.5′) at S-14. Scarborough Drilling collected samples every 5 feet (5, 10. 15, 20 feet, etc.) to 30 feet at S-13 and 20 feet at S-16. Chloride was below 600 mg/Kg in all samples from S-13 and below 250 mg/Kg in all samples from S-16. Please refer to Table 2. The excavation and sample location drawing is presented as Figure 2. Photographs are attached. Approximately 525.5 tons/cubic yards of contaminated soil was hauled to Le Land Landfill, LLC. Clean caliche was hauled back from Lea Land for backfilling the excavations. LAI, on behalf of XTO, requests OCD approval to backfill the excavations so that XTO may begin installing the spray-in liner and resume production. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or Dudley McMinn@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432-556-8656
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mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Wednesday, August 09, 2017 7:01 PM

To: 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

The tanks (gun barrel and overflow) were emptied today and will be removed on Thursday morning to allow access for equipment to perform remediation. We plan to collect additional samples tomorrow from SB-11 for vertical delineation. Mark

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Monday, August 07, 2017 9:27 AM

To: Mark Larson

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Good morning,

Thank you Mark. I may try to make it out to this one if Amber can not.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Sunday, August 6, 2017 6:58 PM

To: Weaver, Crystal, EMNRD < Crystal.Weaver@state.nm.us >; 'Groves, Amber' < agroves@slo.state.nm.us > Cc: 'McMinn, Dudley' < Dudley McMinn@xtoenergy.com >; 'Williams, Luke' < Luke Williams@xtoenergy.com > Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal/Amber,

This is to inform you that remediation of 2RP-3976 and 2RO-4253 will commence on Monday, August 9, 2017. Please contact Dudley McMinn with XTO Energy, Inc., at (432) 682-8873 or Dudley_McMinn@xtoenergy.com or me if you have questions.

Respectfully,

Mark J. Larson, P.G.
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"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 27, 2017 5:21 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'McMinn, Dudley'; 'Williams, Luke'

Cc: 'Tucker, Shelly'; Groves, Amber

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

First off thank you Mark for your answers to my questions.

I was checking a few clerical details and I wanted to bring a few more things to all of your attention. On the first spill, given case number 2RP-3976, there was no API number provided on the initial C-141 and since it was mentioned that the release was involving a battery our administrative personnel entered this in our system and gave it a facility number instead of relating it to the API for this location. However, on the second spill, given case number 2RP-4253, an API number was provided on the initial C-141 so our administrative personnel entered this one into our system under the API number. So now we have records for two spills recorded in two different places in our system that in fact actually happened at this same site. Please try to remain consistent on what you go with for C-141 documentation and of course for any documentation.

Also I show in my records that this site is on State Land Office administered service but when I look back in the well file history for this site I see documents being provided to the BLM for this facility. Since I have this site as SLO land I am adding Amber Groves, from the State Land Office, to this email chain and I am thus requesting that someone please help to clarify this matter. So Shelly or Amber can you all please clear up who is the surface owner for this location?

Finally, getting back to Mark's answers to my questions.

OCD accepts your proposal for remediation of the above mentioned releases (2RP-3976 and 2RP-4235) with the following conditions:

- Within the answers provided below it is stated that Larson Associates Inc. on behalf of XTO will be submitting samples for laboratory testing of "total petroleum hydrocarbons (TPH) as determined by EPA SW-846 Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The confirmation samples will be analyzed Method 300. Additional vertical samples will be collected to delineate chloride to 600 mg/Kg." However, OCD notes that testing for BTEX was not mentioned in either of these statements. OCD requires that all sampling points related to the remediation of this site start out with testing for all required constituents that are mentioned within the Conditions of Approval document that was provided by OCD to you all for each of these releases.
- Since the second release spanned beyond the extent of the first release it is OCD's understanding that all
 impacted areas will be delineated during remedial activities. Excavation depths may vary based on new
 analytical data.
- Again as mentioned above in bullet point 1, because your response statement below, to my sampling request
 for areas where there are holes in the liner, does not include the mentioning of sampling for BTEX I want to
 make it clear that OCD requires that all sampling points related to the remediation of this site start out with
 testing for all required constituents that are mentioned within the Conditions of Approval document that was
 provided by OCD to you all for each of these releases.
- OCD concurs with the answer provided below regarding sampling point DP-11.

Please advise once remedial activities have been scheduled. If this is Federal surface then it will require like approval from BLM, if this is State Land Office surface than it will require like approval from SLO.

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.

If you have any questions or concerns, and for notification, please contact Mike Bratcher and/or myself in the District II Office.

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, July 21, 2017 7:24 AM

To: Weaver, Crystal, EMNRD < crystal.weaver@state.nm.us; Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us;

'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < <u>Luke Williams@xtoenergy.com</u>>

Subject: FW: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Crystal,

The following is submitted on behalf of XTO Energy, Inc. (XTO) in response to your questions below:

Question: All sampling mentioned in the current work plan (happened on 3/13/17 and 3/14/17) is sampling that

relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional

sampling being done on its behalf prior to excavation?

Response: it is my opinion that the depth of excavation will be similar to what is proposed since the initial spill was

mostly crude oil with an small amount of produced water and the recent spill is mostly produced water with a small amount of crude oil. Soil will be excavated until total petroleum hydrocarbons (TPH) as determined by EPA SW-846 Method 8015 for GR, DRO and ORO is below the RRAL (1,000 mg/Kg The confirmation samples will be analyzed Method 300. Additional vertical samples will be collected to

delineate chloride to 600 mg/Kg.

Question: Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas

following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.

Response: The area east of the tank battery covered by the initial spill is unlined. The recent spill east of the tank

battery occurred the lined area where holes are shown in the liner. Soil samples will be collected from the lined area covered by the spill where holes are observed. The soil samples will be will be analyzed for TPH as determined by EPA SW-846 Method 8015 for GR, DRO and ORO and chloride by Method 300. Soil

will be excavated until TPH in bottom sample and sidewall samples where the excavation exceeds 2 feet is below the RRAL (1,000 mg/Kg). Additional vertical samples will be collected to delineate chloride to 600 mg/Kg.

Question: Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

Response: A backhoe may be used to confirmed the chloride concentration in soil at DP-11, 5-6 feet. The sample

will be analyzed by Method 300. Additional vertical samples will be collected to delineate chloride to 600

mg/Kg.

Question: also just noticed one last thing, the label on your Table 1 says that the table is for 2RP-1486, is that a

typo?

Response: Good catch! I used an earlier table as a template and didn't change the remediation permit number.

Please find the corrected table attached.

Question: also just noticed one last thing, the remediation permit number you refer to for the recent spill (2RP-

4235), is that a typo?

Response: This remediation permit (2RP-4235) is for a release at the Devon Energy Production Company Cotton

Draw Unit 84! It appears the 3 and 5 were juxtaposed and should be 2RP-4253.

Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Mark J. Larson, P.G.
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"Serving the Permian Basin Since 2000"

From: Weaver, Crystal, EMNRD [mailto:Crystal.Weaver@state.nm.us]

Sent: Thursday, July 13, 2017 2:07 PM

To: Mark Larson; Bratcher, Mike, EMNRD; 'Tucker, Shelly'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: RE: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

XTO * Nash #42 Tank Battery * 30-015-37194 * 2RP-3976 & 2RP-4253

Hello all,

Thank you for the submission of this most recent plan and for the submission of the prior one as well.

OCD is fine with the idea of remediating both spills at the same time while you have equipment and workers mobilized, etc. and we are fine with both releases being written about in the same work plan and closure report etc., however, the spills will still be treated as separate cases as far as each will be referred to by its individual tracking number and DOR, and each will have to be closed out on our end as individual incidents. So each will need final C-141s.

With that being said, I have looked things over and I have a few questions for you all:

- All sampling mentioned in the current work plan (happened on 3/13/17 and 3/14/17) is sampling that relates to the original spill that occurred back on 10/27/16 (2RP-3976) correct? How can a depth of excavation be determined for the new spill area (spill that occurred on 6/14/17, 2RP-4235; which was stated in the C-141 as both oil and produced water fluids were released) without any additional sampling being done on its behalf prior to excavation?
- Holes in the liner are shown in the photographs provided. What is the status of the liner in those areas following spill 1 but prior to spill 2? OCD will require sampling in any areas where there were holes in the liner.
- Also at sample point DP-11 chloride results show at 702ppm at a depth of 5-6ft, as you mentioned, so you would need to resample there or continue to delineate till chlorides show clean.

I look forward to receiving a response to my questions/requests.

If you have any need for clarification or have any questions of your own please contact myself or Mike Bratcher here at the District II Office.

Thank you,

Crystal Weaver

Environmental Specialist OCD – Artesia District II 811 S. 1st Street Artesia, NM 88210

Office: 575-748-1283 ext. 101

Cell: 575-840-5963 Fax: 575-748-9720 From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Monday, July 3, 2017 4:06 PM

To: Bratcher, Mike, EMNRD < mike.bratcher@state.nm.us; Weaver, Crystal, EMNRD < Crystal.Weaver@state.nm.us;

'Tucker, Shelly' <stucker@blm.gov>

Cc: 'McMinn, Dudley' < <u>Dudley McMinn@xtoenergy.com</u>>; 'Williams, Luke' < <u>Luke Williams@xtoenergy.com</u>> Subject: Re: 2RP-3976 and 2RP-4235 - Nash Draw 42 CTB Delineation Report and Delineation Plan, June 30, 2017

Mike/Crystal/Shelly,

Larson & Associates, Inc. (LAI) submits the delineation report and remediation plan for a crude oil spill at the XTO Energy, Inc. (XTO) Nash Draw 42 CTB. Since submitting the plan on May 23, 2017, XTO reported another spill at the facility on June 14, 2017, prior to receiving OCD approval of the remediation plan for the crude oil spill. XTO would like the OCD to consider allowing remediation of both spills under the remediation plan presented herein. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/aac0757d-4e60-4e7d-b88c-f8ac9693cab9

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"Serving the Permian Basin Since 2000"

From: Mark Larson

Sent: Tuesday, May 23, 2017 8:24 AM

To: 'Bratcher, Mike, EMNRD'; 'Weaver, Crystal, EMNRD'

Cc: 'McMinn, Dudley'; 'Williams, Luke'

Subject: Re: XTO CTB 42 Revised Delineation Report

Mike/Crystal,

Please use the link below to download the revised delineation report for 2RP-3976. The report was revised to include additional photographs for exposing the liner inside the firewall. Please contact Dudley McMinn with XTO Energy at (432) 682-8873 or <u>Dudley McMinn@xtoenergy.com</u> or me if you have questions.

Link: https://files.acrobat.com/a/preview/af3a731c-13d6-4830-8201-6944cbd5f9aa

Respectfully,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 205 Midland, Texas 79701 Office – 432-687-0901 Cell – 432- 556-8656 Fax – 432-687-0456 mark@laenvironmental.com



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Sante Fe Main Office Phone: (505) 476-3441 General Information Phone: (505) 629-6116

Online Phone Directory https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS

Action 530632

QUESTIONS

Operator:	OGRID:
XTO ENERGY, INC	5380
6401 Holiday Hill Road	Action Number:
Midland, TX 79707	530632
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAB1717131002
Incident Name	NAB1717131002 NASH UNIT #042H @ 30-015-37194
Incident Type	Produced Water Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-015-37194] NASH UNIT #042H

Location of Release Source	
Please answer all the questions in this group.	
Site Name	NASH UNIT #042H
Date Release Discovered	06/14/2017
Surface Owner	State

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications fo	or the volumes provided should be attached to the follow-up C-141 submission.
Crude Oil Released (bbls) Details	Cause: Equipment Failure Other (Specify) Crude Oil Released: 9 BBL Recovered: 9 BBL Lost: 0 BBL.
Produced Water Released (bbls) Details	Cause: Equipment Failure Other (Specify) Produced Water Released: 456 BBL Recovered: 451 BBL Lost: 5 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.

Sante Fe Main Office Phone: (505) 476-3441

General Information Phone: (505) 629-6116

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

QUESTIONS, Page 2

Action 530632

Santa i e, ivivi o/ 505		
QUESTIONS (continued)		
Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380 Action Number: 530632 Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)	
QUESTIONS		
Nature and Volume of Release (continued)		
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.	
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	Yes	
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.	
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e.	e. gas only) are to be submitted on the C-129 form.	
Initial Response The responsible party must undertake the following actions immediately unless they could create a s	afety hazard that would result in injury.	
The source of the release has been stopped	True	
The impacted area has been secured to protect human health and the environment	True	
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True	
All free liquids and recoverable materials have been removed and managed appropriately	True	
If all the actions described above have not been undertaken, explain why	Not answered.	
	ation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative ed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of valuation in the follow-up C-141 submission.	
to report and/or file certain release notifications and perform corrective actions for releating the OCD does not relieve the operator of liability should their operations have failed to a	knowledge and understand that pursuant to OCD rules and regulations all operators are require ases which may endanger public health or the environment. The acceptance of a C-141 report by adequately investigate and remediate contamination that pose a threat to groundwater, surface t does not relieve the operator of responsibility for compliance with any other federal, state, or	
I hereby agree and sign off to the above statement	Name: Richard Kotzur Title: Senior Project Manager Email: NMEnvNotifications@exxonmobil.com Date: 12/01/2025	

Sante Fe Main Office Phone: (505) 476-3441 General Information

Phone: (505) 629-6116 Online Phone Directory https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS, Page 3

Action 530632

QUESTIONS (continued)

Operator:	OGRID:
XTO ENERGY, INC	5380
6401 Holiday Hill Road	Action Number:
Midland, TX 79707	530632
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization		
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.		
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 51 and 75 (ft.)	
What method was used to determine the depth to ground water	NM OSE iWaters Database Search	
Did this release impact groundwater or surface water	No	
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:		
A continuously flowing watercourse or any other significant watercourse	Greater than 5 (mi.)	
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between ½ and 1 (mi.)	
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)	
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)	
Any other fresh water well or spring	Between 1 and 5 (mi.)	
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)	
A wetland	Between 1000 (ft.) and ½ (mi.)	
A subsurface mine	Between 1 and 5 (mi.)	
An (non-karst) unstable area	Greater than 5 (mi.)	
Categorize the risk of this well / site being in a karst geology	High	
A 100-year floodplain	Between 1 and 5 (mi.)	
Did the release impact areas not on an exploration, development, production, or storage site	No	

Remediation Plan		
Please answer all the questions that apply or are indicated. This information must be provided to	o the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes	
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination	on associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes	
Was this release entirely contained within a lined containment area	No	
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)		
Chloride (EPA 300.0 or SM4500 Cl B)	145	
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	31700	
GRO+DRO (EPA SW-846 Method 8015M)	23730	
BTEX (EPA SW-846 Method 8021B or 8260B)	254	
Benzene (EPA SW-846 Method 8021B or 8260B)	18.9	
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.		
On what estimated date will the remediation commence	07/27/2017	
On what date will (or did) the final sampling or liner inspection occur	08/14/2017	
On what date will (or was) the remediation complete(d)	08/23/2017	
What is the estimated surface area (in square feet) that will be reclaimed	3978	
What is the estimated volume (in cubic yards) that will be reclaimed	806	
What is the estimated surface area (in square feet) that will be remediated	3978	
What is the estimated volume (in cubic yards) that will be remediated	806	
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.		

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

Sante Fe Main Office Phone: (505) 476-3441

General Information Phone: (505) 629-6116

Online Phone Directory https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS, Page 4

Action 530632

QUESTIONS (continued)

Operator:	OGRID:
XTO ENERGY, INC	5380
6401 Holiday Hill Road	Action Number:
Midland, TX 79707	530632
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
Yes	
fEEM0112342028 LEA LAND LANDFILL	
Not answered.	

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

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

Name: Richard Kotzur Title: Senior Project Manager I hereby agree and sign off to the above statement Email: NMEnvNotifications@exxonmobil.com Date: 12/01/2025

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to

significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

Sante Fe Main Office Phone: (505) 476-3441

General Information Phone: (505) 629-6116

Online Phone Directory https://www.emnrd.nm.gov/ocd/contact-us

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

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Action 530632

QUESTIONS (continued)

Operator:	OGRID:
XTO ENERGY, INC	5380
6401 Holiday Hill Road	Action Number:
Midland, TX 79707	530632
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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Action 530632

QUESTIONS (continued)

Operator:	OGRID:
XTO ENERGY, INC	5380
6401 Holiday Hill Road	Action Number:
Midland, TX 79707	530632
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	530615
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	08/14/2017
What was the (estimated) number of samples that were to be gathered	5
What was the sampling surface area in square feet	200

Remediation Closure Request		
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.		
Requesting a remediation closure approval with this submission	Yes	
Have the lateral and vertical extents of contamination been fully delineated	Yes	
Was this release entirely contained within a lined containment area	No	
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes	
What was the total surface area (in square feet) remediated	3978	
What was the total volume (cubic yards) remediated	806	
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes	
What was the total surface area (in square feet) reclaimed	3978	
What was the total volume (in cubic yards) reclaimed	806	
Summarize any additional remediation activities not included by answers (above)	see reports	

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

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

I hereby agree and sign off to the above statement

Name: Richard Kotzur
Title: Senior Project Manager
Email: NMEnvNotifications@exxonmobil.com
Date: 12/01/2025

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Action 530632

QUESTIONS (continued)

Operator:	OGRID:
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6401 Holiday Hill Road	Action Number:
Midland, TX 79707	530632
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 530632

CONDITIONS

Operator:	OGRID:
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6401 Holiday Hill Road	Action Number:
Midland, TX 79707	530632
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Remediation closure has been approved. Appendix A demonstrates closure was approved via email communication.	12/4/2025
michael.buchanan	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. The OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	12/4/2025
michael.buchanan	A reclamation report will not be accepted until reclamation of the release area, including areas reasonably needed for production or drilling activities, is complete and meet the requirements of 19.15.29.13 NMAC. Areas not reasonably needed for production or drilling activities will still need to be reclaimed and revegetated as early as practicable.	12/4/2025
michael.buchanan	All revegetation activities will need to be documented and included in the revegetation report. The revegetation report will need to include: An executive summary of the revegetation activities including: Seed mix, Method of seeding, dates of when the release area was reseeded, information pertinent to inspections, information about any amendments added to the soil, information on how the vegetative cover established meets the life-form ratio of plus or minus fifty percent of pre-disturbance levels and a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds per 19.15.29.13 D.(3) NMAC, and any additional information; a scaled Site Map including area that was revegetated in square feet; and pictures of the revegetated areas during reseeding activities, inspections, and final pictures when revegetation is achieved.	12/4/2025
michael.buchanan	A revegetation report will not be accepted until revegetation of the release area, including areas reasonably needed for production or drilling activities, is complete and meet the requirements of 19.15.29.13 NMAC. Areas not reasonably needed for production or drilling activities will still need to be reclaimed and revegetated as early as practicable.	12/4/2025
michael.buchanan	Per 19.15.29.13 E. NMAC, if a reclamation and revegetation report has been submitted to the surface owner, it may be used if the requirements of the surface owner provide equal or better protection of freshwater, human health, and the environment. A copy of the approval of the reclamation and revegetation report from the surface owner and a copy of the approved reclamation and revegetation report will need to be submitted to the OCD via the Permitting website.	12/4/2025