

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nAPP2135033453
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: WPX Energy Permian, LLC	OGRID: 246289
Contact Name: Jim Raley	Contact Telephone: 575-689-7597
Contact email: jim.ralej@dv.com	Incident # (assigned by OCD) nAPP2135033453
Contact mailing address: 5315 Buena Vista Dr., Carlsbad NM 88220	

Location of Release Source

Latitude 32.3330917 _____ Longitude -104.0850372 _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: LVP SWD #001	Site Type: SWD
Date Release Discovered: December 3 rd , 2021	API# (if applicable) 30-015-42234

Unit Letter	Section	Township	Range	County
I	04	23S	28E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls) 0	Volume Recovered (bbls) 0
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 200	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: Connection point on underground produced water transfer line failed. Line was uncovered for repair and extent of release delineated.


$bbl\ estimate = (saturated\ soil\ volume(ft^3)) / (4.21((ft^3)/(bbl\ equivalent))) * estimated\ soil\ porosity(\%) + recovered\ fluids\ (bbls)$

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Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Exceeds 25bbls of Produced Water released.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc) Yes. Mike Bratcher and Emily Hernandez on 12/3/2021 via email.	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
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.	
Printed Name: <u>James Raley</u> Title: Environmental Specialist _____	
Signature: <u></u> Date: <u>12/16/2021</u>	
email: <u>jim.raley@dvni.com</u> Telephone: <u>575-689-7597</u>	
<u>OCD Only</u>	
Received by: <u>Ramona Marcus</u> Date: <u>12/20/2021</u>	

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Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 67514

CONDITIONS

Operator: WPX Energy Permian, LLC Devon Energy - Regulatory Oklahoma City, OK 73102	OGRID: 246289
	Action Number: 67514
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rmarcus	When submitting future reports regarding this release, please submit the calculations used or specific justification for the volumes reported on the initial C-141	12/20/2021

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Site Assessment/Characterization

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?	<u><50</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

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District RP	
Facility ID	
Application ID	

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Printed Name: Jim Raley

Title: Environmental Specialist

Signature: _____

Date: 4/11/2022

email: jim.raley@dm.com

Telephone: 575-689-7597

OCD Only

Received by: _____

Date: _____

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Remediation Plan

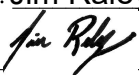
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.


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.

Printed Name: Jim Raley Title: Environmental Professional
Signature:  Date: DATE?????
email: jim.raley@dvn.com Telephone: 575-689-7597

OCD Only

Received by: _____ Date: _____

☐ Approved ☒ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature:  Date: 08/09/2022



REMEDIATION WORK PLAN ADDENDUM

Site Location:

**LVP SWD #001
Eddy County, New Mexico
Incident Number:
nAPP2135033453**

July 21, 2022

Ensolum Project No. 03A1987044

Prepared for:

**WPX Energy Permian, LLC
5315 Buena Vista Dr.
Carlsbad, NM 88220
Attention: Jim Raley**

Prepared by:

A handwritten signature in black ink, appearing to read "Joseph S. Hernandez".

Joseph S. Hernandez
Senior Geologist

A handwritten signature in black ink, appearing to read "Daniel R. Moir".

Daniel R. Moir, PG
Senior Managing Geologist

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 Site Description and Release Background.....	1
1.2 Site Characterization.....	1
2.0 FINDINGS AND CONCLUSIONS.....	1&2
3.0 REMEDIATION WORK PLAN ADDENDUM.....	2
3.1 Chemical Fixation Procedure.....	2&3
3.2 Proposed Sampling.....	3&4

APPENDICES

- Appendix A:** Figure 1 – Site Receptor Map
 Figure 2 – Proposed Excavation Extent
- Appendix B:** SA-1000™ Technical Sheet

1.0 INTRODUCTION

Ensolum, LLC (Ensolum), on behalf of WPX Permian Energy, LLC (WPX), has prepared this Remediation Work Plan Addendum (RWPA) to propose a modified method of remediating impacted soil at the LVP SWD #001 (hereinafter referred to as the "Site") located in Unit I, Section 4, Township 23 South, Range 28 East, in Eddy County, New Mexico (**Figure 1 in Appendix A**). All previous remediation activities and soil sample analytical results can be referenced in the original Wescom, Inc. (Wescom) Remediation Plan (RP), dated April 11, 2022, and other submitted deliverable documents to the New Mexico Oil and Conservation Division (NMOCD).

1.1 Site Description and Release Background

The Site is located within Eddy County, New Mexico (32.3330917° N, 104.0850372 °W) and is associated with oil and gas exploration and production operations on private Land (**Figure 1 in Appendix A**).

Wescom submitted an RP to the NMOCD for a December 3, 2021 release of approximately 200 barrels (bbls) of produced water. A notification was presented to NMOCD on a Release Notification and Corrective Action (Form C-141) on December 3, 2021, and the release was subsequently assigned Incident Number nAPP2135033453.

1.2 Site Characterization

The RP detailed site characterization according to Table 1, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). The Site receptors are identified on **Figure 1 in Appendix A** and the release location is presented on **Figure 2 in Appendix A**. Based on the site characterization, the following Closure Criteria were applied:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total Petroleum Hydrocarbon (TPH): 100 mg/kg
- Chloride: 600 mg/kg

2.0 FINDINGS AND CONCLUSIONS

Based on the field activities and laboratory analytical results documented by Wescom in the April 2022 RP, the following findings and conclusions regarding the releases are presented:

- Wescom assessed the Site and identified a cemented layer of soil at approximately 4.5 feet bgs. Additional vertical assessment of the cemented layer of soil was completed by WSP in March 2022 utilizing a motorized core drill. Results of the core drilling assessment identified a poorly cemented to well cemented conglomerate stratum from approximately 4.5 feet to 8.5 feet bgs. The lithology transitioned to an indurated caliche and core drill refusal was encountered at approximately 9 feet bgs.

- Based on existing soil analytical results and the mapped release extents, an estimated aerial extent and volume of chloride-impacted soil is **10,500 square feet and 3,000 cubic yards**, respectively, which is anticipated to be remediated and/or removed from the Site in accordance with state and federal regulations. The current proposed excavation extent is depicted on **Figure 2 in Appendix A**; and
- Surface scraping may be conducted to remove any minor surficial staining in areas that are delineated.

The April 2022 RP requested an extension for remedial option in order to drill through the indurated caliche layer. Based on the soil analytical results for chloride during the WSP core drilling event in March 2022 (soil samples SS07 and SS08), impacts appear to be limited at the total depth drilled (9 feet bgs) and as such, WPX is prepared to present their remedial options to NMOCD in this RWP. WPX is requesting approval for disposal or treatment of impacted soil through the following two options: (a) transporting the soil to a New Mexico approved landfill facility for disposal followed by backfilling with non-waste-containing soil, as defined by "Procedures for Implementation of the Spill Rule" (September 6, 2019) or (b) an on-site ex-situ treatment cell for chloride chemical fixation.

3.0 REMEDIATION WORK PLAN ADDENDUM

As stated above, WPX is requesting the flexibility to remediate chloride-impacted soil through tradition excavation, transportation, and disposal of impacted soil at a New Mexico approved landfill or by treating the soil through chemical fixation as described below. Additionally, WPX proposes achieving vertical delineation within the subject release area through excavation confirmation sampling.

3.1 Chemical Fixation Procedure

To prevent additional impacts to the environment, WPX requests the option to apply a green remediation alternative through the use of chemical fixation onsite to treat chloride in soil. This process includes the following steps:

- Mechanical equipment such as a track hoe will excavate impacted soil based on referencing previous delineation analytical data and field screening results;
- Soil will be placed into a trommel (see example below) to break up clumped soil and provide as much surface area as possible on the soil particles and available chloride. This is often referred to as "soil shredding";
- As the soil tumbles through the trommel, sprayers will apply either SA-1000™ (technical sheet included in **Appendix B**) or SA-2000™ (utilized for soil with high caliche content), which are amendments from 3 Tier Technologies, to fully saturate the soil;
- The saturated soil will then be placed on the ground in windrows to allow the amendment to fully bind to the chloride molecules and create a new compound that will not revert back to chloride in natural conditions present at the Site;
- Windrows will be sampled on a frequency of every 100 cubic yards to determine if the concentrations of chloride have been reduced to below the Closure Criteria;

- Floor and sidewall confirmation soil sampling of the excavation will be completed to verify the impacted soil has been adequately excavated. The sampling procedure is described below; and
- Once Closure Criteria concentrations for the treated soil are met and confirmed with laboratory analytical results, the soil will be placed back into the excavated area.

Soil Shredding Example



3.2 Proposed Sampling

Based on delineation analytical results for soil, WPX proposes the following sampling protocol to comply with 19.15.29 NMAC:

- Treated soil sampling frequency – 5-point composite soil samples for every 100 cubic yards of SA-1000™ (or SA-2000™). Sampling will continue until laboratory analytical results are compliant with the Closure Criteria;
- Floor and sidewall confirmation soil sampling frequency – 5-point composite soil samples along the excavation floor and sidewalls will be collected. WPX is requesting a variance on sample frequency for confirmation sampling from every 200 square feet to every 500 square feet. Based on the estimated excavation geometry, approximately 13,000 square feet of floor and sidewalls is expected. Within that area, WPX is requesting this variance to collect 26 confirmation samples based on the variance sample frequency of 500 square feet instead of the standard 200 square feet, which estimates a total sample quantity of 65 confirmation samples. WPX believes the variance confirmation sample frequency is equally protective of human health, the environment, and groundwater and meets the requirements set forth in 19.15.29 NMAC.



LVP SWD #001

Incident Number: nAPP2135033453

Remediation Work Plan Report Addendum

July 21, 2022

5.2 Proposed Schedule

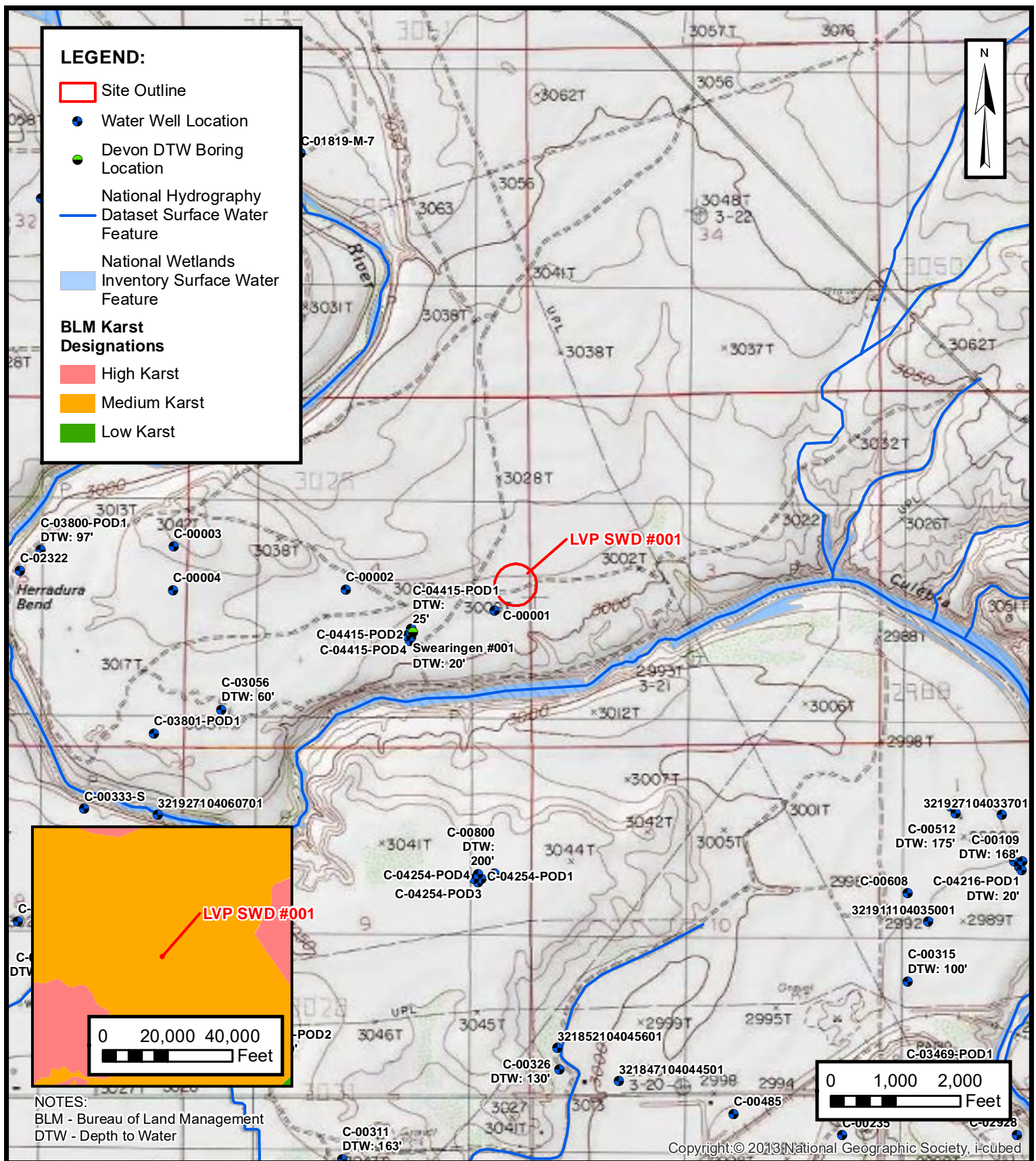
WPX believes the scope of work described above will meet requirements set forth in 19.15.29 NMAC and be protective of human health, the environment, and groundwater. As such, WPX respectfully requests approval of this RWPA from NMOCD.

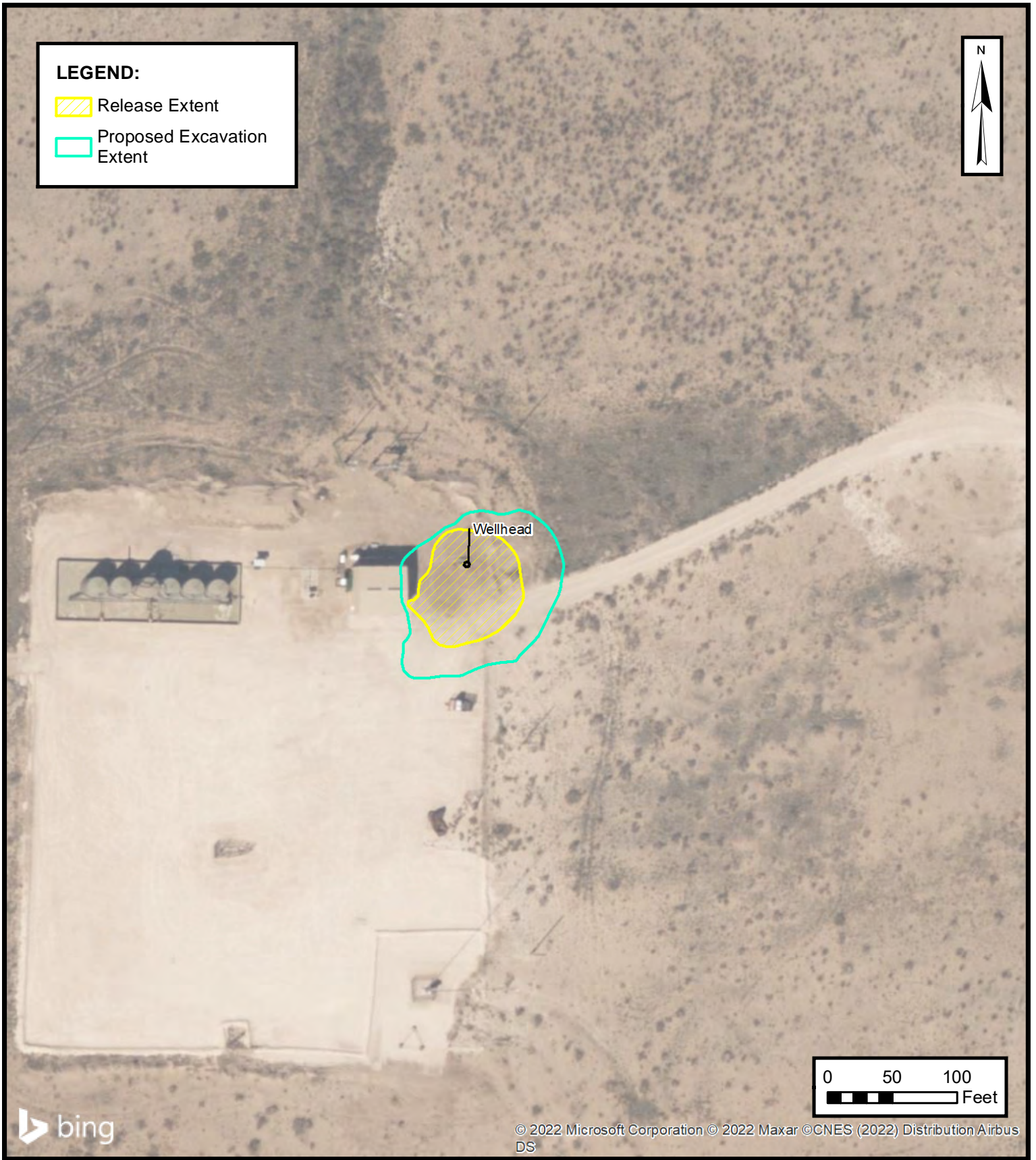
Based on the extent of corrective measures, planning and potential third-party operator oversight at the Site, WPX anticipates beginning remediation within 120 days of the approval of this RWP.



APPENDIX A

Figures





 **ENSOLUM**
Environmental & Hydrogeologic Consultants

PROPOSED EXCAVATION EXTENT

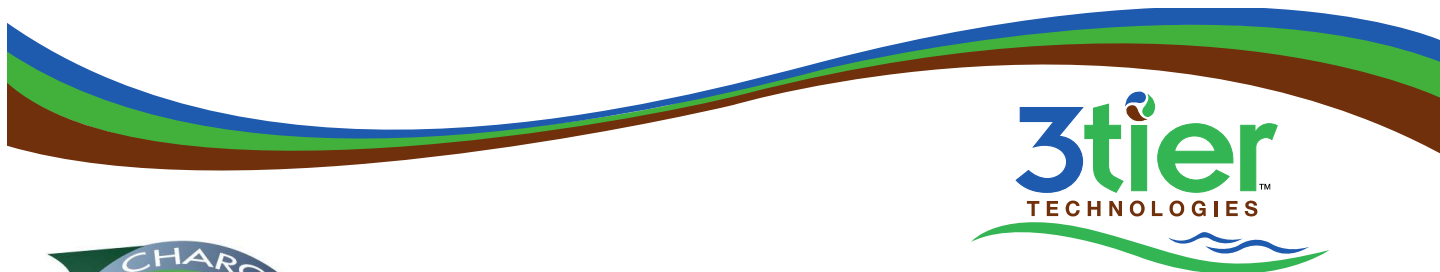
WPX ENERGY PERMIAN, LLC.
LVP SWD #001
Unit I Sec 4 T23S R28E
Eddy County, New Mexico

FIGURE
2



APPENDIX B

SA-1000™ Technical Sheet



New Product

The Next Generation Treatment for Sodium & Heavy Metals in Soil and Wastewater

3Tier Technologies is proud to introduce a revolutionary shift in the management and remediation of high sodium and metal contaminated soils and wastewater streams. **SA-1000™** is the newest treatment that combines two, next generation, organic bio-polymers. This uniquely blended product possess the following properties and functions; optimal molecular mass, active functional groups, hydrophilic and hydrophobic sites, positively and negatively charged sites, non-ionic sites, and specific interactions between molecules themselves and organic/mineral compounds. The combination of these diverse properties and functions provide a product that utilizes multiple functions and mechanisms to detoxify, neutralize, bind, and convert a myriad of toxic metals to benign residual metals.

SA-1000™ is a convenient, cost effective, liquid treatment product derived from and naturally occurring organic substrate. Our proprietary and patented manufacturing process unleashes unparalleled performance that address most of the potential effects that excess sodium and heavy metals will have in all soil and wastewater applications.

Product Benefits:

- **SA-1000™** adsorbs and coordinates sodium cations and chlorine anions which allow excessive amounts of salt to become more mobile in terms of sodium cations and chloride anions that have a natural ability to flush through the soil or precipitate out of water. Any sodium residue creates a new mineral formation resulting in sodium, chlorine, cation and anion conversion into physically and mechanically bound status, thus eliminating salt toxicity resulting in desalination and salt toxicity reduction/ elimination.
- **SA-1000™** will naturally stimulate toxic organic and mineral pollutants decomposition into neutral compounds such as converting Chromium VI to Chromium III.
- **SA-1000™**, with an abundance of hydroxyl and phenolic groups, provides these functional groups that are key to the metal complexation resulting in the binding of various metals.
- **SA-1000™** is immediately soluble and active compared to gypsum applications. See results within a couple weeks.
- In soil, **SA-1000™** creates fresh soil organic matter that results in increased CEC, better water holding capacity, and soil porosity/structure that results in healthy, active soil for re-use.
- **SA-1000™** is a chemically, biologically and geologically active material.
- Cost effective low dose rates for either injection or mechanical applications.

For additional information and specific application rates for your project, contact an authorized 3 Tier representative.



SA-1000 - Performance Case Study

The remediation and management of waste tailings from the metals refinery industry is a growing challenge with increased regulations towards heavy metals, salts, and other related contaminants. In an effort to demonstrate the real world performance of SA-1000 and the direct impact it has on metals and salts, 3 Tier received a sample of stainless steel slag directly from a refinery to treat.

Trial Outline:

The slag sample was crushed and screened to a homogenous material with all large clumps removed. An equal amount of processed slag was added to two clean plastic dishes. One dish was treated with SA-1000 (Right Photo Below), wheat seed was added to each dish and mixed into the slag, and each dish watered. Each dish received equal amounts of water daily to aid in normal seed germination for five days.

The photo below shows plant germination after 5 days. After 10 days, the treated sample continued to grow while the untreated dish with limited initial germination all died. The trial was abandoned after 30 days with the treated sample plants remained healthy for the entire time.



Untreated Slag

SA-1000 Treated Slag

Summary:

This study has demonstrated the performance of SA-1000 and its ability to reduce/eliminate salt and metals toxicity while providing a valuable organic structure which will sustain growth. Additionally, this study has laid the foundation for a large scale pilot study for the treatment of refinery tailings. The new pilot study will include pre and post material metals and sodium testing and replicate the ability of the tailings to support various plants from seed.

3 Tier is seeking additional tailing remediation locations as well as salt and/or metal contaminated soil sites for additional performance pilot studies. Contact Daniel J Burdette at dburdette@3tier.tech or Call 877-226-7498.

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CONDITIONS

Action 128107

CONDITIONS

Operator: WPX Energy Permian, LLC Devon Energy - Regulatory Oklahoma City, OK 73102	OGRID: 246289
	Action Number: 128107
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Remediation Plan Approved with Conditions. Remediation Plan Approved to excavate soils and transport excavated soils to a New Mexico approved landfill. Any alternate remedial method (ex. onsite ex-situ treatment) will require submission of a separate Remediation Plan specifying approved protocols.	8/9/2022