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	nAPP2132562482
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Novo Oil & Gas Northern Delaware, LLC	OGRID: 372920
Contact Name: Kurt A. Shipley	Contact Telephone: 405-286-3916
Contact email: kshipley@novoog.com	Incident # *(assigned by OCD):* nAPP2132562482
Contact mailing address: 1001 West Wilshire Blvd., Suite 206 Oklahoma City, OK 73116	

Location of Release Source

Latitude 32.34103 Longitude -104.084188
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Culebra Bluff CTB3 (before San Mateo Meter)	Site Type: Produced Water Line (production)
Date Release Discovered: 11/20/2021 at 1:00am	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
	4	T22S	R28E	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)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls): 660	Volume Recovered (bbls): 150
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A break on a permanent produced water pipeline occurred at camel back riser above ground.
Pump rate of produced water: 17,000 bbl/day = 708 bbl/hour = 12 bbl/min
Pumping during release for 55 minutes

Volume: 12 bbl/min X 55 minutes = **660 bbls (27,720 gallons) estimated to have been released**

State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Calculated volume of the release was 660 bbls of produced water, which is greater than the 25 bbl threshold defining a major release.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Immediate notification was provided by Kurt Shipley on November 20, 2021 at 2:00pm by phone. Notification was made to the NMOCD – Artesia Office (575.703.3842). A recorded message was provided on the hotline voicemail (a specific person did not answer). Bryan Haney with Altamira-US (on behalf of Novo Oil & Gas Northern Delaware, LLC.) submitted notification of a release (NOR) on the online OCD system on November 21, 2021.

Initial Response

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

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

All actions above have been completed.

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: Kurt A. Shipley Title: Chief Operating Officer

Signature: _____ Date: December 2, 2021

email: kshipley@novoog.com Telephone: 405-286-3916

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2132562482
District RP	
Facility ID	
Application ID	

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?	46.5 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ 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)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ 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

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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: Kurt A. Shipley Title: Chief Operating Officer

Signature: _____ Date: 5-18-2022

email: kshipley@novoog.com Telephone: 405-286-3916

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2132562482
District RP	
Facility ID	
Application ID	

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: Kurt A. Shipley Title: Chief Operating Officer

Signature: Date: 12-1-2022

email: kshipley@novoog.com Telephone: 405-286-3916

OCD Only

Received by: Jocelyn Harimon Date: 12/01/2022

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

Signature: Date:

Incident ID	nAPP2132562482
District RP	
Facility ID	
Application ID	

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)

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Printed Name: Kurt A. Shipley Title: Chief Operating Officer

Signature: Date: 12-1-2022

email: kshipley@novoog.com Telephone: 405-286-3916

OCD Only

Received by: Jocelyn Harimon Date: 12/01/2022

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

Signature: Robert Hamlet Date: 4/24/2023

Remediation & Reclamation Plan
Produced Water Line Release
Incident ID No. nAPP2132562482
Culebra Bluff CTB3 (before San Mateo Meter)
Discovery Date: November 20, 2021
Eddy County, New Mexico

Prepared for:
Novo Oil & Gas Northern Delaware, LLC
1001 West Wilshire Blvd., Suite 206
Oklahoma City, Oklahoma 73116

Prepared By:

Altamira-US
Bryan Haney, P.G. TX 929
Corpus Christi, Texas 78418
(361)658-3126

November 21, 2022

ALTAMIRA

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ACRONYMS AND ABBREVIATIONS

Altamira	Altamira-US, LLC
Novo	Novo Oil & Gas Northern Delaware, LLC
bgs	below ground surface
bbl	barrels
mg/kg	milligram per kilogram
NMOCD	New Mexico Oil Conservation District
TPH	Total Petroleum Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes

1.0 INTRODUCTION

Novo Oil & Gas Northern Delaware, LLC (Novo Oil & Gas) (OGRID No. 372920) operates a facility referred to as "Culebra Fluff CTB3" located in field name Purple Sage – Wolfcamp, T23S, R28E, Section 4, Quarter NE, in Eddy County, New Mexico. On November 20, 2021, field personnel for Novo Oil & Gas discovered a release of produced water from a permanent produced water line. The produced water line and point of release is located in an open area between the Goonch Pad H and Goonch CTB3 operational pads. The release area is located approximately one mile southwest of the intersection of Highway 605 and Herradura Bend Road at latitude N32.34103, longitude W-104.084188 **(Figure 1 and Figure 2)**. This Remediation & Reclamation Plan has been prepared to outline proposed remediation efforts for the cleanup of chlorides in soil.

1.1 Release Details and Initial Response

On November 20, 2021, at approximately 1:00 am a release of produced water occurred as a result of a break on the permanent produced water pipeline at the camel back riser located above the ground surface. Approximately 660 barrels of produced water was released into the area between the Goonch Pad H and Goonch CTB3 operational pads. The release of produced water from the camel back riser piping extended generally to the south and east across the lower lying area. The release area is depicted on **(Figure 3)**.

The release of produced water was identified by Novo Oil & Gas personnel and steps were taken to mitigate further release and contain and remove pooled areas of produced water. Novo Oil & Gas estimated approximately 660 barrels of produced water was released and approximately 150 barrels of produced water was recovered using vacuum trucks. The justification for the quantity release is based on the following:

- Pump rate of produced water: 17,000 bbl per day = 708 bbl per hour = 12 bbl per minute
- Pump ran for approximately 55 minutes during release
- Volume: 12 bbl per minute x 55 minutes = 660 bbl of produced water

The area of the release between the two pads contains numerous buried pipelines, pipeline right-of-ways, and construction right-of-ways. Soil assessment activities were conducted to the best extent possible while adhering to safety requirements from the various pipeline companies.

1.2 Notification

Based on the quantity of produced water released being greater than 25 barrels, the release was determined to be a major release per 19.15.29.7.A NMAC. Immediate notification was provided by Kurt Shipley to the NMOCD and BLM hotlines on November 20, 2021. The initial online release notification was submitted to the New Mexico Oil Conservation District (NMOCD) on November 21, 2021. The OCD issued incident ID# nAPP2132562482. Form C-141 Release Notification was prepared and submitted online with payment on December 2, 2021. Written notification of the release (BLM Major Undesirable Event Report) was also provided to the BLM.

1.3 Project Objectives

The project objectives are: 1) conduct soil remediation for chlorides and 2) complete restoration and reclamation of site area.

1.4 Regulatory Framework

The Site is subject to environmental regulatory oversight by the NMOCD and regulations set forth in Title 19, Chapter 15, Part 29. Remediation, Restoration, and Reclamation activities will be conducted in accordance with guidelines outlined in 19.15.29 NMAC.

2.0 STANDARD OF CARE, LIMITATIONS, & RELIANCE

2.1 Standard of Care

Altamira's services were performed in accordance with standards customarily provided by a firm rendering the same or similar services in the area during the same period of time. Altamira makes no warranties, expressed or implied, as to the services performed hereunder. Additionally, Altamira does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report.

2.2 Additional Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the services performed under this scope of work and it should be noted that this information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, or not present during these services, and Altamira cannot represent that the Site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this scope of services. Environmental conditions at other areas or portions of the Site may vary from those encountered at actual sample locations. Altamira's findings and recommendations are based solely upon data available to Altamira at the time of these services.

3.0 ASSESSMENT RESULTS AND SUMMARY

3.1 Initial Actions and Soil Assessment Summary

Atlamira on behalf of Novo Oil & Gas conducted the first round of soil assessment activities January 25-26, 2022, in the area of the produced water release to determine the degree of impact to soil. A total of 21 soil borings were installed to attempt to delineate the vertical and lateral extent of potential constituents of concern. Eleven soil borings (SB-2 – SB-11 and SB-12) were installed within the source/release area. Ten soil borings were installed to determine the lateral extent of potential impacts to soil (SB-1 and SB-13 – SB-21) **(Figure 3)**. Installation of soil borings using a drill rig during the January 2022 assessment was limited to soil boring locations SB-1 and SB-2 due to significant construction and presence of numerous underground pipelines in the area.

Remaining soil borings were installed using a stainless-steel hand auger (but depth limited due to rocky lithologic matrix).

During April 27-28, 2022, Altamira conducted additional soil assessment activities in select locations to better determine the vertical and lateral extent of chlorides in soil. Soil boring SB-2 was resampled to achieve vertical delineation near the point of release. Eight additional soil borings were installed at previous shallow soil boring locations to determine the vertical extent of chlorides in soil. Two new soil borings were installed (SB-22 and SB-23) for lateral delineation of chlorides in soil. Soil borings were installed using a combination of solid flight auger and air rotary drilling methods due to the rocky lithologic matrix.

Soil samples were collected continuously from the surface to the total depth of each soil boring. Representative soil/rock from each one to two-foot interval was placed into a plastic bag, allowed to equilibrate and field screened with a photo-ionization detector (PID) for the presence of organic vapors. Soil samples were lithologically described and observations noted on soil boring logs. Soil samples were collected and submitted for laboratory analysis generally from the surface to the total depth of each soil boring in one to two-foot sample intervals. Soil samples were placed in laboratory provided containers, labeled, and maintained/preserved on ice in an insulated cooler with chain-of-custody documentation.

The soil sample analysis was initially conducted on the first two shallow depth sample intervals. If a constituent of concern exceeded the Assessment/Closure Criteria set forth 19.15.29 NMAC then the constituent in the next deeper sample interval was also analyzed until vertical delineation was achieved. Soil samples were submitted to Pace Analytical National in Mount Juliet, Tennessee for analysis. Soil samples were collected and submitted for analysis for the following:

- Chlorides – Method 4500 Cl-B
- TPH (GRO, DRO, MRO) – EPA SW-846 Method 8015M
- BTEX – EPA SW-846 Method 8260B

The initial soil sample interval 0-1 foot was analyzed for chlorides, TPH, and BTEX. If a constituent exceeded the allowable assessment/cleanup level, that constituent was analyzed in the next deeper sample interval.

Following installation of soil borings, White Drilling Company plugged each borehole per the specifications provided in the Well Plugging Plan and approved by the State of New Mexico Office of the State Engineer. Soil borings were plugged using a Type I/II cement-bentonite slurry per the specifications and tremied from the bottom of the borehole to the surface. A plugging record for soil boring SB-1 was provided to the State of New Mexico Office of the State Engineer.

There is a significant safety concern in the general release area due to the numerous underground pipelines located at various depths below ground surface, active right-of-way, and active construction right-of-way. Placement of soil borings in some areas was limited.

3.2 Chloride Results Discussion

Analytical results for chlorides within the release area ranged from <9.62 mg/kg to 14,700 mg/kg **(Table 1)**. Chloride concentrations exceeded 600 mg/kg in soil samples at soil borings SB-2, SB-3, SB-5, SB-6, SB-7, SB-8, SB-9, SB-11, SB-12, SB-22, and SB-23. The approximate lateral

extent of the chloride impacted soil is depicted on **Figure 4**. It appears that the produced water followed general topography within the release area and may have pooled in lower lying areas. It should also be noted that general lithology consisted of a mix of silt-sand and rock, which may have also aided in the infiltration of produced water to deeper soil intervals. Chloride impacts appeared the deepest at soil borings SB-2 (near point of release) and SB-8. Vertical delineation has been achieved for chlorides at each soil boring location.

Soil borings were installed radially outward from the known impact area. Soil sample data for chlorides for these soil borings generally show lateral delineation and lack of impacts in the shallower soil profile. Soil borings SB-1 and SB-13 show delineation of chlorides to the north and northwest of the release area. Soil borings SB-19 and SB-20 show lateral delineation of chlorides in the shallower soil intervals to the west of the release area. SB-10, SB-17, SB-18, and SB-21 show lateral delineation of chloride impacts to the southeast near SB-7 and SB-11. There is some lack of lateral delineation east of SB-8 and SB-23; and west/south/east of SB-5 and SB-22. As a result, Novo will complete any lateral delineation as part of the post excavation confirmation soil sampling and treatment program provided below. This will continue until analytical data results show chloride concentration action levels have been achieved.

3.3 TPH Results Discussion

TPH was analyzed on the initial shallowest soil sample from each soil boring. TPH was fractionated into the GRO/DRO/MRO ranges. For the purpose of assessment and in accordance with regulatory guidance, TPH concentrations were compared to an assessment level of 100 mg/kg. Analytical data results show total TPH concentrations above 100 mg/kg were present in soil samples SB-3 (0-1') and SB-3 (1-2') but attenuate to below 100 mg/kg in the 2-3' soil sample interval. Analytical results for TPH in all other soil samples show either low level concentrations of TPH below 100 mg/kg or non-detected concentrations below the laboratory reporting limit. Since TPH concentrations were below the applicable assessment level in all soil samples, analysis of TPH on deeper soil samples was not necessary.

3.4 BTEX Results Discussion

BTEX was analyzed on the initial shallowest soil sample from each soil boring. For the purpose of assessment and in accordance with regulatory guidance, benzene and total BTEX concentrations were compared to an assessment level of 10 mg/kg and 50 mg/kg, respectively. Analytical results show very low concentrations of benzene were detected only in soil samples SB-7 (0-1') and SB-8 (0-1') both of which were significantly below the 10 mg/kg assessment level. Benzene was not detected in any of the other soil samples submitted for laboratory analysis. BTEX concentrations were detected in soil samples from soil boring SB-7, SB-8, SB-11, SB-12, and SB-16; however, detected concentrations were below the applicable assessment level of 50 mg/kg. Total BTEX was not detected in any of the other soil samples submitted for laboratory analysis. Since benzene and total BTEX concentrations were below the applicable assessment level in all soil samples, analysis of benzene and total BTEX on deeper soil samples was not necessary and screened from further assessment.

4.0 REMEDIATION PLAN

Remediation of shallow soils along the general release flow path is necessary due to chlorides present in soil at concentrations greater than 600 mg/kg.

Although low level concentrations of TPH and BTEX were detected in certain assessment soil samples, Novo intends to request a variance for further analysis of TPH and BTEX in post excavation confirmation soil samples. Two soil borings will be advanced in the locations of the assessment soil borings showing the highest detected concentrations of TPH and BTEX (soil borings SB-3 (high TPH) and SB-8 (high BTEX)). At each soil boring location, Novo will collect soil samples (one-foot intervals) from the surface to four feet below ground surface for analysis of TPH and BTEX. Analytical data results will be compared to Table I – Closure Criteria. If results are below applicable closure criteria levels, Novo will submit the data and request for variance to exclude TPH and BTEX from further analysis during remediation.

Depth to groundwater has been determined to be present at approximately 47 feet below ground surface near the Site. Based on the depth to groundwater in the vicinity of the Site, the cleanup closure criteria for chlorides in soil is 600 mg/kg. Affected soil in the flow path areas will be excavated and removed at various depths based on soil assessment results and field post excavation soil sample results. The areas and approximate depth of proposed remediation are depicted on **Figure 5**.

Novo Oil & Gas will provide written notification to the OCD district office and BLM prior to start of field activities and two business days prior to confirmation soil sampling.

4.1 Estimated Affected Area Soil Volume

The estimated affected soil volume is based on analytical data results showing vertical delineation of chlorides in soil at each soil boring. The lateral extent is estimated based on lateral delineation data and will be verified during remediation by the use of confirmation soil sampling along excavated side-walls. If chloride concentrations along excavated side-walls or the floor exceed 600 mg/kg, the excavation along that side-wall or floor grid will be further excavated until confirmation soil sample results are below the cleanup criteria. Estimated affected soil volume calculations are provided on **Table 2** and total approximately 20,086 cubic yards.

4.2 Remediation Methodology

Novo Oil & Gas will utilize Altamira as their environmental consultant and will subcontract various construction and trucking companies to complete soil excavation, backfilling, and hauling of soil for disposal.

Prior to site work and subsurface digging, Novo, Altamira and subcontractors will conduct a New Mexico utility locate within 72 hours prior to site work. Altamira will track and document utility and pipeline companies and arrange for a meeting onsite to document utility/pipeline locations and understand potential safety requirements for excavation.

Altamira and contracted personnel will mobilize equipment and personnel to the Site to excavate each affected soil area depicted on **Figure 5**. Soil in each area will be excavated using heavy

earth-moving equipment or by hydro-excavation. Since the release area lies within an area containing numerous underground pipelines, it has been determined that other pipeline companies will require soil excavation be conducted in the vicinity of their pipelines using hydro-excavation methods.

Excavated soil will be direct loaded to 17-20 yard trucks and may be temporarily stockpiled as necessary ahead of loading.

Each truck of soil loaded and transported for disposal will be accompanied with a manifest or bill of laden document so that the soil is tracked and documented for final disposal at the disposal facility. Soil will be disposed of at the Lea Land, LLC facility located at Mile Marker 64, US Highway 62/180 East or at the R360 Hobbs Halfway Facility located at 4507 W. Carlsbad Highway.

4.3 Post Excavation Confirmation Native Soil Sampling Methodology

Following excavation of each area, confirmation soil sampling of the "native soil" will be conducted per 19.15.29.12 (D)(1). A five-point composite soil sample will be collected every 200 square feet for each sidewall and floor of the excavation. Representative soil from each of the five points (per composite) will be mixed and placed into laboratory provided containers, labeled, and maintained on ice in an insulated cooler. Confirmation soil samples will be submitted to Cardinal Laboratories for analysis of chloride using EPA Method 4500 Cl-B. Post-excavation confirmation soil sample quantities were calculated for ten distinct excavation areas (based on approximated vertical depth of soil excavation). A summary of each area and the calculated number of confirmation soil samples is provided on **Table 3**.

The established closure criteria for chlorides in soil (upper four feet) is 600 mg/kg since the area is not on a well pad area. Closure criteria for chlorides in soil below four feet, based on depth to water less than 51 feet at the site, is also 600 mg/kg. Confirmation soil sample results with a concentration less than 600 mg/kg will indicate remediation of chlorides in soil is complete. If the concentration of chlorides in a particular soil sample is greater than 600 mg/kg, the area will be further excavated and then re-sampled. This methodology will be implemented until chloride affected soil is removed to concentrations less than 600 mg/kg. As previously discussed, based on soil assessment data results, Novo will collect additional soil samples for analysis of TPH and BTEX. If results are below established cleanup levels, Novo will request a technical variance to exclude the laboratory analysis for TPH and BTEX from further consideration.

4.4 Backfill Activities

Prior to use of backfill soil material, representative soil samples will be collected from the borrow area to confirm the chloride concentration of the borrow material is less than 600 mg/kg. Following completion of soil excavation activities and post excavation confirmation soil sampling, the area will be backfilled using native soils from the general area.

5.0 RESTORATION, RECLAMATION & RE-VEGETATION

Following completion of affected soil remediation and confirmation soil sampling, Novo Oil & Gas will restore the excavated areas to the condition that existed prior to the release. This will include

the replacement of removed soil, reclamation to original grade, and re-vegetation with native grass species.

5.1 Proposed Restoration

Following excavated and permanent removal of chloride affected soils and obtaining confirmation soil sample results for chlorides in soil below 600 mg/kg, native backfill soil will be placed back into the respective excavation areas and compacted on 9 to 12-inch lifts. Final soil cover will be placed to match the sites existing grade to prevent ponding of water and erosion. Site personnel will inspect the area on a weekly basis to monitoring the final cover/grade.

5.2 Proposed Reclamation & Re-vegetation

Currently, pre-disturbed areas within the immediate area consists of spars vegetation including weeds and low brush forming plants. Approximately 60-75% of the ground surface consists of native soil and broken rock.

Following placement of the top layer, native seed mixtures will be spread and watered to support growth. Per NMOCD 19.15.29.13 (D)(3) reclamation of disturbed areas will be considered complete when the uniform vegetation cover has been established that reflects a life-form ratio of plus or minus fifty percent of pre-disturbed levels and a total percent plant cover of at least seventy percent of pre-disturbed levels. This results in an approximate established re-growth of 25-30% of the ground surface (based on best estimate of site observations).

Novo Oil & Gas will notify the NMOCD and BLM when reclamation and re-vegetation is complete and submit the final closure report and request final site closure.

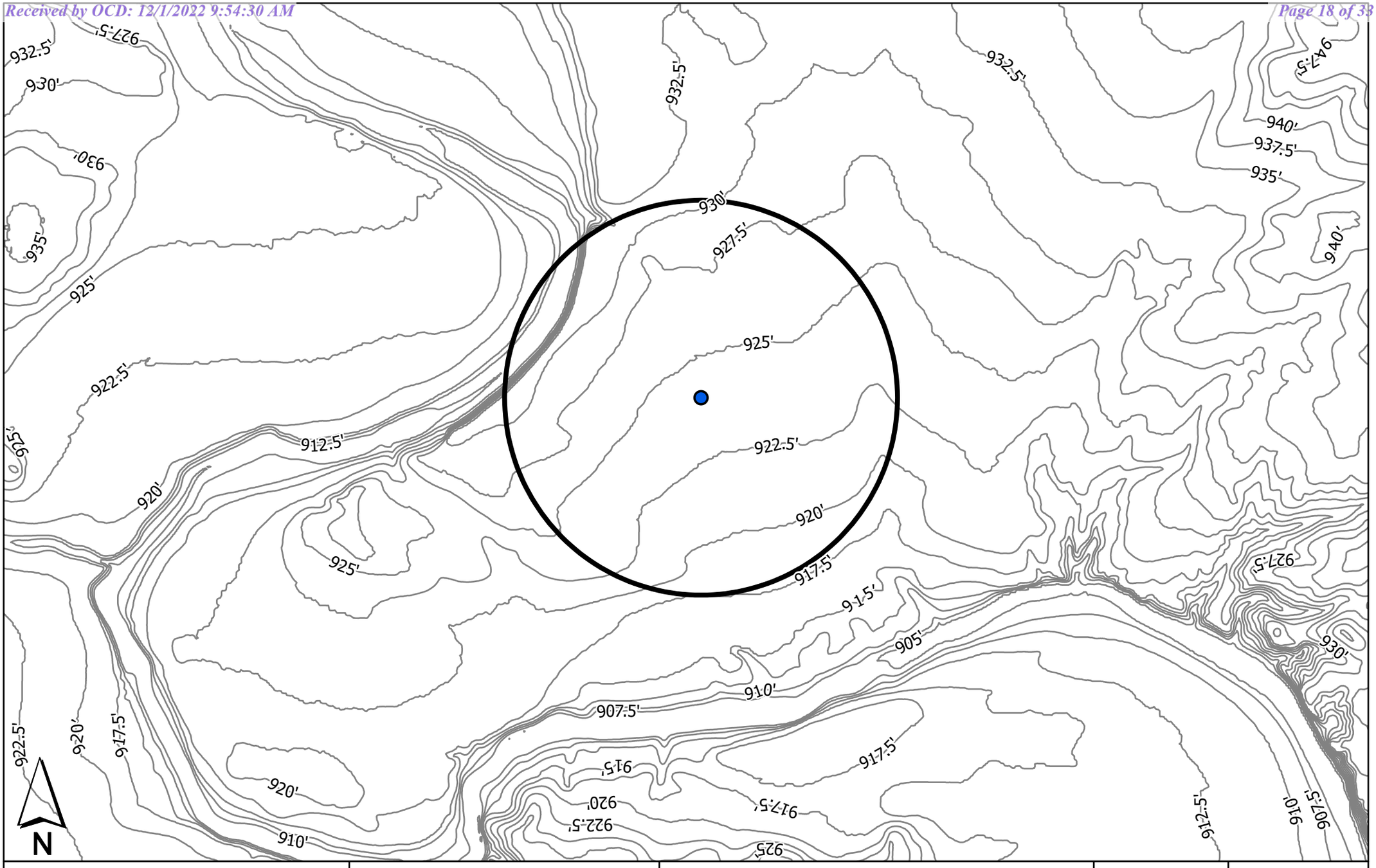
6.0 PROPOSED REMEDIATION SCHEDULE AND TIMELINE

Upon NMOCD and BLM approval of this remediation and reclamation work plan, Novo Oil & Gas anticipates the following schedule:

- 15-30 days following approval – finalize work plan and mobilize to site area
- 48 hours prior to start of field activities, notify NMOCD and BLM – conduct soil excavation and disposal activities – estimating 40-60 days to complete
- 48 hours prior to confirmation soil sampling, notify NMOCD and BLM – confirmation soil samples will be collected by area as the soil excavation of that area is deemed initially complete
- Following confirmation soil sample results demonstrate cleanup levels area met, backfilling activities will commence. This may be conducted area-by-area once the excavation area is cleared and as work space becomes available
- 10 days following completion of all backfill activities, seed the work area with native seed and hydrate
- remediation and reclamation complete, observe vegetation growth to meet state criteria
- Submit final closure once established vegetation growth meets regulated criteria

ALTAMIRA

FIGURES



Legend

- Novo Culebra Bluff Release

Notes:

Topographic Map

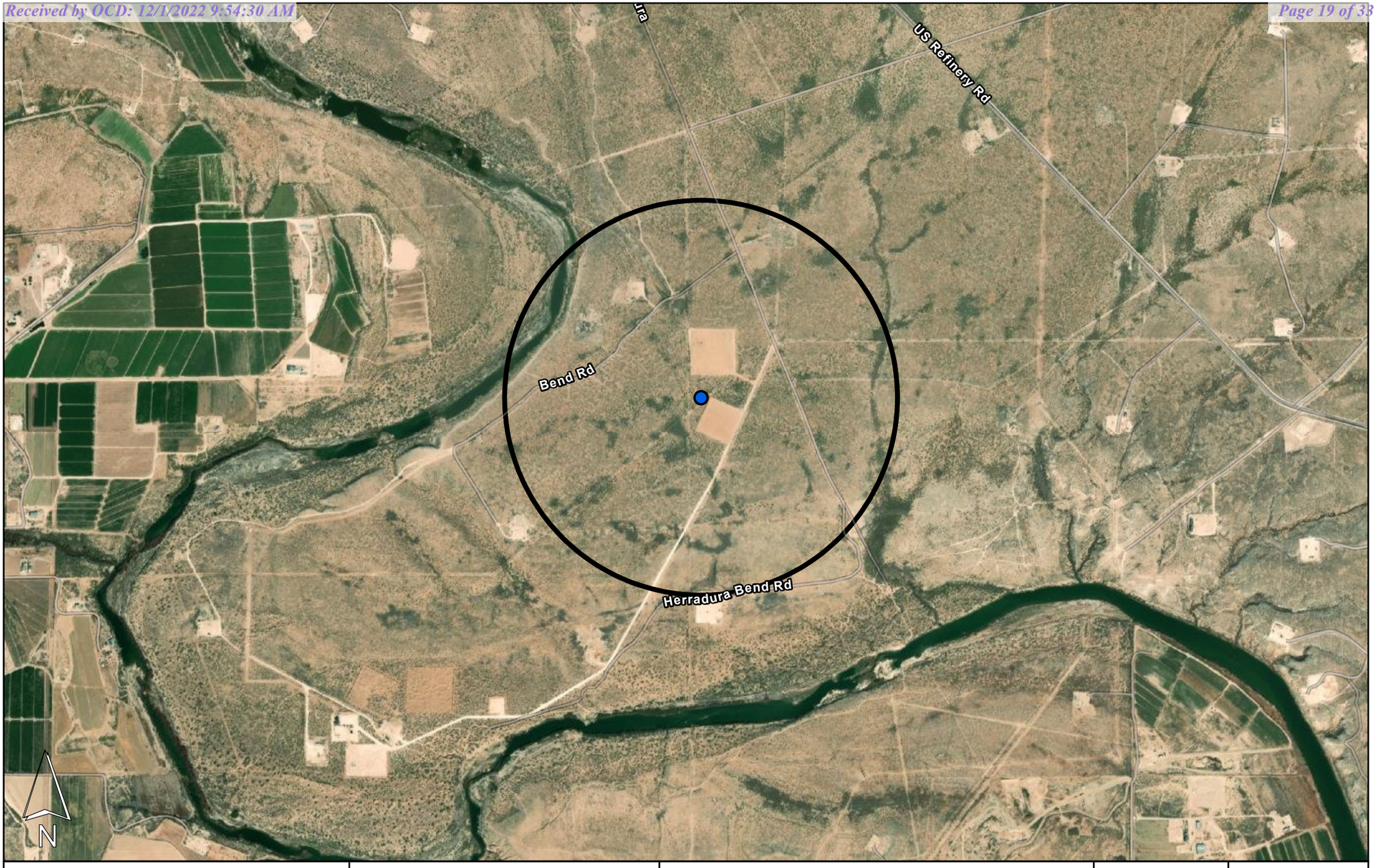
Culebra Bluff CTB3 – Produced Water Release
nAPP2132562482
Eddy County, New Mexico
Novo Oil & Gas

0 2,500 5,000 Feet

Date: 5/18/2022

Figure 1

ALTAMIRA



Legend

- Novo Culebra Bluff Release

Notes:

Site Location Map

Culebra Bluff CTB3 – Produced Water Release
nAPP2132562482
Eddy County, New Mexico
Novo Oil & Gas

0 2,500 5,000 Feet

Date: 5/18/2022

Figure 2

ALTAMIRA

N 32.34103
W -104.084188
DISCOVERY DATE: 11/20/2021

GOONCH
PAD H

POINT OF
RELEASE

SB-1
SB-24
SB-2
SB-23
SB-13
SB-12
SB-9
SB-3
SB-8
SB-15
SB-16
SB-14
SB-6
SB-20
SB-4
SB-17
SB-21
SB-7
SB-11
SB-18
SB-10
SB-19
SB-5
SB-22

SAN MATEO H_2O BPL
SAN MATEO OIL BPL
NOVO GAS BPL
H_2O BPL
DCP BPL
DCP BPL
CRESTWOOD BPL
JACK SLEEPER BPL
EXISTING CALICHE ROAD
EXISTING CALICHE ROAD
ACCESS ROAD
RISER
FACILITY

GOONCH
PAD I

GOONCH
CTB3

LEGEND

- POINT OF RELEASE
- SOIL BORING LOCATION
- BURIED PIPELINE
- PIPELINE ROW
- CONSTRUCTION ROW
- EXISTING PAD EDGE

N

0 100'
Approximate Scale

NOVO OIL & GAS
CULEBRA BLUFF CTB3-PRODUCED WATER RELEASE
nAPP2132562482
EDDY COUNTY, NEW MEXICO

SITE MAP

ALTAMIRA

FIGURE
3

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
P:\Novo Oil & Gas\NVONM2103 - Culebra Bluff CTB3-Produced Water Release\Figures\Figures-Maps\Figure 3 Site Map.dwg LAYOUT: MODEL SAVED: 10/26/2022 2:41 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 11/15/2022 5:18 PM BY: DIANA LEASE

N 32.34103
W -104.084188
DISCOVERY DATE: 11/20/2021

GOONCH
PAD H

DCP BPL

POINT OF RELEASE

> 600 mg/kg

SB-1 SB-24 SB-2 SB-13 SB-23 SB-12 SB-9 SB-3 SB-8 SB-15 SB-16 SB-14 SB-6 SB-20 SB-4 SB-7 SB-21 SB-17 SB-11 SB-18 SB-10 SB-19 SB-5 SB-22

SAN MATEO H_2O BPL

SAN MATEO OIL BPL

NOVO GAS BPL

H_2O BPL

JACK SLEEPER BPL

EXISTING CALICHE ROAD

RISER FACILITY

ACCESS ROAD

CRESTWOOD BPL

GOONCH
PAD I

GOONCH
CTB3

Analyte			Chloride
Method			300/4500-Cl-B
Table I - Closure Criteria (0-4')			600
Sample ID	Sample Date		
Source Area Soil Borings			
SB-2 (0-1')	1/25/2022		8,080
SB-2 (2-3')	1/25/2022		3,570
SB-2 (3-4')	1/25/2022		2,040
SB-2 (4-5')	1/25/2022		2,290
SB-2 (6-7')	1/25/2022		1,570
SB-2 (8-9')	1/25/2022		2,380
SB-2 Resample (Dup)			
SB-2 (1-2')	4/26/2022		5,360
SB-2 (3-4')	4/26/2022		2,640
SB-2 (6-7')	4/26/2022		2,920
SB-2 (9-10')	4/26/2022		3,200
SB-2 (11-12')	4/26/2022		3,520
SB-2 (13-14')	4/26/2022		480
SB-3 (0-1')	1/25/2022		3,510
SB-3 (1-2')	1/25/2022		1,860
SB-3 (2-3')	1/25/2022		205
SB-4 (0-1')	1/25/2022		11.2 (J)
SB-4 (1-2')	1/25/2022		19 (J)
SB-5 (0-1')	1/25/2022		5,620
SB-5 (1-1.5')	1/25/2022		6,120
SB-5 (3-4')	4/28/2022		1,800
SB-5 (4-5')	4/28/2022		1,060
SB-5 (5-7')	4/28/2022		768
SB-5 (8-9')	4/28/2022		320
SB-6 (0-1')	1/25/2022		1,270
SB-6 (1-2')	1/25/2022		1,440
SB-6 (3-4')	4/28/2022		1,060
SB-6 (4-5')	4/28/2022		1,170
SB-6 (6-7')	4/28/2022		416
SB-6 (8-9')	4/28/2022		128
SB-7 (0-1')	1/25/2022		3,308
SB-7 (1-2')	1/25/2022		1,160

Analyte			Chloride
Method			300/4500-Cl-B
Table I - Closure Criteria (0-4')			600
SB-7 (2-2.5')	1/25/2022		751
SB-7 (3-4')	4/28/2022		480
SB-8 (0-1')	1/25/2022		14,700
SB-8 (2-3')	4/28/2022		3,280
SB-8 (3-4')	4/28/2022		2,320
SB-8 (4-5')	4/28/2022		3,000
SB-8 (8-9')	4/28/2022		864
SB-8 (10-11')	4/28/2022		768
SB-8 (12-13')	4/28/2022		208
SB-9 (0-1')	1/25/2022		5,360
SB-9 (1-2')	1/25/2022		4,110
SB-9 (2-2.5')	1/25/2022		3,350
SB-9 (3-4')	4/27/2022		1,400
SB-9 (4-5')	4/27/2022		64
SB-10 (0-1')	1/25/2022		39.7
SB-10 (1-2')	1/25/2022		46
SB-11 (0-1')	1/25/2022		5,980
SB-11 (1-2')	1/25/2022		4,740
SB-11 (2-3')	1/25/2022		3,520
SB-11 (3-4')	1/25/2022		2,740
SB-11 (4-5')	4/26/2022		800
SB-11 (6-7')	4/26/2022		1,140
SB-11 (8-9')	4/26/2022		528
SB-11 (10-11')	4/26/2022		592
SB-12 (0-1')	1/26/2022		3,840
SB-12 (1-2)	4/26/2022		6,960
SB-12 (2-3')	4/26/2022		3,800
SB-12 (3-4')	4/26/2022		544

Analyte			Chloride
Method			300/4500-Cl-B
Table I - Closure Criteria (0-4')			600
Lateral Delineation Soil Borings			
SB-1 (0-1')	1/25/2022		64.4
SB-1 (2-3')	1/25/2022		162
SB-13 (0-1')	1/28/2022		18.7
SB-13 (1-2')	1/28/2022		24.5
SB-13 (3-4')	1/28/2022		234
SB-14 (0-1')	1/28/2022		11.6 (J)
SB-15 (0-1')	1/28/2022		13.7 (J)
SB-15 (1-2')	1/28/2022		12.9 (J)
SB-16 (0-1')	1/28/2022		28
SB-17 (0-1')	1/28/2022		15.6 (J)
SB-17 (1-2')	1/28/2022		12.3 (J)
SB-17 (2-3')	1/28/2022		<9.77
SB-18 (0-1')	1/28/2022		25.5
SB-18 (1-2')	1/28/2022		12.8 (J)
SB-18 (2-3')	1/28/2022		12.5 (J)
SB-18 (4-5')	4/28/2022		128
SB-18 (6-7')	4/28/2022		496
SB-19 (0-1')	1/28/2022		15.5 (J)
SB-20 (0-1')	1/28/2022		<9.62
SB-20 (1-2')	1/28/2022		10.1 (J)
SB-21 (0-1')	1/28/2022		14.9 (J)
SB-21 (1-2')	1/28/2022		16.4 (J)
SB-22 (0-1')	4/26/2022		4,160
SB-22 (2-3')	4/26/2022		3,080
SB-22 (3-4')	4/26/2022		2,720
SB-22 (6-7')	4/26/2022		64
SB-22 (8-9')	4/26/2022		240
SB-23 (0-1')	4/26/2022		6,880
SB-23 (2-3')	4/26/2022		4,320
SB-23 (3-4')	4/26/2022		400

LEGEND

- POINT OF RELEASE
- SOIL BORING LOCATION
- BURIED PIPELINE
- PIPELINE ROW
- CONSTRUCTION ROW
- EXISTING PAD EDGE
- ISO CONTOUR - CHLORIDES IN SOIL (> 600 mg/kg)

N

0 100'
Approximate Scale

NOVO OIL & GAS
CULEBRA BLUFF CTB3-PRODUCED WATER RELEASE
NAPP2132562482
EDDY COUNTY, NEW MEXICO

CONSTITUENT CONCENTRATION MAP - CHLORIDES

ALTAMIRA

FIGURE 4

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF* LAYOUT: MODEL SAVED: 11/15/2022 5:14 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/16/2022 11:15 AM BY: DIANA LEASE
P:\Novo Oil & Gas\NVONM2103 - Culebra Bluff CTB3-Produced Water Release\Figures\Figures-Maps\Figure 4 COC-Chloride.dwg

N 32.34103
W -104.084188
DISCOVERY DATE: 11/20/2021

GOONCH
PAD H

DCP BPL

POINT OF RELEASE

> 600 mg/kg

SB-1 SB-24 SB-2 SB-13 SB-23 SB-12 SB-15 SB-8 SB-16 SB-9 SB-3 SB-14 SB-6 SB-20 SB-4 SB-21 SB-17 SB-7 SB-11 SB-18 SB-10 SB-19 SB-5 SB-22

7 13'
6 3'
4 2'
12'
5
3 6'
8 4'
2 3'
1 8'
9 8'
10 5'

SAN MATEO H_2O BPL
SAN MATEO OIL BPL
NOVO GAS BPL
H_2O BPL
RISER FACILITY
JACK SLEEPER BPL
EXISTING CALICHE ROAD
EXISTING CALICHE ROAD
ACCESS ROAD
CRESTWOOD BPL
DCP BPL

GOONCH
PAD I

GOONCH
CTB3

LEGEND

- 5 — EXCAVATION AREA
- 12' — ESTIMATE EXCAVATION DEPTH (ft)
- POINT OF RELEASE
- SOIL BORING LOCATION
- BURIED PIPELINE
- PIPELINE ROW
- CONSTRUCTION ROW
- EXISTING PAD EDGE
- ISO CONTOUR CHLORIDES IN SOIL (> 600 mg/kg)
- APPROXIMATE AREA OF SOIL EXCAVATION

N

0 100'
Approximate Scale

NOVO OIL & GAS
CULEBRA BLUFF CTB3-PRODUCED WATER RELEASE
nAPP2132562482
EDDY COUNTY, NEW MEXICO

AREA OF PROPOSED SOIL REMEDIATION - CHLORIDE

ALTAMIRA

FIGURE 5

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
P:\Novo Oil & Gas\NVONM2103 - Culebra Bluff CTB3-Produced Water Release\Figures\Figures-Maps\Figure 5 Prop Soil Remediation.dwg LAYOUT: MODEL SAVED: 11/16/2022 5:06 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/21/2022 2:07 PM BY: DIANA
LEASE

TABLE 1
Analytical Data Results Summary – Soil Assessment Samples (mg/kg)

Table 1
Analytical Data Results Summary - Soil Assessment Samples (mg/kg)
Novo Oil Gas - Culebra Bluff CTB3 Produced Water Release
(Discovered November 20, 2021)
Near Loving, New Mexico

Analyte			Chloride	BTEX	Benzene	TPH (low)	TPH (C10-28)	TPH (C28-36)	TPH
Method			300/4500-Cl-B	8260B	8260B	8015D	8015M	8015M	8015M
Table I - Closure Criteria (0-4')			600	50	10	-	-	-	100
Sample ID	Sample Date								
Source Area Soil Borings									
SB-2 (0-1')	1/25/2022		8,080	<0.00148	<0.00053	<0.616	33	54.5	87.5
SB-2 (2-3')	1/25/2022		3,570	<0.00155	<0.000556	<0.648	6.36	11.2	17.56
SB-2 (3-4')	1/25/2022		2,040	---	---	---	---	---	---
SB-2 (4-5')	1/25/2022		2,290	---	---	---	---	---	---
SB-2 (6-7')	1/25/2022		1,570	---	---	---	---	---	---
SB-2 (8-9')	1/25/2022		2,380	---	---	---	---	---	---
(SB-2 Resample Event)									
SB-2 (1-2')	4/28/2022		5,360	---	---	---	---	---	---
SB-2 (3-4')	4/28/2022		2,640	---	---	---	---	---	---
SB-2 (6-7')	4/28/2022		2,920	---	---	---	---	---	---
SB-2 (9-10')	4/28/2022		3,200	---	---	---	---	---	---
SB-2 (11-12')	4/28/2022		3,520	---	---	---	---	---	---
SB-2 (13-14')	4/28/2022		480	---	---	---	---	---	---
SB-3 (0-1')	1/25/2022		3,510	<0.00162	<0.000581	<0.674	62.9	57.5	120.4
SB-3 (1-2')	1/25/2022		1,860	<0.00159	<0.000571	<0.663	94.6	77.1	171.7
SB-3 (2-3')	1/25/2022		205	---	---	0.755 (J)	14.5	7.76	23.015
SB-4 (0-1')	1/25/2022		11.2 (J)	<0.00141	<0.000506	<0.587	2.66 (J)	18.1	20.76
SB-4 (1-2')	1/25/2022		19 (J)	<0.00143	<0.000514	<0.598	3.5 (J)	9.92	13.42
SB-5 (0-1')	1/25/2022		5,620	<0.00154	<0.000552	<0.641	3.58 (J)	13.8	17.38
SB-5 (1-1.5')	1/25/2022		6,120	<0.00164	<0.00059	<0.685	5.87	19.5	25.37
SB-5 (3-4')	4/28/2022		1,800	---	---	---	---	---	---
SB-5 (4-5')	4/28/2022		1,060	---	---	---	---	---	---
SB-5 (6-7')	4/28/2022		768	---	---	---	---	---	---
SB-5 (8-9')	4/28/2022		320	---	---	---	---	---	---
SB-6 (0-1')	1/25/2022		1,270	<0.00156	<0.00056	<0.651	4.1 (J)	24.8	28.9
SB-6 (1-2')	1/25/2022		1,440	<0.00154	<0.000554	<0.644	3.47 (J)	18.4	21.87
SB-6 (3-4')	4/28/2022		1,060	---	---	---	---	---	---
SB-6 (4-5')	4/28/2022		1,170	---	---	---	---	---	---
SB-6 (6-7')	4/28/2022		416	---	---	---	---	---	---
SB-6 (8-9')	4/28/2022		128	---	---	---	---	---	---
SB-7 (0-1')	1/25/2022		3,300	0.000706 (J)	0.000706 (J)	<0.717	2.94	11.9	14.84
SB-7 (1-2')	1/25/2022		1,160	<0.00172	<0.000617	<0.717	<1.87	6.14	6.14
SB-7 (2-2.5')	1/25/2022		751	<0.0018	<0.000648	<0.753	2.97 (J)	7.78	10.75

Table 1
Analytical Data Results Summary - Soil Assessment Samples (mg/kg)
Novo Oil Gas - Culebra Bluff CTB3 Produced Water Release
(Discovered November 20, 2021)
Near Loving, New Mexico

Analyte			Chloride	BTEX	Benzene	TPH (low)	TPH (C10-28)	TPH (C28-36)	TPH
Method			300/4500-Cl-B	8260B	8260B	8015D	8015M	8015M	8015M
Table I - Closure Criteria (0-4')			600	50	10	-	-	-	100
SB-7 (3-4')	4/28/2022		480	---	---	---	---	---	---
SB-8 (0-1')	1/25/2022		14,700	0.011414 (J)	0.000734 (J)	<0.706	14.2	30.9	45.1
SB-8 (2-3')	4/28/2022		3,280	---	---	---	---	---	---
SB-8 (3-4')	4/28/2022		2,320	---	---	---	---	---	---
SB-8 (4-5')	4/28/2022		3,000	---	---	---	---	---	---
SB-8 (8-9')	4/28/2022		864	---	---	---	---	---	---
SB-8 (10-11')	4/28/2022		768	---	---	---	---	---	---
SB-8 (12-13')	4/28/2022		208	---	---	---	---	---	---
SB-9 (0-1')	1/25/2022		5,360	<0.00222	<0.000797	<0.926	3.35 (J)	5.68	9.03
SB-9 (1-2')	1/25/2022		4,110	<0.00182	<0.000653	<0.759	6.02	32.7	38.72
SB-9 (2-2.5')	1/25/2022		3,350	---	---	---	---	---	---
SB-9 (3-4')	4/27/2022		1,400	---	---	---	---	---	---
SB-9 (4-5')	4/27/2022		64	---	---	---	---	---	---
SB-10 (0-1')	1/25/2022		39.7	<0.00188	<0.000676	<0.785	2.15 (J)	12	14.15
SB-10 (1-2')	1/25/2022		46	<0.00164	<0.000591	<0.687	3.04 (J)	19.2	22.24
SB-11 (0-1')	1/25/2022		5,980	0.00271 (J)	<0.000648	0.899 (J)	2.47 (J)	11.6	25.72
SB-11 (1-2')	1/25/2022		4,740	0.00157 (J)	<0.000654	<0.76	3.38 (J)	15.7	19.08
SB-11 (2-3')	1/25/2022		3,520	---	---	---	---	---	---
SB-11 (3-4')	1/25/2022		2,740	---	---	---	---	---	---
SB-11 (4-5')	4/28/2022		800	---	---	---	---	---	---
SB-11 (6-7')	4/28/2022		1,140	---	---	---	---	---	---
SB-11 (8-9')	4/28/2022		528	---	---	---	---	---	---
SB-11 (10-11')	4/28/2022		592	---	---	---	---	---	---
SB-12 (0-1')	1/26/2022		3,840	0.00135 (J)	<0.000524	<0.610	16.4	32.6	49
SB-12 (1-2)	4/28/2022		6,960	---	---	---	---	---	---
SB-12 (2-3')	4/28/2022		3,800	---	---	---	---	---	---
SB-12 (3-4')	4/28/2022		544	---	---	---	---	---	---
Lateral Delineation Soil Borings									
SB-1 (0-1')	1/25/2022		64.4	<0.00147	<0.000527	<0.612	<1.68	4.37	4.37
SB-1 (2-3')	1/25/2022		162	<0.00155	<0.000558	<0.648	15.3	47.3	62.6
SB-13 (0-1')	1/26/2022		18.7	<0.00186	<0.000667	<0.774	<1.67	7.97	7.97
SB-13 (1-2')	1/26/2022		24.5	<0.00152	<0.000545	<0.635	3.2 (J)	17.1	20.3
SB-13 (3-4')	1/26/2022		234	---	---	---	---	---	---
SB-14 (0-1')	1/26/2022		11.6 (J)	<0.00139	<0.000499	<0.579	1.68 (J)	11.1	12.78

Table 1
Analytical Data Results Summary - Soil Assessment Samples (mg/kg)
Novo Oil Gas - Culebra Bluff CTB3 Produced Water Release
(Discovered November 20, 2021)
Near Loving, New Mexico

Analyte			Chloride	BTEX	Benzene	TPH (low)	TPH (C10-28)	TPH (C28-36)	TPH
Method			300/4500-Cl-B	8260B	8260B	8015D	8015M	8015M	8015M
Table I - Closure Criteria (0-4')			600	50	10	-	-	-	100
SB-15 (0-1')	1/26/2022		**13.7 (J)**	<0.00142	<0.00051	<0.593	**2.07 (J)**	**13.4**	**15.47**
SB-15 (1-2')	1/26/2022		**12.9 (J)**	<0.00142	<0.00051	<0.593	**2.04 (J)**	**14.2**	**16.24**
SB-16 (0-1')	1/26/2022		**28**	**0.00137 (J)**	<0.000486	<0.565	**2.91 (J)**	**18.2**	**21.11**
SB-17 (0-1')	1/26/2022		**15.8 (J)**	<0.0015	<0.00054	<0.629	<1.69	**10.9**	**10.9**
SB-17 (1-2')	1/26/2022		**12.3 (J)**	<0.00148	<0.000532	<0.619	<1.71	**11**	**11**
SB-17 (2-3')	1/26/2022		<9.77	---	---	---	---	---	---
SB-18 (0-1')	1/26/2022		**25.5**	<0.00155	<0.000557	<0.647	**3.03 (J)**	**15.1**	**18.13**
SB-18 (1-2')	1/26/2022		**12.8 (J)**	<0.00163	<0.000584	<0.680	**2.21 (J)**	**9.26**	**11.47**
SB-18 (2-3')	1/26/2022		**12.5 (J)**	---	---	---	---	---	---
SB-18 (4-5')	4/28/2022		**128**	---	---	---	---	---	---
SB-18 (6-7')	4/28/2022		**496**	---	---	---	---	---	---
SB-19 (0-1')	1/26/2022		**15.5 (J)**	<0.00142	<0.000511	<0.593	**2.87 (J)**	**19.7**	**22.57**
SB-20 (0-1')	1/26/2022		<9.62	<0.00142	<0.00051	<0.592	<1.68	**32.4**	**32.4**
SB-20 (1-2')	1/26/2022		**10.1 (J)**	<0.00142	<0.000509	<0.591	<1.68	**8.04**	**8.04**
SB-21 (0-1')	1/26/2022		**14.9 (J)**	<0.00148	<0.00053	<0.616	**2.15 (J)**	**16.8**	**18.95**
SB-21 (1-2')	1/26/2022		**16.4 (J)**	<0.00143	<0.000515	<0.599	<1.69	**13.2**	**13.2**
SB-22 (0-1')	4/28/2022		**4,160**	---	---	---	---	---	---
SB-22 (2-3')	4/28/2022		**3,080**	---	---	---	---	---	---
SB-22 (3-4')	4/28/2022		**2,720**	---	---	---	---	---	---
SB-22 (6-7')	4/28/2022		**64**	---	---	---	---	---	---
SB-22 (8-9')	4/28/2022		**240**	---	---	---	---	---	---
SB-23 (0-1')	4/28/2022		**6,880**	---	---	---	---	---	---
SB-23 (2-3')	4/28/2022		**4,320**	---	---	---	---	---	---
SB-23 (3-4')	4/28/2022		**400**	---	---	---	---	---	---

Notes:
All results are in mg/kg
Closure Criteria Soils - Table I of 19.15.29.12 NMAC
TPH - Total Petroleum Hydrocarbons - includes GRO, DRO, MRO
BTEX - Benzene, Toluene, Ethylbenzene, Xylenes
< number is the SDL (not detected above the sample detection limit)
J - result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value
Bold indicates that a COC was detected
Shading indicates that a detected result exceeded the NMOCD Table 1 Closure Criteria Levels

TABLE 2
Estimated Excavated Affected Soil Volume Calculations

Table 2
Estimated Excavated Affected Soil Volume Calculations
Novo Oil Gas - Culebra Bluff CTB3 Produced Water Release
(Discovered November 20, 2021)
Near Loving, New Mexico

Areas of Soil Remediation - Estimated Soil Volume

Area	Approx Depth (ft)	Length (ft)	Width (ft)	Depth (ft)	ft^3	yd^3
1	8	90	70	8	50,400	1,867
2	3	270	72	3	58,320	2,160
3	6	85	70	6	35,700	1,322
4	2	133	122	2	32,452	1,202
5	12	55	40	12	26,400	978
6	3	150	85	3	38,250	1,417
7	13	90	70	13	81,900	3,033
8	4	308	103	4	126,896	4,700
9	8	100	85	8	68,000	2,519
10	5	80	60	5	24,000	889
					Total:	**20,086**

Estimated Total Soil Volume:	**20,086**

Notes:

Refer to Figure 5 for Areas of Proposed Remediation and Depth Intervals

Volume is estimated based on Soil Assessment Results - actual volume may vary based on field conditions and post excavation sample results

TABLE 3
Calculated Post Excavation Soil Sample Quantities

Table 3
Calculated Post Excavation Soil Sample Quantities
Novo Oil Gas - Culebra Bluff CTB3 Produced Water Release
(Discovered November 20, 2021)
Near Loving, New Mexico

Post Excavation Confirmation Soil Sample Per Area (1 per 200 ft^2)

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 feet^2	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 feet^2	# of side walls	Side Wall Samples	Total Soil Samples for Area
1	90	70	6,300	32	90	8	720	4	2	8	**46**
					70	8	560	3	2	6	

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 feet^2	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 feet^2	# of side walls	Side Wall Samples	Total Soil Samples for Area
2	270	72	19,440	98	270	3	810	4	2	8	**110**
					72	3	216	2	2	4	

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 feet^2	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 feet^2	# of side walls	Side Wall Samples	Total Soil Samples for Area
3	85	70	5,950	30	85	6	510	3	2	6	**42**
					70	6	420	3	2	6	

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 feet^2	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 feet^2	# of side walls	Side Wall Samples	Total Soil Samples for Area
4	133	122	16,226	82	133	2	266	2	2	4	**90**
					122	2	244	2	2	4	

Table 3
Calculated Post Excavation Soil Sample Quantities
Novo Oil Gas - Culebra Bluff CTB3 Produced Water Release
(Discovered November 20, 2021)
Near Loving, New Mexico

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 $feet^2$	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 $feet^2$	# of side walls	Side Wall Samples	Total Soil Samples for Area
5	55	40	2,200	11	55	12	660	4	2	8	**25**
					40	12	480	3	2	6	

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 $feet^2$	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 $feet^2$	# of side walls	Side Wall Samples	Total Soil Samples for Area
6	150	85	12,750	64	150	3	450	3	2	6	**74**
					85	3	255	2	2	4	

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 $feet^2$	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 $feet^2$	# of side walls	Side Wall Samples	Total Soil Samples for Area
7	90	70	6,300	32	90	13	1,170	6	2	12	**54**
					70	13	910	5	2	10	

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 $feet^2$	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 $feet^2$	# of side walls	Side Wall Samples	Total Soil Samples for Area
8	308	103	31,724	159	308	4	1,232	7	2	14	**177**
					103	4	412	2	2	4	

Table 3
Calculated Post Excavation Soil Sample Quantities
Novo Oil Gas - Culebra Bluff CTB3 Produced Water Release
(Discovered November 20, 2021)
Near Loving, New Mexico

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 $feet^2$	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 $feet^2$	# of side walls	Side Wall Samples	Total Soil Samples for Area
9	100	85	8,500	43	100	8	800	4	2	8	**59**
					85	8	680	4	2	8	

Excavation Floor Surface					Excavation Side Walls						
Area	Length (ft)	Width (ft)	Area (ft^2)	1 sample per 200 $feet^2$	Length (ft)	Depth (ft)	Area (ft^2)	1 sample per 200 $feet^2$	# of side walls	Side Wall Samples	Total Soil Samples for Area
10	80	60	4,800	24	80	5	400	2	2	4	**32**
					60	5	300	2	2	4	

Estimated Total Post Excavation Soil Samples Required: 707

Notes:

Refer to Figure 5 for Areas of Proposed Remediation and Depth Intervals

Dimensions are estimated based on Soil Assessment Results - actual dimensions may vary based on field conditions and actual excavation areas

Assumes one 5-point composite soil sample per each 200 ft^2 area (both excavation floor area and side walls)

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
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 162939

CONDITIONS

Operator:	OGRID:
NOVO OIL & GAS NORTHERN DELAWARE, LLC 1001 West Wilshire Blvd Oklahoma City, OK 73116	372920
	Action Number: 162939
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Remediation Plan is Conditionally Approved. Due to the extremely shallow groundwater and sensitive nature of the release location, the site will need to be remediated to the strictest closure criteria standards from Table 1 of the OCD Spill Rule. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Confirmation samples should be collected every 200 ft2. All off pad areas must meet reclamation standards set forth in the OCD Spill Rule. Sidewall samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. The work will need to occur in 90 days after the work plan has been approved.	4/24/2023