

WASTE MANAGEMENT PLAN



Date: September 15, 2021

Location: WR OGDP 1 / Wells Ranch CDP / A07-04 Pad

Legal Description: Lot 1 Section 7, Township 6 North, Range 64 West, 6th P.M., Weld County, Colorado

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Article I. Introduction

Location Information

This document provides site-specific information for the A07-04 Pad within the WR OGD 1 of the Wells Ranch CDP. The information in this document relates specifically to the time during the construction, drilling, completion, and production of the eight (8) proposed horizontal wells on this location.

The proposed location is irrigated crop southeast of the intersection of WCR 49 and WCR 72. The Pad will be in Lot 1 of Section 7, Township 6 North, Range 64 West, zoned agricultural within the Weld County Near-Urban Planning Area. A 1041 WOGLA was filed for the CDP as 1041WOGLA19-0042 on 12/10/2019 and recorded at reception #4556398 on 1/8/2020. Site-specific supplemental information will be filed with Weld County prior to commencement of operations.

The proposed A07-04 Pad oil and gas location disturbance will be 10.4 acres, reduced to 2.2 after interim reclamation. The proposed working pad surface will be 7.5 acres. The Pad is on Parcel 080107200024 owned by Braskaland, LLC. The location is currently used for farming.

The A07-04 Pad will produce to the proposed A07-08 Facility. Equipment at the A07-04 Pad will include injection pumps, meter buildings, multi-phase flow meters, communication towers, flowline manifolds, a temporary minion tank, and solar skids.

Phase	Duration (days)	Estimated Start Date
Construction	60 days	3rd Quarter, 2024
Drilling	40 days	1st Quarter, 2025
Completion	40 days	3rd Quarter, 2025
Flowback	N/A	Flowing back directly to permanent facility
Production	25 years	4th Quarter, 2025
Interim Reclamation	60 days	3rd Quarter, 2026

Article II. E&P Waste Management Plan

In compliance with Weld County Ordinance Sec. 21-5-450, COGCC Rules 905 and 1000 Series Reclamation Regulations, and the Drill Cuttings Management Policy (9/15/14), Noble Energy, Inc. (Noble) submits the following general plan for handling and disposing of E&P waste, including drilling mud and cuttings.

The wastes described in this plan are characterized as solid wastes, per COGCC definitions. All wastes, except for general trash, are specifically exempt from the Resource Conservation Recovery Act (RCRA) Subtitle C hazardous waste regulations. 40 CFR 261.4(b)95) states the following wastes are not hazardous wastes: drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy.

Wastes stored onsite will be stored in compatible containers that are regularly inspected to ensure they are in good condition and free of excessive wear, structural issues or other defects that may impact their effectiveness. Noble utilizes only licensed third-party transporters for all waste transport and coordinates with Relevant Local Governments on haul routes for transport of waste.

Records are maintained as required for all waste management-related activities. These include invoices, manifests, bills of lading and disposal logs. Disposal records include the date of transport, identity of the transporter, location of the waste pickup, type and volume of waste, and the name and location of the disposal site. Records, either electronic or hard copy, are retained, for not less than five years.

Water-based Bentonitic Drilling Fluids

Treatment

Water-based bentonitic drilling fluids returning up the annulus will be filtered to remove solids through the closed loop system, cuttings shaken out into impervious bins above a mat and hauled off for off-site disposal while fluids will be routed through a suction tank and mud pump, remixed and recirculated.

Characterization

Water with bentonite clay to create native mud with lime is characterized as a solid waste, per COGCC definitions. This waste is specifically excluded from RCRA Subtitle C hazardous waste regulations, is not a listed waste and is characterized as an E&P exempt waste.

Management/Storage/Disposal/Transport

A minimum of two 1600 hp x 7500 psi triplex mud pumps will be utilized for the circulating system. Also, in addition to the BOP stack, a gas buster and flare stack will be installed into the system with a fully operational EDR system to monitor pressures and tank volumes.

Surface Hole is to be drilled with fresh water with enough viscosity to clean the hole. Gel sweeps should be utilized to clean the hole. The entire interval will be drilled with a closed loop solids control system. Mud weights in this section can vary from 8.4-8.8 ppg. Reactive clays and bit balling can be expected.

A 40 ml poly liner with foam type berms will be utilized under the drilling rig, mud tanks, shakers, and drill cuttings bins.

All oil and water loadouts that are commonly used have a load bucket and isolation valve. Since they are used often, there is not a bull plug installed. Any loadouts (water on back of tanks for example) that are rarely used, are bull plugged without a load bucket.

Waste Management is contracted to transport this waste stream to one of the permitted commercial waste disposal facilities listed below in Article III Vendors. Occasionally, other licensed third-party transporters may be utilized. A list of potential licensed transporters is included below in Article III Vendors.

Water-based Bentonitic Drill Cuttings

Treatment

Water-based bentonitic drilling fluids returning up the annulus will be filtered to remove solids through the closed loop system, cuttings shaken out into impervious bins above a mat and hauled off for off-site disposal while fluids will be routed through a suction tank and mud pump, remixed and recirculated.

Characterization

Drill cuttings are made up of small pieces of shale, chalk or sand that is cut from the subsurface formations via the drill bit. Such pieces are lifted to the surface via the drilling mud in the hole and are characterized as a solid waste, per COGCC definitions. This waste is specifically excluded from RCRA Subtitle C hazardous waste regulations, is not a listed waste and is characterized as an E&P exempt waste.

Management/Storage/Disposal/Transport

Samples of cuttings will be separated for analysis and mud logging.

Waste Management is contracted to transport this waste stream to one of the permitted commercial waste disposal facilities listed below in Article III Vendors. Occasionally, other licensed third-party transporters may be utilized. A list of potential licensed transporters is included below in Article III Vendors.

Oil-based Drilling Fluids

Treatment

Oil-based drilling fluids returning up the annulus will be filtered to remove solids through the closed loop system, cuttings shaken out into impervious bins above a mat and hauled off for off-site disposal while fluids will be routed through a suction tank and mud pump, remixed and recirculated.

Characterization

Operator utilizes a clear, colorless refined distillate derived from petro hydrocarbons that is specifically designed for down hole OBM drilling purposes. This product provides a higher aniline point and a lower BTEX than straight diesel which should reduce the odor associated with the OBM system. The refined distillate is a non-Group II or Group III fluid and is not an additive/odor neutralizer. An additive/odor neutralizer during drilling and completion and the utilization of closed flowback tanks with all water vapors being sent to a temporary ECD during the flowback period will also be used to help mitigate aromatics on location. Oil based drilling fluids are characterized as a solid waste, per COGCC definitions. This waste is specifically excluded from RCRA Subtitle C hazardous waste regulations, is not a listed waste and is characterized as an E&P exempt waste.

Management/Storage/Disposal/Transport

Production Hole is to be drilled with an oil-based mud (OBM) system utilizing diesel make up fuel. Mud weight will be kept at 9.6 – 11.5 ppg. Ensure there is enough volume of fluid in the system and be prepared to have Mud Engineer order out heavier mud for caps and weighting up.

A 40 ml poly liner with foam type berms will be utilized under the drilling rig, mud tanks, shakers, and drill cuttings bins.

All oil and water loadouts that are commonly used have a load bucket and isolation valve. Since they are used often, there is not a bull plug installed. Any loadouts (water on back of tanks for example) that are rarely used, are bull plugged without a load bucket.

Waste Management is contracted to transport this waste stream to one of the permitted commercial waste disposal facilities listed below in Article III Vendors. Occasionally, other licensed third-party

transporters may be utilized. A list of potential licensed transporters is included below in Article III Vendors.

Oil-based Drill Cuttings

Treatment

Oil-based drilling fluids returning up the annulus will be filtered to remove solids through the closed loop system, cuttings shaken out into impervious bins above a mat and hauled off for off-site disposal while fluids will be routed through a suction tank and mud pump, remixed and recirculated.

Characterization

Oil-based drill cuttings are characterized as a solid waste, per COGCC definitions. This waste is specifically excluded from RCRA Subtitle C hazardous waste regulations, is not a listed waste and is characterized as an E&P exempt waste.

Management/Storage/Disposal/Transport

Mud logging will be done on cuttings.

Waste Management is contracted to transport this waste stream to one of the permitted commercial waste disposal facilities listed below in Article III Vendors. Occasionally, other licensed third-party transporters may be utilized. A list of potential licensed transporters is included below in Article III Vendors.

Frac Sand

Treatment

Without traditional flowback, sand used in the hydraulic fracturing process will gather in the production separators and be removed as needed. The sand is gathered in trucks and hauled for off-site disposal.

Characterization

Frac sands are characterized as a solid waste, per COGCC definitions. This waste is specifically excluded from RCRA Subtitle C hazardous waste regulations, is not a listed waste and is characterized as an E&P exempt waste.

Management/Storage/Disposal/Transport

Frac sand will be periodically drained via vacuum truck and will be transported by licensed third-party trucks listed below in Article III Vendors.

Produced Water

Treatment

Produced fluids from the A07-04 Pad will be conveyed via pipeline to the A07-08 Facility for separation.

Characterization

Produced waters are naturally occurring saline waters from underground formations that are brought to the surface and characterized as a solid waste, per COGCC definitions. This waste is specifically excluded from RCRA Subtitle C hazardous waste regulations, is not a listed waste and is characterized as an E&P exempt waste.

Management/Storage/Disposal/Transport

There will be no produced water storage at the A07-04 Pad. The A07-08 Facility will have minimal operational storage for produced water. Pump skid(s) and ancillary equipment will convey produced water into the connected gathering system for conveyance to approved disposal facilities.

Oily Waste/Tank Bottoms

Treatment

None.

Characterization

A mixture of sediment, dirt, emulsified oil, and water which settles and accumulates in the bottom of storage tanks and characterized as a solid waste, per COGCC definitions. This waste is specifically excluded from RCRA Subtitle C hazardous waste regulations, is not a listed waste and is characterized as an E&P exempt waste.

Management/Storage/Disposal/Transport

Oily waste and tank bottoms will be periodically drained via vacuum truck.

Oily waste and tank bottoms will be transported by licensed third-party vacuum trucks listed below in Article III Vendors.

Spill Impacted or Contaminated Soil

Treatment

None.

Characterization

A mixture of soil or dirt impacted by production fluids from a spill or a leak. Impacted or Contaminated Soil is characterized as a solid waste, per COGCC definitions. This waste is specifically excluded from RCRA Subtitle C hazardous waste regulations, is not a listed waste and is characterized as an E&P exempt waste.

Management/Storage/Disposal/Transport

Impacted or Contaminated Soil will be containerized as needed either in storage bins or directly into dump trucks, depending on the volume needed.

Impacted or Contaminated Soil will be transported by licensed third-party vacuum trucks listed below in Article III Vendors.

General Trash

Treatment

None.

Characterization

General trash consists of any unused equipment, junk, or man-made waste. General trash is characterized as a solid waste, per COGCC definitions, is not a listed waste and is characterized as non-hazardous waste.

Management/Storage/Disposal/Transport

A trash bin will be located on site to accumulate waste by the personnel drilling the wells. Site will have unused equipment, trash and junk removed immediately as the bin is filled during drilling and completion phases. Lease operator will remove any trash found on site during daily inspections.

Operator will not bury or burn trash or other waste materials at an oil and gas location.

Trash receptacles will be designed, maintained, and operated to exclude wildlife, and to protect public safety, the environment, and wildlife from exposure to overflowing, leak prone, or insecure trash receptacles.

General trash and other non-hazardous waste will be hauled off site Waste Management, a licensed third-party transporter. Waste is transported to one of the permitted Waste Management disposal facilities listed below in Article III Vendors.

Reuse and Recycling

At this time, Noble does not participate in beneficial land reuse or produced water/flowback recycling. Noble may propose plans in the future for managing these waste streams through beneficial use, reuse, and recycling for approval, by the Director.

Noble will continue to evaluate new technology for effective and efficient application for the management of E&P waste. If opportunities for reuse and recycling become practicable, a reuse and recycling plan will be submitted as described in Rule 905.a.(3).

Haul Routes

Haul routes are designated and developed in consultation with Weld County Department of Public Works. The Noble haul routes anticipated that access the CDP will be predominantly from State Highways 14 and 392 and US Highway 85. Paved Weld County Roads ("WCR") 74 will serve as the primary artery with WCR's 51, 55, 65, 71, 76, 80, and 82 providing additional access in the CDP. In the event that haul routes are adjusted in the future, Noble will do so in consultation with Weld County, at least 45 days, but no more than 6 months prior to construction.

Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM)

Some wastes generated from oil and gas operations are subject to TENORM regulation and will be disposed of at a licensed facility authorized to receive TENORM wastes. Noble will comply with the requirements of 6 CCR 1007-1 Part 20 – Registration and Licensing of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM), which became effective on January 14, 2021.

Article III. Vendors

Third-Party disposal facilities used as part of this plan for waste disposal:

- Waste Management
 - Buffalo Ridge landfill
 - CSI landfill
 - North Weld Landfill (Ault)
- Republic Services
 - Tower Landfill
- NGL Water Solutions DJ, LLC
- High Sierra Injection Facilities

Third-Party transporters used as part of this plan for waste transport:

- Waste Management
- 1888 Industrial Services
- Atlas Energy Services
- Fortress Development Solutions
- Northern Plains Trucking
- Frontrange Hydro Bandits

Article IV. Exhibits/References/Appendices

Waste Summary Table

Table 1, Waste Handling Summary

Waste Type	Waste Content Description	Waste per Well	Units	Disposal Frequency	Containment Description	Disposal Type	Disposal Location
Drilling	Drill Cuttings	339	Cubic Yards	One Time Only	3-sided, high wall steel bins	Haul to Commercial Facility	Commercial
Drilling	Drilling Fluids	67	Barrels	One Time Only	Steel tanks	Haul to Commercial Facility	Commercial
Sewage	Sewage	95	Barrels	Weekly	Chemical toilets or enclosed sewer system	Haul to Commercial Facility	Commercial
General Trash	Garbage/Trash	9	Cubic Yards	Weekly	Enclosed trash containers	Haul to Commercial Facility	Commercial
Frac Sand	Frac sand removed from production separators	500	Pounds	Monthly	Direct placement into truck	Haul to Commercial Facility	Commercial
Produced Water	Produced water after well is turned over to production. The volume reported is estimated.	1500+ for first 3 months, reducing to approximately 300 after	Barrels	Day	Water is piped into existing infrastructure	Off-Lease Injection/Commercial Facility	Private
Oily Waste/Tank Bottoms (drill pad doesn't have tanks)	A mixture of sediment, dirt, emulsified oil, and water	NA	NA	NA	No permanent oil/condensate storage tanks will be onsite.	NA	NA
Spill Impacted or Contaminated Soil	Soil impacted from spills of production fluids	Varies	NA	As Needed	Excavation and direct placement into dump trucks or storage bins	Haul to Commercial Facility	Commercial