

FLUID LEAK DETECTION PLAN

Date: December 8, 2021

Location: WR OGD 4 / Wells Ranch CDP / AB32-01 Pad

Legal Description: NENE Section 32, Township 7 North, Range 64 West, Weld County, Colorado



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Article I. Introduction

Facility Information

This document provides site-specific information for the AB32-01 Pad within the WR OGD 4 of the Wells Ranch CDP. The information in this document relates specifically to the time during the construction, drilling, completion, and production of the five (5) proposed horizontal wells on this location.

The proposed location is rangeland southwest of the intersection of WCR 53 and WCR 76. The Pad will be in NENE Section 32, Township 7 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. A site-specific WOGLA will be filed prior to commencement of operations.

The proposed AB32-01 Pad oil and gas location disturbance will be 9.8 acres, reduced to 2.4 after interim reclamation. The proposed working pad surface will be 5.6 acres. The Pad is on Parcel 071132100003 owned by Dean B and Tuesday L Westerman. The location is currently used for farming.

The AB32-01 Pad will produce to the proposed AB28-13 Multi. Equipment at the AB32-01 Pad will include wells and meter/sales buildings.

Phase	Duration (days)	Estimated Start Date
Construction	25 days	2nd Quarter, 2025
Drilling	40 days	3rd Quarter, 2025
Completion	40 days	4th Quarter, 2025
Flowback	N/A	Flowing back to production facility
Production	30 years	1st Quarter, 2026
Interim Reclamation	60 days	3rd Quarter, 2026

Article II. Drilling and Completion Fluids Procedures and Schedules

Monitoring

- There will be no tanks or separators at the AB32-01 Pad. Facilities will be located on AB28-13 Multi.
- A closed-loop system will be used for drilling operations as required by Rule 408.a.
- Operator will use SCADA during drilling and completions to continuously monitor line pressures, flow rates, temperature, and whether valves are open or closed. Any fluctuations will be closely monitored and will trigger immediate action including shutting in and scheduling repair or replacement as necessary.

Inspection

- All facilities onsite shall be subjected to an instrument-based leak detection and repair (LDAR) inspection at least monthly during drilling and completion and quarterly during production.

Testing

- Volumetric Testing Involves measurement of liquid volume which must be added or removed from system to maintain constant pressure; volume changes indicate either leaks or thermal expansion/contraction of liquid.

Maintenance

- Operator utilizes additional engineering controls, which may include selection of appropriate materials, use of corrosion inhibitors, use of protective coatings, and cathodic protection techniques to minimize the potential for fluid leaks. utilizes additional engineering controls, which may include selection of appropriate materials, use of corrosion inhibitors, use of protective coatings, and cathodic protection techniques to minimize the potential for fluid leaks.

Article III. Produced Fluids Procedures and Schedules

Monitoring

- Daily site visits are made by lease operators (aka pumpers) to the well pad for maintenance issues including leaks and spill potential. Periodic site inspections will be conducted by 3rd party environmental contractors to look for any signs of leaks and or potential leaks. Infrared surveys will be used to identify any leaks coming from the flowlines on a regular basis. New flowlines will be hydrotested to manufacturer's recommended levels before being placed into use.
- The location will utilize a SCADA (remote monitoring) system to monitor facility pressures and flows. Sensors are placed on multiple points throughout the facility and are designed to measure the system for irregularities that would indicate a leak in the system or change in production of oil, water, or gas. The SCADA system is designed with alarms that are triggered by irregularities and will activate automatic shut-in of the well and facility.

Inspection

- Flowlines will be inspected per COGCC 1100 regulations.
- Infrared surveys will be used to identify any leaks coming from the flowlines on a regular basis.

Testing

- New flowlines will be hydrotested to manufactures recommended levels before placed into use.
- Pressure testing of the flowlines is conducted on an annual basis.
- Documented Audible, Visual, and Olfactory (AVO) inspections and optical gas imaging surveys are conducted monthly by a third-party specialist.

Maintenance

- If a leak is discovered or suspected, the well will be shut in and the line will be hydrotested. If a leak is determined, the well remains shut in while the leak is located and repaired. Not until the line has passed hydrotesting, will the well be brought back online.

Article IV. Record Keeping

Spill response includes notifications, reporting, response actions, remediation, and corrective actions. Waste will be properly classified as E&P or non-E&P wastes. For E&P waste, all spills greater than 1 barrel (outside containment) or greater than 5 barrels (inside containment) will be reported to the COGCC using a Form 19. Should remediation be required, Form 27 will also be submitted. Spills related to non-E&P waste will be managed in accordance with CDPHE and EPA regulations depending on the volume spilled. Noble tracks and cleans up all spills, including those that are not reportable. Noble documents the monitoring process and copies of inspection and maintenance logs are available upon request.

Records of inspections and tests are kept under usual and customary business practices as set forth in § 112.7(e). These records will be kept according to the procedure set forth in Noble's written Records Retention Policy and copies of these records will be kept with the SPCC Plan for a period of three (3) years. Spill and remedial action records will be maintained at the field office for a period of five (5) years.

Article V. Site-Specific BMP

- Spill prevention and response are addressed in training of employees and contractor personnel on at least an annual basis.
- The surface of the location will be plated with 6 inches of road base aggregate compacted to 4 inches that will deter releases from easily seeping into the soil. Operator will install an earthen berm and ditch system around the perimeter of location that would keep a release from moving out onto un-plated soil.
- No pits will be used on location, therefore pit level Indicators will not be used on location.
- During drilling and completions operations a temporary impermeable synthetic or geosynthetic liner will be utilized under equipment. This liner will be installed on top of the plated surface and will provide an additional layer of protection against spills. Secondary containment devices, such as duck ponds or equivalent type products, will be used to protect any pipe connections or equipment that carry, mix, or could possibly leak fluids or chemicals.
- A sediment trap will be constructed to capture any sediment prior to leaving the location. The sediment trap has been sized in accordance with good engineering practices. A temporary diversion, consisting of a cut swale and compacted earthen berm, will be constructed along the pad edge and routed to the sediment trap to prevent offsite migration of sediment/contaminant into the nearby surface water features. If necessary, check dams will be constructed within the swale.
- All flowlines are designed/constructed/tested to ASME B31.4 and API 1104 standards. Only materials with Material Test Reports (MTRs) provided by the pipeline supplier are used in the construction of the flowlines.

- Audible, Visual, and Olfactory (AVO) inspections are of the facility are conducted daily by the Operator. Any valve or fitting that is found to be ineffective is either repaired immediately or well shut-in procedures are implemented.
- Location will be equipped with remote monitoring capability.

Article VI. Exhibits/References/Appendices