Fluid Leak Detection Plan

Sammons Ranch

Helium Gas Wells

315310C, 315310D

315315A, 315315C

Vecta

Oil & Gas Ltd.

August 2021

1.0 Introduction and Site Description

This Fluid Leak Detection Plan has been prepared by Vecta Oil & Gas, Ltd. (Vecta) for its Sammons Ranch helium gas well development in Las Animas County, Colorado. The Plan addresses the Colorado Oil & Gas Conservation Commission (COGCC) requirement at Rule 304.c.(13) to prepare a Fluid Leak Detection Plan and the fluid leak detection requirements in Rules 608, 609, 1102, 1103, and 1104.

Vecta is proposing to develop up to four wildcat helium gas wells in Sections 10 and 15, T31S R53W, in rural Las Animas County. Each well will be an estimated 1,400 feet deep. All locations are on fee surface and will produce fee minerals. Each oil and gas location will occupy approximately 1.1 acres. Each Working Pad Surfaces will be approximately 1 acre. After interim reclamation, each production pad will be reduced to an estimated 0.2 acre. The estimated duration for well pad preparation is 1 day; for drilling and completion 7 to 10 days; for interim reclamation 1 day; and for production approximately 10 years. Site elevations are listed in Table 1.

Table 1. Site Elevations

Location	Elevation (feet)
315310C	5556
315310D	5497
315315A	5566
315315C	5544

2.0 Drilling and Completions Fluid Leak Detection Measures

The anticipated operations are described below. Table 2 lists monitoring and inspection procedures and schedule.

Drill Rig – The well will be drilled using a truck-mounted drill rig, similar to a water well rig. each single vertical well will be approximately 1,400 feet deep.

Well Drilling – The well will be set with 13 3/8" conductor pipe in a 17" hole to approximately 30 feet. From this point, a 12 1/4" bit will be used to approximately 305 feet where an 8 5/8" casing will be set. The final casing will be 5 1/2" inside a 7 7/8" hole to approximately 1,285 feet below surface. Cement will be circulated to the surface for all casing and conductor runs. There will be no open annulus behind any of the pipe. Cement will be provided using a bulk unit and pump truck. The well will produce up the 5 1/2” casing from approximately 130 feet of 4.5" open hole below the last casing run. No production tubing is anticipated. A Larkin-type wellhead will be installed at the surface to complete the well pressure and control integrity.

Wellhead – As planned, the wellhead will attach to a 5 1/2” casing to the meter run. Shut off valves placed before and after the pressure gauge will be used to shut the well in.

Water Truck – An estimated 400 bbl of water may be needed to drill the well. Water will be transported by truck to a freshwater tank on site.

Fuel Tank – An up to 500-gallon fuel tank will be transported to the location. It will have integrated steel secondary containment sufficient to contain spilled fuel.

Transfer Lines – Fueling the drill rig will use a rubber hose threaded at the fuel tank and delivered to the rig using a spill-proof diesel nozzle. The well will be drilled with air. If water is needed during drilling, it will be transferred to the drill rig using a 4-inch flex hose from the water tank to a mist pump. A 2” flex hose will transfer water from the mist pump to a manifold on the drill rig to be pumped to the drill pipe.

Production Flowline – As planned, the anticipated 4” polyethylene production flowline will be polywelded above ground to a steel fitting at the meter run. The flowline then will be placed underground at a 90-degree angle and trenched to the off-location helium unit. A compressor at the helium unit will draw helium gas from the wellhead

toward the helium unit. Potential for water in the flowline would be in the form of condensation and, as planned, would be detected by pigging the line. The pig would blow condensation toward the end of the line for capture.

Table 2. Monitoring and Inspection Procedures and Schedule

Equipment	Monitoring and Inspection Procedures	Schedule
Drill Rig and Generator	Drill rig operators will monitor for indications of overheating, drips or leaks onto the ground, and for connection points to fuel or water. Problems will be corrected promptly. Spills or leaks will be treated with the spill kit and equipment maintained on site.	Continuous while operating
Water Tank	The area around the water tank will be monitored for indication of leaks of freshwater. Problems will be corrected promptly. A catastrophic loss of freshwater will be bermed using the skid steer available on site.	Daily
Fuel Tank	The integrated steel secondary containment is sized to contain the contents of the fuel tank. It will be monitored for signs of fuel staining. Valves would be tightened to avoid further leakage.	Daily
Transfer Lines	Transfer lines used for fuel or water will be monitored at the connection points for signs of leakage and corrected, as needed.	Continuous while operating
Production Flowline	The flowline will contain inert helium gas. Before the flowline is buried, it will be pressure tested to maximum operating pressure for AVO leak detection.	Pre-start up

Table 3 lists testing and maintenance procedures and schedule for equipment used during well drilling and completion. During production, the location will contain only a wellhead and buried polyethylene flowline transporting inert helium gas.

Table 3. Testing and Maintenance Procedures and Schedule

Equipment	Testing and Maintenance Procedures	Schedule
Valves	The operator will maintain isolation valves by performing function tests or maintaining the valve in accordance with its manufacturer's specifications per Rule 1103.a.	Annual
Production Flowline	Flowlines will be installed consistent with Rule 1102. In accordance with Rule 1104, before a flowline is put into service, it will be pressure tested to maximum pressure for AVO leak detection.	Pre-startup
Production Flowline	Per Rule 1104.c, the operator will conduct an AVO survey to detect failures or signs of leaks from the wellhead and flowline.	Monthly
Production Flowline	The operator will conduct integrity testing in accordance with Rule 1104.f.	Annual

3.0 Produced Fluids Leak Detection Measures

The helium gas wells will be drilled without mud. They are not anticipated to produce hydrocarbons or condensate, based on analysis from a representative well located in Section 30, Township 28 South, Range 56 West. This Texaco Cynthia True Government #1 well was developed as an exploratory oil well. It contained a high concentration of helium from the uppermost Lyons Formation at 1,015 feet with no hydrocarbons present. The Sammons Ranch helium wells will not have loading and unloading equipment, transfer points, or storage tanks.

A contingency is in place for produced water from groundwater or formation water if it is encountered. It will be placed in a steel tank on site prior to transport to a licensed third-party disposal facility. The facility is anticipated to be NGL Water Solutions. The tank would be monitored daily for evidence of leaks or spills by inspecting hoses, connection points, and the area around the tank for evidence of wet soil and by measuring any volume loss from the tank. Signs of leaks or fluid loss will be promptly corrected.

4.0 Recordkeeping Requirements

Inspections and testing will be documented. Documentation will list the activity, date, time, finding, personnel, and signature. Associated testing results will be included. Written records and a copy of this plan will be maintained in the operator's Denver, Colorado office for a period of 5 years. The Fluid Leak Detection Plan will be provided to the site operator.

5.0 Site-specific Best Management Practices

Table 4. Site-specific Best Management Practices

Best Management Practices
• Site personnel will be trained in detecting and addressing spills that may occur on site.
• Spills or releases will be investigated, controlled, or contained, in accordance with Rule 912.a.
• If a spill or release meets criteria in Rule 912.b, it will be reported as specified in the rule.
• A catastrophic loss of freshwater will be bermed using the skid steer available on site.
• Equipment and transfer lines will be monitored daily during well drilling and completion for signs of drips, leaks, or spills, which will be promptly corrected.
• Flowlines will be installed consistent with Rule 1102. In accordance with Rule 1104, before a flowline is put into service, it will be pressure tested to maximum pressure for AVO leak detection.
• The operator will maintain shutoff valves on helium gas flowlines in accordance with Rule 1103.a.
• Per Rule 1104.c, the operator will conduct a monthly AVO survey to detect failures or signs of leaks from the wellhead and flowline.
• The operator will conduct annual flowline integrity testing in accordance with Rule 1104.f.
• Site personnel will be instructed on procedures for documenting and recordkeeping inspections and testing.