



NueVida Resources, LLC's Fluid Leak Detection Program

for the

Ardourel 33081718 #3HL & #4HU

October 2022

**NueVida Resources, LLC
5950 Cedar Spring Road, Suite 100
Dallas, Texas 75235
Phone: (214) 838-2768**

Table of Contents

1	Introduction.....	3
2	Project & Facility/Equipment Description.....	4
3	Fluid Leak Detection Program & Best Management Practices (BMP)	
3.1	Purpose.....	4
3.2	Drilling & Completion Operations.....	4-5
3.3	Ardourel Oil & Gas Facility Description.....	5
3.4	Inspections & Monitoring.....	5-6
3.5	Operational Controls.....	7
3.6	Site Specific Fluid Detection BMPs.....	7
3.7	Flowline Testing and Monitoring.....	7-8
4	Documentation and Records Retention.....	8

List of Figures

➤	Figure 1. Directions from nearest town – Ignacio, CO	9
➤	Figure 2. Road Map (& Topo map) to location.....	10
➤	Figure 3. Location Pictures (Pre-Construction)	11
➤	Figure 4. Wellheads and equipment facility layout	12

1 Introduction

NueVida Resources, LLC (NueVida) is providing this Fluid Leak Detection Plan Plan to the Colorado Oil and Gas Conservation Commission (COGCC), La Plata County Planning Department and La Plata County Emergency Management Office in compliance with requirements under COGCC Rules for Flowlines: 1100 series; Tanks: 603.k, 608.a.(9) & 608.a.(10)C: and, Closed Loop Drilling System: 408.a.

NueVida proposes to develop the Ardourel 33081718 #3HL & #4HU (Project), a natural gas extraction, and transportation system within 34.51 acres of total disturbance. NueVida plans to initially drill two (2) test wells into the Mancos Formation utilizing horizontal drilling technologies on its leasehold within La Plata County, Colorado. Based on results of the initial wells, an additional six (6) wells may be drilled on the well pad for a total of eight (8) wells. To accommodate these wells, NueVida is proposing a multi-well gas location (well pad), access roads, pipeline, tank pad Temporary Use Area (TUA), and temporary pump pad on private land owned by the Ardourel Trust. The purpose of the wells will be to extract, separate, dehydrate, and transport natural gas from the wells to an above ground header system where three different gathering companies in the area have the ability to transport the gas for additional offsite treatment and processing for gas sales. The Project will also include a tank pad TUA and a temporary pump pad for pre-productions operations. When fully operational, the well pad location will include eight-inch inlet and outlet pipelines, two (2) 400-barrel steel water tanks, two (2) 2-phase vertical indirect heated vessels, one (1) small vertical fuel gas separator, one (1) dehydrator skid, and one enclosed combustor. The tank pad TUA would have approximately fifteen (15) 40,000 barrel tanks and four (4) 20,000 barrel tanks. Access to the Project would be from County Road 318 to an existing graveled access road that is currently utilized by a different operator. From the existing graveled access road, two separate access roads will connect with the tank pad TUA, and two separate access roads will connect to the well pad from the existing access road to accommodate for pass through traffic on both pads. Construction of the well pad and tank pad TUA and installation of the water storage tanks will take approximately 58 days to complete. Drilling operations will take approximately 40 days to complete for the two wells. The drilling rig will then be removed, and a two-week period will begin for preparation to complete the wells. Completion operations for both wells will take approximately 30 days to complete. After completion, the tanks on the tank pad TUA will be removed, however, the produced water pad would remain in place while testing of the wells occurs to determine if additional wells may be drilled in subsequent years. The tanks pad TUA will be seeded with use of tackifiers and/or erosion blankets after removal of the tanks to stabilize the soils for potential erosion.

The location for this proposed Project has been selected to meet a variety of technical and logistical needs. Key among these is an acceptable location between the field from which the gas is coming and the plant to which it is being delivered. This Project would be located near Ignacio, Colorado on Parcel Number 595318300056 and will be accessed from County Road 318, Ignacio, CO. The legal location for the project is the W/2 SW/4 of Section 18, Township 33 North, Range 8 West, N.M.P.M. This proposed location is currently occupied by sagebrush vegetation with sparse pinion pine and juniper trees scattered throughout. It is zoned for agricultural use. The location abuts other private properties on all sides and County Road 318 on the southern border.

Project Description

The 34.51 acres of disturbance is comprised of 29.61 acres of area of disturbance, 4.31 acres of pipeline ROW, and 0.59 acre of existing graveled and two-track roads. The 29.61-acre area of disturbance would include a 6.54-acre level pad area for the well facilities and an additional 14.34-acre leveled pad for the tank pad TUA, 0.09 acre of new access roads, 0.42-acre temporary pump pad, 2.73 acres for TUA topsoil storage, and 5.09 acres of area that could be utilized for storm water management areas. The total 4.41 acres of pipelines will be both within the area of disturbance (0.10 acre) and on 4.31 acres of right-of-way (ROW) outside of the area of disturbance. The associated cut and fill slopes, additional room to implement necessary mitigations and Best Management Practices (BMP), soil storage, and a tank pad TUA are included in the overall surface disturbance. There is an existing graveled and two-track access road that totals 0.59 acre of disturbance. The well pad and all access roads will be graveled and maintained for the pre-production phases of the Project. After drilling and completion phases are finalized, the tank pad TUA, its associated access roads, and a portion of the well pad will be fully reclaimed (approximately 25.31 acres) for the production phase of the Project. Approximately 2.90 acres of the well pad will be leveled and reseeded only, leaving a total of 1.40 acres of long-term disturbance to remain as a graveled surface on the well pad and its associated access roads. The existing access road does provide access to an existing well pad location and will continue to be utilized by both NueVida and the existing well pad operator for the life of both wells.

Wildlife species, especially mule deer, do have High Priority Habitat (HPH) within the disturbance area of the Project (see Attachment 1). This HPH is considered Mule Deer Severe Winter Range and typically operators are requested to restrict new construction or development activities during the winter closure period of December 1 through April 30. NueVida would not perform any pre-production construction or drilling operations during the closure period.

Fluid Leak Detection Program & Best Management Practices (BMP)

3.1 PURPOSE

The purpose of the Fluid Leak Detection Program (FLDP) is to provide NueVida employees and/or contract employees with guidelines for the drilling and completion operations and the production operations to be conducted on the Ardourel Site for Compliance with the COGCC Rule 304.c.(13).

This FLDP plan describes the location of the Ardourel site, the proposed production facilities and describes the engineering and administrative processes to prevent the discharge of production fluids (i.e. methane gas and produced water) to the environment. In addition, the FLDP outlines the procedures and processes used to monitor, inspect, test and maintain the wellheads, production equipment and flowlines that are described within this plan for preventing potential threats to public health, safety, welfare and the environment (PSHWE).

3.2 DRILLING & COMPLETION OPERATIONS

There will be no surface pits used for either drilling, completion or production operations. Drilling fluids will be handled and monitored with a closed loop flow/tank system. A closed-loop mud system will be used for drilling operations as required by COGCC rule 408.a. A 40-mil poly liner with foam type berms will be used under the drilling rig, mud tanks, shakers and drill cuttings bins. Drill cuttings and drilling

mud will be hauled to commercially approved disposal sites after operations have been completed (refer to NueVida's Waste Management Plan for details).

Completion fluids (produced and fresh water) will be stored in portable above ground storage tanks (AST) from which the water will be pumped through pumps and HDPE surface lines during stimulation operations on the well(s). The AST tanks will be disassembled and moved from the location at the end of the completion operations. Water produced from the well(s) will be stored in 2-400 barrel steel tanks located on-site and then transferred/pumped via pipeline to a water disposal facility/well.

3.3 ARDOUREL OIL & GAS FACILITY DESCRIPTION (refer to Figure 4)

The total fluid stream (production) from the wells will be a combination of dry gas (97% methane and 3% CO₂) and formation water. The total fluid stream from the wells will initially flow through a high pressure, two-phase separator where the water and gas are separated. The water will be transferred to 2-400 barrel production tanks. There will be no oil/condensate production or VOC's (tank vapors) attributed to the production from these wells. The production tanks will collect produced water from which it will then be transferred via a HDPE pipeline to a water disposal facility/well. Fluid levels in the produced water tanks will be monitored using electric hi-lo shut-down monitors in the tanks. The metering of the produce water will be done with digital turbine meters. The gas stream will flow through a dehydrator skid. The dehydrator unit will strip the water vapor from the gas stream to meet pipeline specs (< 7 lb per MMCF). The gas will then flow from the dehydrator unit through a master meter run. The master meter will be located onsite and will be owned and managed by Red Cedar Gas Company (RCGC). RCGC will then transport the gas via their mid-stream pipeline system to their Arkansas Loop Plant (SWSW section 36, T33N-R9W) for processing (extraction of CO₂) and compression for sales into the main transportation pipelines (EPNG and TWPL).

3.4 INSPECTIONS AND MONITORING

After initial startup of the production facilities, a site inspection review will be completed within 60 days for safety, spill prevention (SPCC) and fluid detection using LDAR by a 3rd party inspection company. Annual audits by a 3rd party inspection company will be completed on all production equipment & flowlines for monitoring leak detection and SPCC compliance.

1. *Audio, Visual and Olfactory (AVO) inspections.*

AVO inspections will be conducted at the Ardourel O&G Facilities throughout the life of the facility. Inspections will be made by either the lease operator or field supervisor. Routine inspections using AVO during daily well visits by the lease operator will be conducted on the following items (not all inclusive):

- Odors
- Rust/Stains
- Secondary containment (berms)
- Drainage areas
- Seals/gaskets/loose bolts
- Unusual noises/movements of equipment

2. *Routine inspections of all production equipment, wellheads, etc.*

The following is a list of equipment and that will be checked during daily visits by the lease operator (not all inclusive):

- Wellheads
- Separators/Heaters
- Water Tanks
- Dehydrator skid
- Transfer/circulating pumps
- Valves (general & relief type)
- Above ground containers
- Flanges/fittings/sample connection
- Netting and Fencing
- Flowline and Production Piping (between processing equipment)

Tanks (and all surface equipment) will be monitored during daily routine operational visits using AVO (audio, visual, olfactory). Any unusual findings with tanks and equipment will be documented and reported immediately for potential mitigation/repair. Tanks and tank berms will also be inspected quarterly under the Spill Prevention Control and Countermeasure (SPCC) plan and results will be documented accordingly.

3. *Additional Inspections*

- **SPCC Inspections:** Spill Prevention Control and Countermeasures (SPCC) regulations (40 CFR 112) require inspections of Oil and Gas facilities related to equipment and secondary containment structures. Routine inspections are done quarterly by the lease operator (and documented) as well as yearly by a third party to ensure the secondary containment structures are in good working condition.
- **SWMP Inspections:** Storm Water compliances inspections are required by the Colorado Department of Public Health and Environment (CDPHE). Routine inspections are conducted every 2 weeks for active construction sites and every 30 days for post-construction sites. In addition, a third party inspection will be conducted during the yearly site and SPCC inspections.
- **SCADA** – Continuous monitoring technology enables remote monitoring of individual wells and equipment (pressures, flow volumes, tank levels, etc). SCADA is useful in detecting any sudden, unexplained drop in pressures and fluid volumes, which is indicative of a potential leak. Allows for quicker response time.

3.5 OPERATIONAL CONTROLS

As described in section 3.3, produced water will be contained in 2-400 barrel steel tanks on-site, then metered and transferred/pumped to a water disposal facility via pipeline. There will be no oil or condensate production from these wells as the hydrocarbon produced is dry gas only.

The wells and production facilities will have electronic measurement and monitoring systems (SCADA) for acquiring, monitoring and managing line pressures, flow rates, line pressures combined with safety shutdowns on equipment.

NueVida will use additional engineering controls, which include, selection of appropriate materials, use of inhibitors, use of protective coatings and cathodic protection to mitigate the potential for fluid leaks in flowlines and facilities.

3.6 SITE SPECIFIC FLUID LEAK DETECTION BMPs

NueVida will use the following site-specific BMPs at the Ardourel Oil and Gas (O&G) Facilities to evaluate and/or determine that all above ground onsite (and offsite) fluid handling, storage, transmission and transportation equipment have integrity and comply with the applicable standards as cited in the COGCC rules:

1. **Audio, Visual and Olfactory (AVO) inspections.** AVO inspections will be conducted monthly at the Ardourel O&G Facilities during the life of the facility. Inspections will be made by either the lease operator or field supervisor.
2. **Routine Inspections.** All production equipment, wellheads, valves, etc. will be inspected on a monthly basis by the lease operator or field supervisor. Routine monthly inspections will be done by the lease operator or field supervisor for SPCC and SWMP compliance and documented. Third party inspections/audits of the lease will be done yearly for compliance with the FLDP plan, SPCC and SWMP
3. **Training.** Spill prevention and response is addressed in the training of employees and/or contract lease operators on a minimum of one year. Contract personnel are required by either their company or NueVida to have the proper training courses required each year.
4. **SCADA (Supervisory Control and Data Acquisition).** Remote monitoring of fluid production rates and pressures and produced water storage.
5. **Berm Construction.** All berms will be constructed from the native soils combined with gravel. The berms will be constructed with dimensions (length, width height) to contain 150% of the capacity of the largest tank and/or production vessel (tanks, separators, dehydrators). All containment berms will be designed to prevent leakage and resist degradation from erosion or routine operation. Where applicable, synthetic liners may be installed within the perimeter of each berm. NueVida's SPCC Plan details any addition specifics as to this well pad for Best Management Practices (BMP).

3.7 FLOWLINE TESTING AND MONITORING

Flowlines will be installed and inspected as per COGCC 1100 regulations. Routine daily site visits will be made by the lease operator to monitor well performance and check associated production facilities and flowlines using AVO techniques. Quarterly AVO inspections of flowlines will be performed and documented in accordance with COGCC Rule 1104.j.

Pressure integrity testing will also be conducted on any off-location flowlines on an annual basis or after any repair. The pressure integrity will be conducted per COGCC regulations and in accordance with ASME B 31.8 and B 31.4 standards.

Corrosion control for production piping and pipeline facilities will be implemented in accordance with the requirements stated by the ASME B 31.4 standards (*corrosion control*).

FLIR surveys will be used to identify any potential leaks on both onsite and off-location pipelines at a minimum of one time per year (3rd party test). SCADA will be used to monitor flow and line pressure. Any fluctuations or drop/increase in pressures will be closely monitored and may constitute immediate action to shut-in the well(s) and facility to determine the cause of the pressure fluctuations and if repairs will be required.

4.1 DOCUMENTATION AND RECORDS RETENTION

Documentation for the FLDP will include the following items:

1. Inspections and tests required by this plan will be signed by the appropriate personnel.
2. Any spills will be reported and documented under NueVida's SPCC Plan.
 - NueVida's SPCC spill response includes notifications, reporting, response actions, remediation and corrective actions. Waste will be classified as E&P or non-E&P wastes. For E&P waste, all spills greater than one (1) barrel (outside of containment) or greater than five (5) barrels (inside containment) will be reported to the COGCC using form 19. If remediation is required, form 27 will be submitted. Spills related to non-E&P waste will be reported with the CDPHE and EPA regulations depending on the volume.

Records retention and access are as follows:

1. All documents will be kept at NueVida's Regional Office located in Aztec, NM.
2. Documents will be kept for a period of time for no less than five years.
3. Access to the documents can be provided within 10 working days of request.

FIGURE 1

Directions from the Intersection of State Hwy 172 & County Road 318 in Ignacio, CO **NueVida Resources, LLC : Ardourel 33081718 #3HL & #4HU Wells**

1773' FSL & 292' FWL, Section 18, T33N, R8W, NMPM, LaPlata County, CO

From the intersection of State Hwy 172 & County Road 318 in Ignacio, Colorado, travel West on County Road 318 for 7.1 miles (CR mile marker 8):

Go right (North) on well access lease road for 0.3miles:

Go right (Northeast) following access road (flagged) for 150 ft to wellheads (staked) on location.

Access Road Map

NueVida Resources, LLC
 Ardourel 33081718 #4HU
 1793' FSL & 289' FWL
 Section 18, T33N, R8W, N.M.P.M.
 La Plata County, Co.
 Ground Level Elevation: 6718.7'

Existing Road

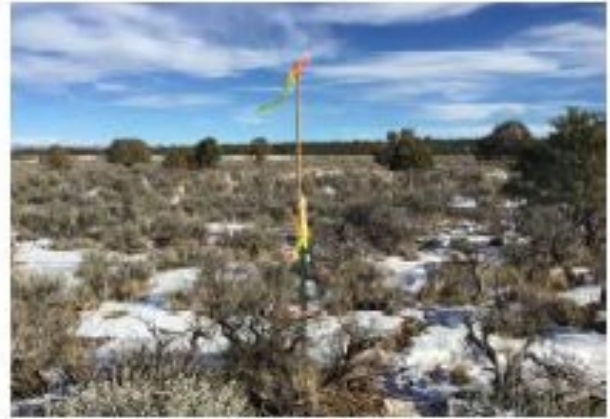
FIGURE 2

FIGURE 2

NueVida Resources, LLC
Ardourel 33081718 #3HL
1773' FSL, 292' FWL, Section 18, T33N, R8W, La Plata County, Co.



Looking North



Looking East



Looking South



Looking West

All photos taken on 12/22/2020

FIGURE 3

NUEVIDA RESOURCES, LLC: ARDOUREL 33081718 #3HL
 1773' FSL & 292' FWL, SECTION 18, T-33-N, R-8-W, N.M.P.M.,
 LA PLATA COUNTY, CO. ELEVATION: 6718.7'
 LAT: 37.101193, LONG: 107.767596 NAD 83 DATUM
 FACILITY LAYOUT

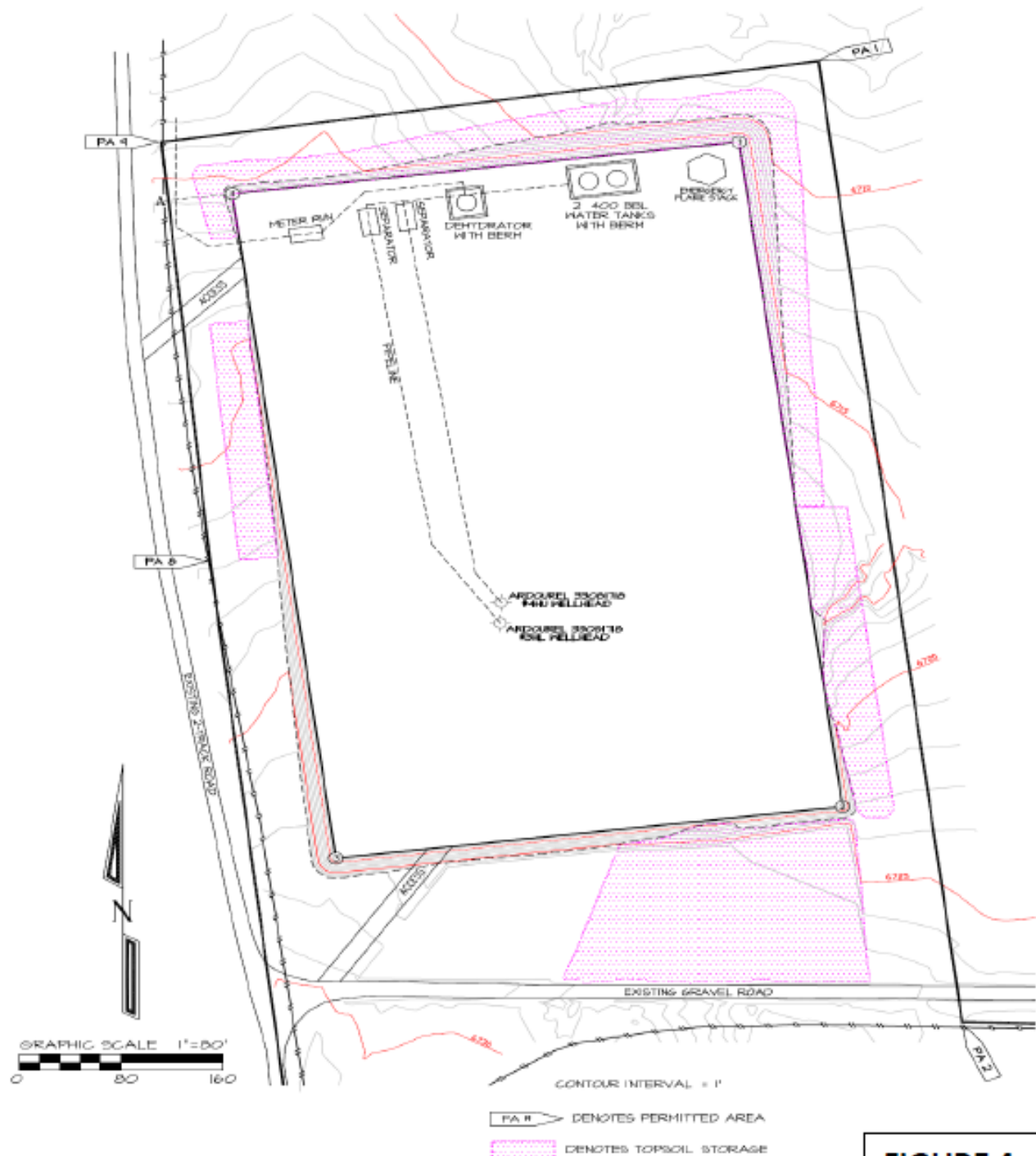


FIGURE 4

NOTE
 FOR CORRECT SCALE TO BE DISPLAYED
 DRAWING MUST BE PRINTED ON 11" X 17" PAPER

BLANK