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# STORMWATER MANAGEMENT PLAN

**BNL** | ENTERPRISE

**Jackson 27 SWSE 3054**

Sec. 27 T30S R54W (SW/4 SE/4)

Las Animas County, Colorado

Surface: Fee

Submitted as an accompaniment to the Form 2A Application  
and consistent with the requirements of Rule 1002.f.

February 9, 2024

**1. Introduction**

BNL (Enterprise) Inc.’s (“BNL’s”) proposed Jackson 27 SWSE 3054 “Location” is in Sec. 27 T30S R54W in Las Animas County, Colorado. BNL plans to drill and test one *helium* well. If the well produces commercial quantities of helium the well will be shut-in for a period of six to nine months until helium production/processing facilities can be constructed on an offsite facility location. The helium facility will be on lands outside of the Oil and Gas Development Plan. The facility will be constructed on private surface. The landowner agreement provides for the installation of the gas gathering line. The production/processing facilities will not require an oil and gas development plan.

**2. Site Description**

BNL currently owns or leases oil and natural gas mineral rights in and around Villegreen, CO, in Las Animas County, Colorado. The Site will be approximately 1.2 acres in size with 18.8 acres for an access road. The project area includes site-specific access roads, wellpad, and associated pipelines.

The development of helium is generally accomplished in five distinct work phases. The first phase is construction, the second phase is drilling and testing, the third phase is production (operation/maintenance), the fourth phase is interim reclamation, and the fifth and final phase is abandonment with final reclamation. Each work phase is briefly discussed below.

**2.1 Proposed Sequence of Major Activities**

Construction	Location construction is generally comprised of mobilizing/demobilizing various combinations of backhoes, dozers and/or graders to create a relatively flat surface that can accommodate equipment to drill, complete and produce. Just prior to grading, implements/designs to handle stormwater are installed on and around the location. This phase of construction takes place prior to drilling start.
Drilling	Includes mobilizing/demobilizing a drilling rig and all associated ancillary equipment to a location and then performing the operation of drilling/setting/cementing casing.
Production	Includes all functions necessary to produce the well. More specifically, includes at least-daily visits to location by lease operators to check that the well is operating properly, regular visits by water haulers to gather and dispose of produced water, and occasional visits by workover rigs for repairs.
Interim Reclamation	Includes mobilizing/demobilizing equipment and performing the operation to return the portion of the location to its original grade, and to plant and establish native grass growth.  Final reclamation, which includes removing all surface equipment, plugging, and abandoning the no-longer productive wellbore, and returning the full location to its original grade. Re-seeding, will occur after the productive life of the well ends.

## 2.2 Estimate of Total Site Disturbance

Approximate Disturbance of Wellpad:

**UNGRADED ELEVATION: 5532.7'**  
**FINAL ELEVATION: 5531.9'**  
**PROPOSED AREA OF DISTURBANCE: 1.2± ACRES**  
**DRAINS TO CEDAR PEN CANYON**  
**AREA OF WORKING PAD SURFACE: 1.0± ACRES**  
**PROPOSED ACCESS DISTURBANCE: 18.8± ACRES**

## 3. Name of Receiving Water(s)

An un-named intermittent drainage runs through the location.

## 4. Summary of Existing Data That Describe Soil or Potential for Soil Erosion

Referencing the Natural Resources Conservation Service Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>) topsoil for the Site is classified as Baca silt loam complex which is classified as well drained and not likely to flood or pond.

## 5. Description of Existing Vegetation and Percentage of Ground Cover

The proposed disturbance of the Location is nearly 100% shrubland, with pinyon-juniper stands occurring sporadically within the one-mile buffer around the proposed Location. There are no known weed infestations. The method for calculating vegetation density estimates prior to new construction activities are performed is the quadrat method.

## 6. Stormwater Management Control Measures

To identify, evaluate, and assess potential sources of stormwater runoff pollutants that may exist at a pad site, the following activities and pollutant sources were evaluated:

**Transportation of Chemicals and Materials:** Given the nature of the construction activities associated with building a wellpad, production facility, or pipeline, there is a limited amount of loading and unloading operations. Wellpad construction consists solely of construction of BMPs, dirt work and, in some cases, fencing. As such, there are no loading operations. Unloading operations consist of unloading BMPs or fencing supplies. Neither of these activities pose a significant risk or impact to stormwater discharge.

**Vehicle and Equipment:** Routine maintenance will be limited to fueling and lubricating equipment. Drip pans will be used during routine fueling and maintenance to contain spills or leaks. Any waste product from maintenance activities will be containerized and transported offsite for disposal or recycling. There will be no major equipment maintenance or overhauls conducted on site. Equipment will be transported offsite for major maintenance or overhauls.

**Outdoor Storage:** The most common substances that could be stored on the pad area are fuels and lubricants used by vehicles and construction equipment.

**Produced Water and Drilling Fluids Storage:** The proposed well will be drilled with an air drilling system using an air compressor to cool the drill bit and lift the cutting from the wellbore to exit out of the blooey line. Accompanying the air drilling system will be a fresh-water tank that will be used in the event of any wellbore fluid influxes which will allow continued air drilling penetration in the presence of formation fluids. Any remaining water in tank will be transported to a commercial disposal facility. Once the drilling and completion operations are completed this temporary tank will be removed. Mud is not anticipated.

**Outdoor Processing Activities and Machinery:** One well is to be drilled on this wellpad. One (1) separator and one (1) 10-foot diameter tank is planned on this location.

**Erosion and Vehicle Tracking Controls:** Straw Wattles or silt fencing will be implemented around the perimeter of the site in down-sloping areas prior to earth disturbing activities taking place. The wattles will be the primary BMP installed.

In order to limit vehicle tracking of sediment, vehicles will use designated entry points into construction areas. In general, the use of tracking pads is not anticipated to be necessary in the project area due to the sandy, non-cohesive nature of the soils in the project area.

**Disturbed and Stored Soil:** Disturbed soil and excavated materials will be stored on or next to the wellpad within the construction area. Topsoil and other soil will be stockpiled separately and stabilized as needed. Excavation in sensitive areas may be conducted using special techniques, as specified by the landowner/agency representative.

Excavated materials will be used as backfill when practicable. An exception may be excess rock generated by excavation activities. In these areas, some select backfill materials may be required to protect the project area. Excess rock may be pushed into rock filter dikes, used in energy dissipation zones below culverts, constructed into rock check dams within grassed swales, or distributed over a portion of the project area.

Generally, cut slopes made in steep rolling terrain during construction will be re-graded and contoured to blend into the adjoining landscape, and natural drainage patterns will be re-established to as near pre-disturbance levels as possible during reclamation.

**Management of Contaminated Soil:** If contaminated soil is encountered at a BNL site during construction, additional BMPs will be employed to ensure containment of stormwater runoff. In addition, stockpiles of contaminated soil will be removed from the site and disposed of as soon as practicable. Please see Waste Management Plan for more details.

**Ground Disturbing Maintenance Activities:** BMPs that are in need of maintenance or may be deemed inadequate for the situation and any deficiencies that are not immediately repairable will be reported to the operator, or the designee for instructions on how to proceed, including, but not limited to, implementing new or modified BMPs to minimize potential pollutant discharges. Preemptive installation and proactive maintenance will be taken to prevent BMP failures and potential discharge of pollutants. There may be times field activities may require the installation or alteration of BMPs. At these times, the field foremen, Stormwater Program Manager, or the designee may choose to implement other BMP designs at their project sites to maintain compliance.

**Non-Industrial Waste Sources:** See Waste Management Plan for details.

**7. Site Map**

See attached site maps.

**8. Structural and Non-structural Best Management Practices**

BMPs for sediment and erosion control will be accomplished through a combination of construction techniques, vegetation, re-vegetation, administrative controls, and structural features.

During periods of active construction, field activities may dictate the installation or alteration of BMP designs between scheduled inspection dates. At these times, the field foremen, Stormwater Program Manager, or the designee may choose to implement other BMP designs at their project site to maintain compliance. In these instances, the site maps are updated during the next inspection to communicate the changes that have taken place since the previous inspection.

Access roads will not be paved. During the drilling and testing phase, the existing access road will be minimally upgraded to allow for construction and, if needed, emergency vehicles. If the well proves to be commercial, the road will be crowned (with a minimum of four inches of gravel) and ditched, as agreed to by the private surface owner. Road surfacing material will consist of limestone, scoria or river rock or as agreed upon by the private surface owner and will be sourced as locally as possible to minimize travel distance.

BMPs
Silt fencing will be placed on the northwestern corner, western side, and the southwestern corner of the location to control run-on to the pad, and any stormwater flow to runoff the pad uncontrolled. The fencing will be removed during the productive phase of the well, leaving only the small disturbed area needed for continuous operations which will be surrounded by an earthen containment berm/trench.
A combination of erosion control logs and/or wattles will be implemented around the northwestern corner, western side, and the southwestern corner of the pad in downsloping areas prior to earth disturbing activities taking place. The wattles will be the primary control measure installed until the pad is constructed and will be removed during the production phase.
Culverts will be installed along the County Road as directed by Las Animas County. One (1) culvert will be installed along the access road. No culverts are anticipated at the entrance to the wellpad. If needed, an 18" culvert will be placed at the proposed access road into the wellpad.
Mulch/Seed: Topsoil stockpiles that will be exposed for more than six months will be mulched and/or seeded as a stabilization technique to control sediment loss from stormwater.

Stockpile Tracking: To prevent erosion from stormwater, stockpiles will be tracked perpendicular to runoff direction.
Stockpile Tracking: To prevent erosion, stockpiles will be tracked perpendicular to runoff direction. Rock rip-rap placed on both sides of the culverts to slow/filter any stormwater runoff from the road itself.

## 9. Temporary and Long-Term Stormwater Management

9.1 Temporary Stabilization: Temporary stabilization measures will be implemented for earth disturbing activities on any portion of a site where ground disturbing construction activity has permanently ceased, or temporarily ceased for more than 14 calendar days. Methods for temporary stabilization may include, but are not limited to, tarps, soil tackifier, and/or the application of hydro-seed. The 14-day schedule may be exceeded when either the function of the specific area of the site requires it to remain disturbed or physical characteristics of the terrain and climate prevent stabilization measure application. Delays in the implementation of temporary stabilization measures will be recorded on the site-specific information as part of the inspection records. In situations where the delay of temporary stabilization measures occur an alternative stabilization schedule will be provided, including the location(s) where the alternative schedule is applicable on the site map. The minimum inspection schedule will be followed in temporarily stabilized areas.

9.2 Long-Term Stormwater Management: Final stabilization must be implemented for all construction sites. A site is considered to be in final stabilization when a location meets interim reclamation in accordance with Colorado Energy & Carbon Management Commission Rule 1003 has been achieved and (1) and (2) below are complete:

- (1) All construction activities are complete.
- (2) Permanent stabilization methods are complete. Permanent stabilization methods include, but are not limited to hardscape, xeriscape, stabilized driving surfaces, vegetative cover, or equivalent permanent alternative stabilization methods. Vegetative cover must meet the following criteria: evenly distributed perennial vegetation; and coverage, at a minimum, equal to 70% of what would have been provided by native vegetation in a local, undisturbed area or adequate reference site.

Permanent structural measures will be installed on steep slopes to manage runoff once the site enters the Post- Construction Stormwater Program. Devices that will be installed as a long-term stormwater management controls include, but are not limited to, the following: seeding/mulch application, and earthen berms. When long-term management items are left in place, a note will be included on the final inspection report identifying this plan. Post-construction inspections are conducted annually unless more frequent inspections are deemed necessary. Actions that can lead to more frequent inspections include repeated maintenance of post-construction related BMPs, observed stormwater erosional characteristics occurring during post-construction phase, or other unforeseen stormwater issues.

During restoration and reclamation work, required repairs to vegetation and erosion and sediment BMPs will be completed as required.

## **10. Inspection and Maintenance**

A trained and qualified person familiar with the Stormwater Management Plan and stormwater controls will conduct all inspections. The Qualified Stormwater Manager, or their representative, will examine the construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site during each inspection. These areas will be inspected for evidence of or the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to waters of the state. All erosion and sediment control practices identified in the plan will be evaluated to ensure that they are maintained and operating correctly. Temporary and permanent erosion and sediment BMPs will be visually verified to ensure effective operational condition.

### **10.1 Routine Maintenance**

The following inspection guidelines and maintenance practices are to be used during field inspections and to maintain erosion and sediment BMPs.

- BMPs will be inspected for proper installation and adequate maintenance.
- Work practices will be examined to preserve BMP installations.
- BMPs may still operate in accordance with their design and the requirements of the permit but may require some level of maintenance to prevent a breach of the BMP.
- All BMPs will be maintained in good working order. If a repair is necessary and a qualified Stormwater Manager cannot complete the action item while on site, the work order report will initiate instructions for a sub-contractor to schedule the repair or maintenance item.

### **10.2 Inspection Schedule**

The Helium Location and stormwater controls will be monitored daily during site preparation and well development. Evidence of soil or sediment runoff, maintenance needs, and any spills or leaks will be addressed. Following well development, stormwater inspection will occur at a minimum of once every 7 days, consistent with stormwater requirements. Inspection frequency may be reduced to once every 30 days after ground disturbance is complete and the site is stabilized with interim reclamation. During inspections, the site operator will look for evidence of erosion, runoff, stabilization, and vegetative success from interim reclamation. Inspections will ensure that erosion and sediment controls identified in this plan are maintained, functioning properly, and that there is no evidence of movement of soils, ponding, or erosion.

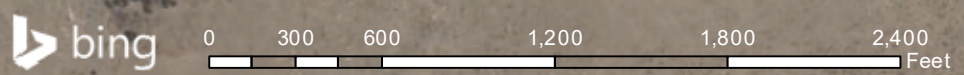
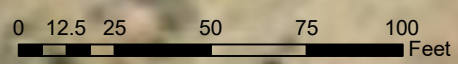
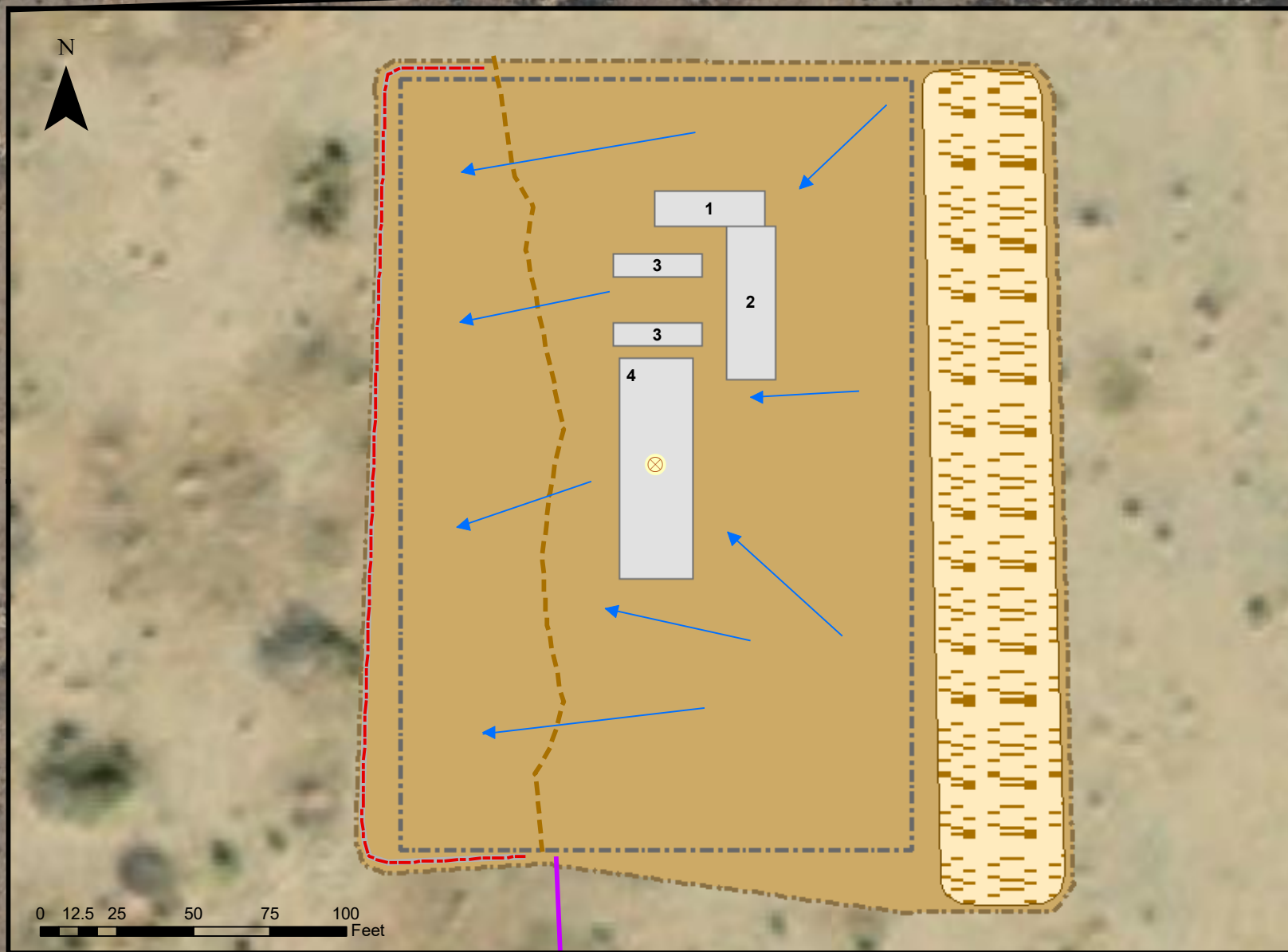
## **11. Reports and Record Keeping**

The following record keeping procedures will be implemented in order to provide accurate and complete documentation of events associated with the stormwater management program. Routine inspections will include the 14-day, post precipitation event, and 30-day inspections. All stormwater related records will be filed and stored by BNL for a minimum of three years after each individual site has achieved final stabilization.

## **12. Employee Training**

The qualified Stormwater Managers are trained to understand the following as related to the scope of their job duties:

- The permit deadlines associated with installation, maintenance, and removal of storm water controls and with stabilization.
- The location of all stormwater controls on the site required by the permit and how they are to be maintained.
- The proper procedures to follow with respect to the permit's pollution prevention requirements.
- When and how to conduct inspections, record applicable findings, and make corrective action recommendations.



**JACKSON 27 SWSE 3054**  
(see inset for details)

**Access Road**

ID	Description
1	Mud
2	Suction Tank
3	Pump
4	Rig & Sub Base

**MAP FEATURES**

- Disturbed Area
- Topsoil Stockpile
- Infrastructure\*
- Working Pad Surface
- Well Head Surface Location
- Silt Fence
- Access Road
- Surface Flow Direction
- Cut/Fill

\*See table for infrastructure descriptions

REVISION	DATE

**BNL (Enterprise) Inc.**

**Jackson 27 SWSE 3054**  
**Stormwater Management Plan**  
**Site-Specific Diagram - Initial Construction**

Section 27, Township 30S, Range 54W, Las Animas County

	DRAWN BY: KT (Aquionix) DATE DRAWN: 01/19/2023 MAP SCALE: 1:8,000 COORD. SYSTEM: WGS_1984_Web_Mercator_Auxiliary_Sphere
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0 12.5 25 50 75 100 Feet



0 300 600 1,200 1,800 2,400 Feet

MAP FEATURES

	Disturbed Area
	Reclaimed Area
	Well Head Surface Location
	Earthen Berm
	Access Road

Access Road

JACKSON 27 SWSE 3054  
(see inset for details)

REVISION	DATE

**BNL (Enterprise) Inc.**

**Jackson 27 SWSE 3054**  
**Stormwater Management Plan**  
**Site-Specific Diagram - Interim Reclamation**

*Section 27, Township 30S, Range 54W, Las Animas County*

**Aquionix**  
ENGINEERING SERVICES

DRAWN BY: KT (Aquionix)  
DATE DRAWN: 01/19/2023  
MAP SCALE: 1:8,000  
COORD. SYSTEM: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere