



**GARNET 21-K PAD FLUID LEAK DETECTION PLAN**

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Article I. **Introduction**

*Location Information*

This document provides site-specific information for the Garnet 21-K Pad Form 2A as the Garnet 21-K Pad OGD. The information in this document relates specifically to the time during the construction, drilling, and completion, and production of the twenty-four (24) proposed horizontal wells on this location.

The proposed location is rangeland located North of WCR 78 between WCR 29 and WCR 31 using an existing access onto WCR 78. The Pad will be in NWSE Section 21, Township 7 North, Range 66 West zoned AG within Weld County's Near-Urban Planning Area. A 1041 WOGLA was filed as 1041WOGLA20-0093 on 2/18/2021 and approved at hearing on 4/23/2021.

The proposed Pad will be approximately 13 acres, reduced to 6 acres after interim reclamation. The working pad surface will be 9.2 acres. The Pad is on Parcel 070721000040 owned by the City of Thornton. The location is currently used for farming.

The proposed production facility equipment for the Garnet 21-K Pad will be located within the Working Pad Surface adjacent to the wells and will consist of oil tanks, water tanks, multi-use tanks, separators, meters, Instrument Air System, enclosed combustion devices (ECD), gas compressors, Gas Lift, LACT Units, Scrubbers, Sumps, Water Transfer Skid, and proposed electrical and/or solar equipment.

<b>Phase</b>	<b>Duration (days)</b>	<b>Estimated Start Date</b>
Construction	30	3 <sup>rd</sup> Quarter (August) 2022
Drilling	150	3 <sup>rd</sup> Quarter (September) 2022
Completion	180	1 <sup>st</sup> Quarter (February) 2023
Flowback	60	3 <sup>rd</sup> Quarter (August) 2023
Production	25 Years	4 <sup>th</sup> Quarter (October) 2023
Interim Reclamation	10	1 <sup>st</sup> Quarter (January) 2024*

*\*or the first favorable growing season.*

Article II. **Drilling Fluids Procedures and BMPs**

- A closed-loop system will be used for drilling operations as required by Rule 408.a.
- All drilling fluid tanks, both active and storage, are inspected prior to use and daily while in use and replaced or repaired if needed.
- All drilling fluid transfers will be performed by two drilling crew members to assure transfer is completed, valves are closed following transfer and that no fluids are lost.
- During initial rig up on site, all hoses, lines and valves will be assembled and checked for proper connection, alignment and for leaks, and then inspected daily during drilling operations.
- All tanks will be properly labeled for contents of the tanks.



- A 40 ml poly liner with foam type berms will be utilized under the drilling rig, mud tanks, shakers, and drill cuttings bins to contain any leaks if they were to occur.

Article III. **Completion Fluid Procedures and BMPs**

- All completion fluid tanks are inspected prior to use and daily while in use and replaced or repaired if needed.
- All completion fluid transfers will be performed by two completion crew members to assure transfer is completed, valves are closed following transfer and that no fluids are lost.
- During initial rig up on site, all hoses, lines and valves will be assembled and checked for proper connection, alignment and for leaks, and then inspected daily during completion operations.
- All tanks will be properly labeled for contents of the tanks.
- A 40 ml poly liner with foam type berms will be utilized under the frac spread layout to contain any leaks if they were to occur.

Article IV. **Production Fluid Procedures and BMPs**

*Monitoring & Detection*

- Fluid Monitoring in tanks will be achieved through high level alarms installed in each tank with guided wave radar tank level gauges. These gauges report remotely tank volumes via telemetry. This telemetry allows pumpers to have real time access to information and review levels at any time. Pumpers also have the ability to Shut in the wells in the event of an emergency.

*Inspection*

- The tanks are visually inspected by the lease operators and weekly AVO inspections are performed and documented.
- Audio, Visual and Olfactory (AVO) inspections or Infrared surveys will be performed to identify any leaks coming from the flowlines on a monthly basis.
- Flowlines will be inspected per COGCC 1100 regulations.
- Periodic site inspections will be conducted by Bayswater personnel or third-party environmental contractors to look for any signs of leaks and or potential leaks.
- Tanks and tank berms will also be formally inspected quarterly under the Spill Prevention Control and Countermeasures (SPCC) plan unless specific COAs warrant more frequent inspections. Tanks are also inspected daily by the lease operator (pumper) and contract water haulers, who have been trained on identifying corrective actions on tanks/flowlines.
- All equipment, both permanent and temporary, including but not limited to:



- Wellheads
- Separators
- Tanks
- Heaters
- Pumps
- General-purpose valves
- Flanges and fittings
- Sampling connections
- Compressors
- Pressure relief valves
- Open pipe connections
- Generators
- Skids
- Above ground containers
- Pipelines and flowlines
- Field drainage systems
- Fluid handling equipment
- Secondary containment

Are inspected for

- failure of packing or O-Rings
- gasket failure or loose bolts
- Unusual noises or movements
- seal failure
- visual evidence of rust or stains
- Odors

*Testing*

- New flowlines will be hydrotested to manufacturers' recommended levels before placed into use.
- Flowline Testing will be conducted in accordance with COGCC Rule 1104.j. Audio, Visual and Olfactory (AVO) Detection Survey or Alternative Survey Requirements. When AVO surveys are conducted, the entire flowline length using audio, visual and olfactory techniques will be performed to detect integrity failures, leaks, spills, or releases, or signs of a leak, spill, or release like stressed vegetation or soil discoloration. Where the regulations permit, Bayswater may also conduct a survey using an instrument monitoring method capable of detecting integrity failures, leaks, spills or releases, or signs of a leak, spill or release. Bayswater will document the date and time of all surveys, the detection methodology and technology used, and the name of the employee who conducted the survey.

*Maintenance*

- Per Rule 608.a.(10)C, all sealed Tanks will be designed for a minimum of 4 ounces of backpressure. Vent/back pressure valves, the combustor, lines to the combustor, and knockouts will be sized and maintained to safely accommodate any surge the system may encounter. Bayswater will properly maintain, and periodically test, Tank seals to ensure that they provide the required back pressure and prevent emissions.
- Daily site visits are made by lease operators (aka pumpers) to the well pad for maintenance issues including leaks and spill potential.
- Per Rule 603.k., tanks will be designed, constructed, and maintained in accordance with NFPA Code 30.

Article V. **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. If remediation is required, a 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. Bayswater tracks and cleans up all spills, including those that are not reportable.

Written procedures associated with the inspection and testing activities conducted per the requirements of this Plan will be maintained. Along with the referenced procedures, records of inspections and tests required by this Plan will be signed by the appropriate personnel and retained for a period of three years or as indicated in COGCC's rules. Inspection records and associated information will be maintained with a copy of this Plan.

Article VI. **Site-Specific BMP**

- Spill prevention and response are addressed in training of employees and contractor personnel on at least an annual basis.
- Per 608.a.(9), gauge hatches on atmospheric Tanks used for crude oil storage will be closed, latched, and sealed at all times when not being actively accessed by trained personnel. Tanks will function as sealed and ventless with gas released only through a vapor control system or properly sized pressure relief valve.
- No pits will be used on location, therefore pit level Indicators will not be used on location.
- Tank berms shall be constructed of steel rings with an engineered synthetic liner and designed to contain 150% of the capacity of the largest tank. Containment berms shall be constructed and designed to prevent leakage and resist degradation from erosion or routine operation. Tertiary containment, such as an earthen berm, will be installed as required for Production Facilities within 500 feet of a down gradient surface water feature. All berms will be visually checked periodically to ensure proper working condition.
- Separator berms shall be constructed of steel rings. All berms will be visually checked periodically to ensure proper working condition. Containment berms shall be constructed and designed to prevent leakage and resist degradation from erosion or routine operation. Tertiary containment, such as an earthen berm, will be installed as required for Production Facilities within 500 feet of a down gradient surface water feature. All berms will be visually checked periodically to ensure proper working condition.
- 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.
- Operator's SPCC Plan includes details of loading and unloading procedures in regards to:
  - Training
  - Inspection
  - Emergency Shutdown Procedures
    - Pre-loading/unloading inspections
    - Securing/grounding/bonding the transport unit
    - Controls and Monitoring
    - Terminating Flow and Disconnecting System

Article VII. **Exhibits/References/Appendices**



**BAYSWATER**  
**EXPLORATION & PRODUCTION, LLC**

None.