

Objective Criteria Review Memo - Bayswater Exploration & Production LLC

Calvary Farms D-20-21HN -- Form 2 Application for Permit to Drill (APD) Doc# 402442088

Calvary Farms 19-D Pad -- Form 4 Sundry to update Location BMPs Doc# 402500755

Approved Form 2A Oil & Gas Location Assessment (Doc# 401504302, approved 10/15/2018)

Location ID# 457898

This memo summarizes COGCC's technical review of the subject well within the context of SB 19-181 and the required Objective Criteria. The Form 2A and 16 APDs for this location were approved on 10/15/2018. The Operator has since built the location and drilled and is producing four wells on the location. Bayswater has since submitted this subject refile APD (one of 12 total refile APDs) for this approved Oil & Gas Location.

For Oil & Gas Locations approved prior to SB 19-181, the Objective Criteria apply to any wells proposed on those approved or existing Oil & Gas Locations. This APD meets the following Objective Criteria:

1. (Criteria 1) Oil and Gas Locations within 1,500' of a Building Unit or High Occupancy Building, which include Urban Mitigation Area ("UMA") and Large UMA Facility ("LUMAF") locations. There are two building units within 1500' of the location.
2. (Criteria 5c) Oil and Gas Locations within: a Sensitive Area for water resources. The location is 15' from the nearest surface water feature (ditch).
3. (Criteria 8) Oil and Gas Locations with storage of hydrocarbon or produced liquid in more than 18 tanks or in excess of 5,200 barrels. The location is planned for 18 oil tanks and 2 water tanks.

The following sections provide details regarding the evaluation of each criterion:

Criteria 1: Oil and Gas Locations within 1,500' of a Building Unit or High Occupancy Building, which include Urban Mitigation Area ("UMA") and Large UMA Facility ("LUMAF") locations.

Site Specific Description of Applicability of Criteria 1: There are two building units within 1500' of the location.

Site Specific Measures to Address Criteria 1: The Operator provided the following information and BMPs to mitigate being located within 1500' of building units:

- Dust Mitigation: Dust control practices shall include but are not limited to the use of speed restrictions, regular road maintenance, restriction of construction activity during high-wind days, and silica dust controls when handling sand used in hydraulic fracturing operations.
- Lighting Mitigation: Site lighting is directed downward and inward and shielded to avoid glare on public roads and Building Units within 1000'. Once the drilling and completion

rigs leave the site, there will be manually controlled lighting at the tank battery location as needed for safety purposes

- **Noise Mitigation:** Operator will provide 32' engineered noise abatement sound walls on the Northeast, South, and East sides of the location. Sound walls will be installed for the duration of drilling and completion activities per third party sound modeling studies.
- **Odor Mitigation:** Operator utilizes a clear, colorless refined distillate derived that is a polycyclic aromatic hydrocarbon which has less volatility (this flashing to the atmosphere is what we smell) than generic diesel fuel and therefore should reduce the odors at the drillsite that are associated with the OBM system. As a standard practice, odor neutralizers will be used with the oil-based mud.

While the Operator has not done any additional noticing or communication with the surrounding building units since the Form 2A approval on 10/15/2018, the Operator did confirm they did not receive any complaints during the first drilling and completions operations. COGCC has also not received any complaints regarding this location. Most recent COGCC inspection corrective actions have been addressed and there remain no outstanding corrective actions for this location.

Summary: Bayswater provided BMPs that address possible impacts to being located within 1500' of two building units. The BMPs include dust mitigation measures, lighting directed inward, downward, and shielded, 32' sound walls, and an odor neutralizer with the planned oil-based drilling mud.

Criteria 5c: Oil and Gas Locations within: a Sensitive Area for water resources.

Site Specific Description of Applicability of Criteria 5c: The location is 15' from the nearest surface water feature (ditch).

Site Specific Measures to Address Criteria 5c: The Operator provided BMPs to mitigate being located within a sensitive area for water resources:

- **Stormwater Management Controls:** Stormwater BMPs include a diversion ditch and earthen berm structure around the perimeter of the pad.
- **Leak Detection:** daily site inspections.
- **Lined Containment:** Tank berms shall be constructed of steel rings with a synthetic or engineered liner and designed to contain 150% of the capacity of the largest tank. A tertiary containment, such as an earthen berm, will be installed around the production facilities. Separator berms shall be constructed of steel rings.
- **Rig Liner:** A 40 ml poly liner with foam type berms will be utilized under the drilling rig, mud tanks, shakers, and drill cuttings bins.
- **Remote Automation:** The location includes automation equipment that allows operators to monitor pressures, rates, temperatures, valve positions and tank levels remotely. The automation system also has the ability to remotely perform an emergency shut down if necessary.

Summary: Bayswater provided BMPs that address possible impacts to being located near surface water features. The BMPs include stormwater management controls around the location, leak detection inspections, rig liner, containment for tank and separator areas, and remote automation at the location.

Criteria 8: Oil and Gas Locations with storage of hydrocarbon or produced liquid in more than 18 tanks or in excess of 5,200 barrels.

Site Specific Description of Applicability of Criteria 8: The location is planned for 18 oil tanks and 2 water tanks.

Site Specific Measures to Address Criteria 8: In addition to the BMPs mentioned in the above Criteria 5c discussion, the Operator also provided the following information regarding a site specific emergency action plan:

- Operator consulted with the Eaton Fire Protection District Station No. 1 and the Weld County Office of Emergency Management (OEM) regarding the proposed facility and emergency response for this location. The site-specific Emergency Action Plan was approved by the Weld County OEM 3/26/2018.

Summary: Bayswater provided BMPs that address possible impacts to having more than 18 tanks planned for the location. The BMPs include leak detection inspections, containment for tank and separator areas, remote automation at the location, and an emergency action plan with local emergency responders.

Director Determination: Based on the Objective Criteria review, the Director has determined that this permit application meets the standard for protection of public health, safety, welfare, the environment and wildlife resources set by SB 19-181.