

**Objective Criteria Review Memo, Mallard Exploration LLC Ancona Pad, Form 2A Document # 401669129**

This summary explains how COGCC staff conducted its technical review of the Mallard Exploration LLC (Mallard), Ancona Pad Form 2A, Document #401669129 within the context of SB 19-181 and for the required Objective Criteria. This Form 2A was submitted for a new Oil & Gas Location to drill seven wells, install 14 oil tanks, seven water tanks, seven separators, seven gas or diesel motors, seven electric motors, four vapor recovery units (VRU), four volatile organic compound (VOC) combustors, four emission control devices (ECD), one vapor recovery tower (VRT), two modular large volume tanks (MLVT), two gas compressors, and two lease automatic custody transfer (LACT) units. This Location meets the following Objective Criteria:

- Criteria #8 Oil and Gas Location that has hydrocarbon or produced liquid storage in more than 18 tanks or in excess of 5,200 barrels.

COGCC staff met with the Director to discuss the Objective Criteria for the Form 2A with the proposed Best Management Practices (BMPs). The following sections provide details regarding the evaluation of criteria #8.

Note that although this Location did not meet Objective Criteria 5.c for Sensitive Area for Water Resources, this Location is adjacent to a section mapped as part of the Upper Crow Creek Designated Basin. The nearest downgradient surface water feature is approximately 2,685 feet from the Location, and the nearest water well is 3,850 feet away from the Location. A Division of Water Resources (DWR) water well shown closer to the Location at approximately 284 feet northeast has an expired permit (DWR #79291-F) and was not constructed. Depth to groundwater was estimated at 109 feet as obtained from DWR Permit #296222 for a water well located in the adjacent Section 20, approximately 4,910 feet northwest of the Ancona Pad edge of disturbance. No specific receptors were identified.

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

**Site Specific Description of Applicability of Criteria 8:** A total of 14 oil tanks and seven water tanks are proposed for the Location for a total of 21 tanks.

**Site Specific Measures to Address Criteria 8:** The Operator provided BMPs to address the number of tanks on this Location. These BMP are protective of potential sensitive water resources for the designated basin status in section 28 to the east. Mallard has or will institute the following BMPs on this Location to mitigate the large volume of hydrocarbon and produced water storage on Location:

- Mallard consulted with the Briggsdale Fire Protection District (FPD) and Weld County office of emergency management (OEM) and prepared a site specific emergency action plan

(EAP) and tactical response plan submitted as part of the local government oil and gas governmental agency application approval process. These plans will be approved by the FPD and OEM.

- Daily audible, visual, and olfactory (AVO) inspections of the facility will be performed. Ineffective valves or fittings will be repaired or replaced. A third-party specialist will perform and document monthly AVO inspections and optical gas imaging surveys.
- A supervisory control and data acquisition (SCADA) system will monitor facility pressure and flow with sensors placed on multiple points throughout the facility and are designed to monitor for system irregularities such as a leak or change in production of oil, gas, or water that trigger alarms and activate automatic shut-in of the well and facility.
- An engineered containment system constructed of a metal wall and post perimeter and a flexible geotextile base will be installed around the tank battery. All components of the seamless impermeable liner system will be sprayed with a polyurea compound that is resistant to puncture, degradation by ultraviolet rays, weather extremes, and chemicals commonly encountered in oil and natural gas production. The liner is topped with pea gravel.
- Hydrotesting will be conducted if a leak is suspected or discovered, by shutting-in the well and testing the lines. The well will remain shut-in until the leak is located and repaired.
- All flowlines are designed, constructed, tested to industry standards, and only materials with material test reports (MTR) from pipeline supplier are allowed to be used in flowline construction.

**Summary:**

This Location met Objective Criteria #8 for having 21 tanks for hydrocarbon or produced fluid storage. Mallard coordinated with the local FPD and Weld County OEM regarding the facility and emergency response. A site-specific EAP and Tactical Response Plan will be approved by the FPD and OEM as part of the local government agency permit process. Mallard will perform daily AVO inspections, and monthly AVO inspections performed by a third-party will be recorded and documented. Mallard will install a SCADA system that monitors production and has alarms that automatically shut-in the well and facility if production irregularities or a leak is detected. An engineered containment system constructed of a polyurea coated geotextile liner, metal walls and posts will be installed around the tanks to provide sized secondary containment in the event of spills or leaks. Hydrostatic testing will be performed and wells shut-in if leaks are located, and repaired if a leak is suspected. These BMPs address the 21 storage tanks on Location to protect health, safety, welfare, and the environment.

**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.