

Objective Criteria Review Memo – Noble Energy Inc. A30-01 Pad location, Form 2A Doc #402354497

This summary explains how COGCC staff conducted its technical review of the Noble Energy Inc. A30-01 Pad location, Form 2A Doc #402354497 within the context of SB 19-181 and for the required Objective Criteria. This Location is proposing six wells, one MLVT, and two gas lift meter buildings and 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.
2. (Criteria 5c) Oil and Gas Locations within: a Sensitive Area for water resources.

COGCC staff met with the Director to discuss whether the Objective Criteria were sufficiently addressed and whether the Form 2A could be approved with the proposed Best Management Practices (BMPs) and applied Conditions of Approval (COAs). 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: Based on the technical review and desktop evaluation, the closest Building Unit is approximately 512 feet northeast of the edge of the location. There are three Building Units within 1,000 feet of the edge of the location and four Building Units between 1,000 feet and 1,500 feet of the edge of the location.

Site Specific Measures to Address Criteria 1: Noble Energy informed COGCC staff that notification letters, which included a fact sheet on the CDPHE Oil & Gas Health Study, were sent to all Building Unit owners within 2,000 feet of the location. Noble Energy has not received any responses to these notification letters.

Noble Energy has provided the following BMPs to mitigate impacts to the nearby building units:

- Operator shall employ practices for continuous control of fugitive dust caused by operations. Such 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. Additional management practices such as road surfacing, wind breaks and barriers, or automation of wells to reduce truck traffic may also be used if technologically feasible and economically reasonable to minimize fugitive dust emissions. Engineered sound walls no less than 16' tall will be used along the western, northern, southern and eastern sides for well pad A30-01 to mitigate dust impacts to these residences.
- Lighting on the drill pad location is considered temporary and will be used during drilling/recompletion activities. Permanent lighting will not be installed and utilized during

normal production operations. Temporary lighting will be completely shielded from building units within 1,500 feet by the installed temporary sound walls. Temporary lighting will be directed downward, inward, and shielded towards location to avoid glare on public roads and building units within . Temporary lighting will be on timers or turned off when practical, i.e., no drilling/completion operations being conducted.

- Noise: Temporary operations – Baseline surveys will be completed at the residences to the Northeast 512'; Northwest 750' and 1088'; North 772', South 1101', and Southeast 1252' and 1314'. Engineered sound walls no less than 16' tall will be used along the western, northern, southern and eastern sides for well pad A30-01 to mitigate noise impacts to these residences. Sound wall gaps will be strategically placed to adequately protect residences yet allow proper air-flow across the drill pad. The use of equipment specific sound walls will be used as necessary around rig generators in the event of sound impacts during operations. The rig will be oriented on the location so that the pieces of equipment that generate the highest noise levels will face away from the closest building unit owners. Additional sound mitigation such as interior free-standing walls and fit-for-purpose sound curtains will be installed around drilling and completions (frac) equipment to protect nearby building units, as needed. Water will be piped into location to reduce the noise associated with heavy-duty trucks.
- An alternative base fluid will be used for the oil-based mud (OBM) in a designated setback location. The alternative fluid has lower BTEX levels, is considered Non-Flammable or Combustible by OSHA/WHMIS criteria and is classified as a non-regulated material by the USDOT. More importantly, this alternative base fluid has a higher flash-point than normal diesel base fluid, which limits the odor causing vapor associated with OBM. Supplementary odor mitigation efforts would be used in response to landowner complaints. OBM is managed in a closed-tank system and OBM cuttings are containerized on-pad in three-sided high-walled steel bins, then mixed with clean dirt fill to reduce liquid content and odor, and hauled from the drill site on a daily basis.

Summary: Noble Energy provided BMPs that address possible impacts to building units within 1,500' of the location. The BMPs include recent communication with the nearest building units, sound walls on all four sides of the location, lighting directed downward, and use of low VOC/BTEX OBM.

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

Site Specific Description of Applicability of Criteria 5c: Based on the technical review and desktop evaluation, the location has an irrigation ditch 26 feet east of the edge of the location.

Site Specific Measures to Address Criteria 5c: The Operator provided the following BMPs to mitigate possible impacts to both nearby surface water features and possible shallow groundwater nearby ditch:

- Leak Detection Plan: Operator will monitor well pads and associated equipment on a regular basis to identify fluid leaks, including, but not limited to daily, monthly and annual

visual inspections of all wellheads, equipment and fittings (production storage tanks and processing equipment are not located at the A30-01 drill pad) and Operator will perform maintenance if it is deemed necessary through inspection. FLIR-specific inspections of well heads are performed at well start-up. Annual spill prevention inspections at the well pad will be conducted and documented. Annual flowline testing will also occur according to COGCC Rules 1101 and 1102. Automation technology is utilized to monitor any variations in pressures and fluid gauges which could indicate a leak at the well head or flow lines to the production facility. In addition, automation provides remote shut-in capabilities in the event of an emergency.

- Housekeeping will consist of neat and orderly storage of materials and fluids. Wastes will be temporarily stored in sealed containers and regularly collected and disposed of at offsite, suitable facilities. If spills occur prompt cleanup is required to minimize any commingling of waste materials with stormwater runoff. Routine maintenance will be limited to fueling and lubrication of equipment. Drip pans will be used during routine fueling and maintenance to contain spills or leaks. Any waste product from maintenance will be containerized and transported offsite for disposal or recycling. There will be no major equipment overhauls conducted onsite. Equipment will be transported offsite for major overhauls. Cleanup of trash and discarded materials will be conducted at the end of each work day. Cleanup will consist of patrolling the roadway, access areas, and other work areas to pickup trash, scrap debris, other discarded materials, and any contaminated soil. These materials will be disposed of properly.
- Stormwater BMP's will be constructed around the perimeter of the site prior to, or at the beginning of construction. The location will be constructed to promote sheet-flow and infiltration. Topography and construction layout would allow the A30-01 location to be graded in a manner that diverts stormwater away from the irrigation/borrow ditches along County Road 66 and County Road 51 (North and East). Accordingly, the location will be constructed and graded to capture and divert stormwater into a temporary sediment trap with discharge points proposed to be on the east and south sides of the location (surface topography naturally slopes to the southeast). Additionally, the entire location, including sediment trap discharge point(s), will be surrounded by sediment wattles to ensure stormwater goes through two BMPs prior to surface discharge. At the conclusion of initial construction activities, the location will be seeded and mulched to promote long-term stabilization. Waddles will remain in place until the site has been stabilized, and the sediment trap will remain in place until construction is complete (when it will be reclaimed with the pad following drilling and well completion activities). Any future construction activities will preserve stabilized areas to the extent possible and employ BMPs in similar "treatment train" layouts.
- Shallow Groundwater and Surface Water Protection: Grading and drainage of the well pad will be engineered with structural controls to ensure flow to the perimeter channel and into a sediment-trap structure protecting downgradient surface water features (irrigation ditches). In the event of a spill or leak, Operator will investigate the extent of the impacts to determine if groundwater has been impacted. The investigation could include sampling groundwater from within an excavation, drilling and sampling

temporary well points or permanent wells, or sampling existing wells, as necessary. If impacts are identified, the extent of the impacts will be delineated and will be remediated to Table 910 standards under an approved Form 27.

- Operator will construct the A30-01 drill pad with 4-6" of clay and 3-5' of road-based cuttings. In addition to the road-based cuttings, Operator will use a 30-mill geosynthetic liner to underly the drill rig, cuttings and mud storage areas. All surficial activities performed by the operator during well drilling and completion activities will be protective of the environment. Bulk liquids used during D&C activities will be containerized in appropriate sealed vessels and underlain by an impervious liner and containment berm capable of containing any spill or leak from that vessel. Valves and temporary flow lines associated with D&C activities will be inspected daily for leaks while in service.

Summary: Noble Energy provided BMPs that address possible impacts to the nearby surface water feature (existing irrigation ditch) and possible shallow groundwater.

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.