CIVITAS

Extraction Oil and Gas, Inc

T-Bone XOG-28 Pad
Odor Mitigation Plan

Section 28, Township 5 North, Range 66 West
Weld County, CO

Potential Receptors

The operator will strive to minimize or eliminate odor from being a nuisance to the Residential Building Units (RBUs) within 2000' of the proposed working pad. Prevailing wind direction is coming from the north at this location *(source: Western Regional Climate Center, Greeley Airport)*. The highest risk for odor nuisances would be for the residential building units to the south of the pad.

Development Phase

The operator will comply with the requirements of Colorado Energy and Carbon Management Commission (ECMC) Rule 426 during development through the mitigation methods outlined below. In addition to what is being proposed, the operator reserves the right to incorporate evolving technologies aimed at reducing odor during operations should conditions warrant additional controls. The operator will endeavor to prevent odors from emanating from the Oil and Gas Location by proactively addressing known sources of odor – i.e., drilling mud.

The operator will use a filtration system and additives to the drilling and fracturing fluids to minimize odors. Use of fragrance to mask odors is prohibited. In order to meet the requirements of ECMC Rule 426, The operator shall implement the following measures:

- The operator shall utilize a closed-loop, pit-less mud system for managing drilling fluids.
- The operator shall employ the use of drilling fluids with low to negligible aromatic contact (IOGP Group III) during drilling operations after the surface casing is set and freshwater aquifers are protected.
- The operator shall remove drill cuttings daily and as soon as waste containers are full.
- The operator shall employ pipe cleaning procedures when removing drill pipe from the hole; these procedures may include "wiping" the pipe before racking it in the derrick.

In the event a person living in a residential Building Unit within 2000' or in the direction of prevailing winds from the Oil & Gas Location's working pad surface complains of odor, The operator shall assess current operations and atmospheric conditions at the time of the complaint to determine whether the odor may have been caused by the operator's operations. Once a preliminary determination is made, the operator will provide its findings to the complainant, the Director, and Relevant or Proximate Local Government within 24 hours. If the complaint is justified and unable to be resolved, the operator will work with the Director on necessary and reasonable actions to reduce odor including but not limited to the following:

- The operator may utilize a mud-chiller to reduce odor breakout.
- The operator may increase concentration of odor-mitigating additives in mud system.

Production Phase

The operator will comply with the requirements of ECMC Rule 426 during development by utilizing the following best management practices outlined below. The primary source of odors during the production phase is gas that is vented during maintenance or normal production operations.

- The operator will install an oil pipeline to the location prior to first production. Reducing odor emissions associated with truck traffic and the transfer of oil from storage tanks to tanker trucks.
- The operator will utilize compressed air pneumatics for all pneumatic actuation on location. Eliminating the use of natural gas vented to the atmosphere during valve actuation and associated processes.
- The operator will utilize a pressurized maintenance vessel during maintenance operations. Eliminating gas that would otherwise be vented to the atmosphere during maintenance operations.
- The operator will electrify the permanent production facilities.

Additional Air Quality Requirements

The operator will submit an Air Monitoring plan to the Colorado Department of Public Health and Environment which will be approved prior to construction. The air monitoring will be in place prior to construction through 6 months of production.

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Proposed Best Management Practices

1. The operator will use a filtration system and additives in the drilling and fracturing fluids that minimize odors.

2. The operator shall utilize a closed-loop, pit-less mud system for managing drilling fluids.

3. The operator shall employ the use of drilling fluids with low to negligible aromatic content (IOGP Group III) during drilling operations after the surface casing is set and freshwater aquifers are protected.

4. The operator shall remove drill cuttings daily and as soon as waste containers are full.

5. The operator shall employ pipe cleaning procedures when removing drill pipe from the hole; these procedures may include “wiping” the pipe before racking it in the derrick.

6. If a justified complaint is received, the operator may utilize a mud-chiller to reduce odor breakout and increase concentration of odor-mitigating additives in mud system.

7. The operator will install an oil pipeline to the location prior to first production. Reducing air emissions associated with truck traffic and the transfer of oil from storage tanks to tanker trucks.

8. The operator will utilize compressed air pneumatics for all pneumatic actuation on location. Eliminating the use of natural gas vented to the atmosphere during valve actuation and associated processes.

9. The operator will utilize a pressurized maintenance vessel during maintenance operations. Eliminating gas that would otherwise be vented to the atmosphere during maintenance operations.