

Objective Criteria Review Memo - Crestone Peak Resources Operating LLC

Schuh 3-65 21-20 3BH -- Form 2 Application for Permit to Drill (APD) Doc# 402466799

Schuh 3-65 21-20 -- Form 4 Sundry to update Location BMPs Doc# 402500883

Approved Form 2A Oil & Gas Location Assessment (Doc# 401716922, approved 10/2/2018)

Location ID# 457713

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 was approved 10/2/2018 and built shortly thereafter and had one well drilled. Crestone has since submitted this subject refile APD (one of three 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 is one building unit within 1500' of the location.
2. (Criteria 2) Oil and Gas Locations within a municipality. The location is within the Aurora City boundaries.
3. (Criteria 5c) Oil and Gas Locations within: a Sensitive Area for water resources. The location is within an area of estimated shallow groundwater (12' bgs).
4. (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 nine 750 bbl tanks with a total volume of 6750 bbls.

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 is one building unit within 1500' of the location.

Site Specific Measures to Address Criteria 1: The single building unit within 1500' is owned by the surface owner. The owner received notification in January 2018 during the local permitting process. No comments were received during that process. One well was drilled on this location. No complaints were received by the Operator or COGCC during the drilling and completion of the first well.

The Operator provided the following BMPs to mitigate the location being within 1500' of a building unit:

- Lighting Mitigation: Light sources during all phases of operations will be directed downward or shielded so no light pollution leaves the facility.
- Dust Control Measures: road base, rock and recycled asphalt to assist with dust abatement during construction, drilling, completions and reclamation phases. If needed, run water trucks will be used on the lease road and county road.
- Noise Mitigation: Operator will perform a baseline noise survey prior to any operational activity and install temporary 32 foot sound walls and will install permanent noise mitigation at the location if determined it is necessary based on results from the baseline noise survey.
- Odor Mitigation: Drilling rig and completion engine exhausts are pointed straight up so as not to be directed towards any occupied buildings. Group 3 oil-based mud and mud chillers will be used.

Summary: Crestone provided BMPs that address possible impacts to the building unit within 1500' of the location. The BMPs include lights shielded or directed downward, Group 3 oil-based drilling mud, road base to control dust, and a sound survey prior to operations.

Criteria 2: Oil and Gas Locations within a municipality.

Site Specific Description of Applicability of Criteria 2: The location is within the Aurora City boundaries.

Site Specific Measures to Address Criteria 2: The local permit for this location was filed on 3/1/2018. The Oil and Gas Permit was approved on 6/6/18, Case No. is 2018-6012-00. An Emergency Response Plan was submitted and approved by the City of Aurora with the Oil and Gas Permit. The City of Aurora Fire Department will respond if necessary.

Summary: The location was approved with the City of Aurora through the issuance of a Oil and Gas Permit on 6/6/2018. The location has since been built and one well drilled.

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

Site Specific Description of Applicability of Criteria 5c: The location is within an area of estimated shallow groundwater (12' bgs).

Site Specific Measures to Address Criteria 5c: The Operator has provided the following BMPs to mitigate being located in an area of estimated shallow groundwater:

- Rig Liner: Operator places RPE Liner with 10oz Geomembrane under all mud tanks, as well as the surface and production rig to catch any releases that may occur.
- Tank and Separator Containment: Operator utilizes 27" tall corrugated galvanized metal berm walls with a capacity in excess of 150% of the largest tank contained within the wall and impervious liners that extends under each storage tank and up the walls.

Separators will be contained within 22" tall metal berms built on compacted, Class 6 fractured granite road base with 95% compaction.

- Remote Monitoring/Shut-in Capabilities: The tank battery will be built with remote shut-in capabilities via automation such that if tank levels approach their max tank level set point, if a vapor recovery tower approaches its max fluid level set point, or if a separator approaches its max pressure set point, alarms will be sent to field personnel. If any of those max set points are reached, the well in question will be automatically shut-in.
- Stormwater Management Controls: Operator will utilize BMPs at the location to control stormwater runoff in a manner that minimizes erosion, transport of sediment offsite, site degradation, and protects surface waters. BMPs to be implemented include, but are not limited to: a diversion ditch the well pad and around the topsoil and spoils storage, sediment basins, sediment control logs and rock socks/wattles. The City approved the Operator's Stormwater Management Plan on May 18, 2018.

Summary: Crestone provided BMPs that address possible impacts to shallow groundwater. The BMPs include a geomembrane under the drilling rig, automation for the tank battery, lined containment for tank and separator area, and stormwater management controls approved through the local municipality.

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 nine 7500 bbls tanks with a total volume of 6750 bbls.

Site Specific Measures to Address Criteria 8: In addition to the BMPs discussed with Criteria 5c, the Operator provided the following information regarding emergency response for the location:

- An Emergency Response Plan was submitted and approved by the City of Aurora with the Oil and Gas Permit. The City of Aurora Fire Department will respond if necessary.

Summary: Crestone provided BMPs that address possible impacts to having more than 5200 bbls of planned on-site storage volume. The BMPs include automation for the tank battery, lined containment for tank area, and an emergency management plan approved through the local municipality.

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.