

Objective Criteria Review Memo - Great Western Operating Company

Edmundson LE 33-082HC -- Form 2 Application for Permit to Drill (APD) Doc# 401647382

Edmundson 30 -- Form 4 Sundry to update Location BMPs Doc# 402556091

Approved Form 2A Oil & Gas Location Assessment (Doc# 401290161, approved 2/4/2018)

Location ID# 453934

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 24 APDs were approved for this location on 2/4/2018. Great Western has since submitted this subject APD (one of four 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 approximately 1490' from the edge of the location.
2. (Criteria 3) Oil and Gas Locations within 1,500' of a municipal boundary, platted subdivision, or county boundary. The location is approximately 105' from the boundary of unincorporated Adams County and Brighton.
3. (Criteria 5a) Oil and Gas Locations within: a Floodplain or a Floodway. The southern part of the location is located within a mapped floodplain.
4. (Criteria 5b) Oil and Gas Locations within: an identified public drinking water supply area (e.g., Rule 317B buffer zone, or the Brighton Public Water System). The location is located within the Brighton 1-189 Buffer Zone.
5. (Criteria 5c) Oil and Gas Locations within: a Sensitive Area for water resources. The location is 370' from Third Creek.
6. (Criteria 6) Oil and Gas Locations within a Colorado Parks and Wildlife ("CPW") mapped Restricted Surface Occupancy Area ("RSO") or Sensitive Wildlife Habitat ("SWH"), or locations receiving site- or species-specific CPW comments. On the previously approved Form 2A, CPW commented regarding concerns about Third Creek riparian areas and raptor nesting.
7. (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 12 oil tanks and 4 water tanks with a combined volume of 8,528 bbls.
8. (Criteria 12) Oil and Gas Locations with an access road (the road constructed from the public road to the Oil and Gas Location) within a RSO, SWH, 317B buffer zone, or within 200' feet of a Building Unit on lands not subject to a Surface Use Agreement. The location's access road is approximately 120' from a building unit.

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 approximately 1490' from the edge of the location.

Site Specific Measures to Address Criteria 1: The Operator provided the following BMPs to mitigate being located within 1500' of a building unit (and within 2000' of seven total building units, including the Adams County Government building):

- Light Mitigation: In addition to sound walls, light sources will be directed downwards, and away from occupied structures. No permanently installed lighting on site once in production.
- Odor Mitigation: rig and completion equipment engine exhaust shall be directed up and away from the occupied buildings located to the north and northwest of the location to mitigate odor emissions from the Location. Sealed tanks with pressure relief valves and emissions control devices shall be utilized throughout the production phase of the Location. Great Western uses an oil-based mud that meets the requirement for Group III classification and, if necessary, uses a masking agent to assist with odor mitigation.
- Noise Mitigation: construct sound/visual walls that will be placed along the edges of the pad. The walls will be 32' high and have a PVC coated outer shell with multiple layers of acoustical fabric/cladding in between. Great Western will utilize quiet completions fleets at this location.
- Dust Mitigation: Dust mitigation measures shall include but are not limited to the use of speed restrictions, regular road maintenance, restrictions of construction activities during high wind days, and silica dust controls when handling sand used in hydraulic fracturing operations. The access road will be constructed with road base aggregate material.
- Pipeline Takeaway: Rocky Mountain Midstream will be taking the oil and gas from this location.

As this was not a Buffer Zone location when originally permitted, communication with surrounding building units from the Operator has been limited. There was a neighborhood meeting to discuss the location on 8/3/2017. Communications since have been focused towards the different government entities (Adams County & City of Brighton) and the building unit closest to the access road (see Criteria 12 discussion below for more information).

Summary: Great Western provided BMPs that address possible impacts to the building unit within 1500' of the location. The BMPs include 32' sound walls around the location, pipeline takeaway for oil & gas, quiet frac fleet for completions, dust mitigation measures, and Group III oil-based mud.

Criteria 3: Oil and Gas Locations within 1,500' of a municipal boundary, platted subdivision, or county boundary.

Site Specific Description of Applicability of Criteria 3: The location is approximately 105' from the boundary of unincorporated Adams County and Brighton.

Site Specific Measures to Address Criteria 3: Adams County approved the ASUR permit for this location on 2/22/2018. The Operator has had recent communications with Adams County regarding this location. They're aware of the current plans and approved an access permit for the location at the end of October 2020. The Operator will continue to update Adams County on any plans related to this location.

The Operator has not had specific conversations with the City of Brighton regarding this location, but rather has discussed the location with the City of Brighton as part of their ongoing conversations regarding all of their operations in and around the City of Brighton. Additionally, the COA on the Form 2A for this location requires enhanced protection measures due to the location being within the Buffer Zone of the Brighton Public Water System.

Summary: Great Western has been in general contact with both the Relevant and Proximate local governments regarding this location. The Operator provided BMPs to mitigate effects to the residents of both local governments. The BMPs include 32' sound walls around the location, pipeline takeaway for oil & gas, quiet frac fleet for completions, dust mitigation measures, Group III oil-based mud, and protective measures outlined in a COA for being located within the Buffer Zone of the Brighton Public Water System.

Criteria 5a: Oil and Gas Locations within: a Floodplain or a Floodway.

Site Specific Description of Applicability of Criteria 5a: The southern part of the location is located within a mapped floodplain.

Criteria 5b: Oil and Gas Locations within: an identified public drinking water supply area (e.g., Rule 317B buffer zone, or the Brighton Public Water System).

Site Specific Description of Applicability of Criteria 5b: The location is located within the Brighton 1-189 Buffer Zone.

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

Site Specific Description of Applicability of Criteria 5c: The location is 370' from Third Creek.

Site Specific Measures to Address Criteria 5a, 5b, 5c: The Operator provided the following BMPs to mitigate being located in a floodplain, a sensitive area for water resources, and in the Brighton Public water system Order 1-189 Buffer Zone:

- Site Inspections: weekly AVO site inspections of the location for leaks and spills.

- Separator Area Containment: Steel containment around the separator area. The units will be placed on concrete blocks and compacted road base will be used to fill in the rest of the area.
- Floodplain Equipment Anchoring: Tanks and separation equipment will be anchored to the ground. Anchors will be installed to support the tank and separation equipment to resist flotation, collapse, lateral movement, or subsidence per COGCC Rule 603(h)(2)(B).
- Drilling Rig Liner: Great Western will utilize a rig liner during drilling operations at this location. It will be a reinforced polyethylene liner that is, at its core, 30 mils thick.

Being located within the Buffer Zone of the Brighton Public Water System, the following items are included as a COA:

- A steel containment berm or structure will be erected around the tank area with a synthetic or engineered liner. The berm will enclose an area sufficient to contain and provide secondary containment for 150% of the largest single tank.
- Remote monitoring and shut-in capabilities.
- Tertiary containment, such as an earthen site berm, is required around the downgradient and side-gradient portions of Production Facilities, including process vessels, in addition to the planned site specific stormwater controls.

Summary: BMPs and COAs that address possible impacts to the floodplain, the Buffer Zone of the Brighton Public Water System, and a sensitive area for water resources. The BMPs include: weekly inspections, containment for tank and separator areas, liner for the drilling rig, floodplain equipment anchoring, remote monitoring/shut-in capabilities, oil pipeline takeaway, and tertiary containment.

Criteria 6: Oil and Gas Locations within a Colorado Parks and Wildlife (“CPW”) mapped Restricted Surface Occupancy Area (“RSO”) or Sensitive Wildlife Habitat (“SWH”), or locations receiving site- or species-specific CPW comments.

Site Specific Description of Applicability of Criteria 6: On the previously approved Form 2A, CPW commented regarding concerns about Third Creek riparian areas and raptor nesting.

Site Specific Measures to Address Criteria 6: The Operator has stated they will avoid Third Creek and any riparian areas.

Additionally, a site visit was conducted by Olsson Associates (Olsson) on July 30, 2020 to determine whether raptor nests are present within 0.50-mile of the Project area as access allowed (and from public roadways surrounding the Project site where land access was not available) to determine the presence of previously established raptor nests, potential raptor nest habitat, and previously unrecorded nests. During the site visit, threatened and endangered species habitat was also recorded. No raptor nests were observed within 0.50-mile of the Project area.

Summary: In response to CPW's recommendation, Great Western's operations will avoid Third Creek and any riparian areas and a site survey conducted on 7/30/2020 found no raptor nest within half a mile of 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 12 oil tanks and 4 water tanks with a combined volume of 8,528 bbls.

Site Specific Measures to Address Criteria 8: In addition to the BMP's and COA's discussed in the Criteria 5a, 5b, & 5c discussion the Operator provided the following information regarding emergency response for this location:

- Brighton Fire Protection District approved an Emergency Action Plan during the AUSR process. Additionally, an updated TRP Card and Emergency Action Plan for this location was sent to them on October 16th, 2020.

Summary: Great Western provided BMPs that address possible impacts to having more than 5200 bbls of storage capacity on location. The BMPs include: weekly inspections, containment for tank area, remote monitoring/shut-in capabilities, tertiary containment, oil pipeline takeaway, and an approved emergency action plan with local emergency responders.

Criteria 12: Oil and Gas Locations with an access road (the road constructed from the public road to the Oil and Gas Location) within a RSO, SWH, 317B buffer zone, or within 200' feet of a Building Unit on lands not subject to a Surface Use Agreement.

Site Specific Description of Applicability of Criteria 12: The location's access road is approximately 120' from a building unit.

Site Specific Measures to Address Criteria 12: The Operator provided the following description of the communication with the impacted building unit:

- Great Western has had recent communications with the folks that live in the house near our access road. They are very aware of our plans for the location and the truck traffic that will be accessing the site. All conversations have been very amenable, and they indicated no concerns about any of our operations. They are also aware of our Community Relations phone number and email address, which they can use to contact us at any time with any questions or concerns they might have.

The Operator also provided an improved dust mitigation BMP to address possible impacts to this building unit:

- Great Western will implement speed restrictions, regular road maintenance, restrictions of construction activities during high wind days, and silica dust controls when handling sand used in hydraulic fracturing operations. The access road will be constructed with

road base aggregate material and additional management practices such as road surfacing, wind breaks, and barriers may be used. Additionally, a street sweeper and/or water tank will be on call to limit dust when necessary.

Summary: Great Western has been in communication with the building unit within 200' of the access road to this location and provided Community Relations contact information. Additional BMPs to mitigate access road impacts include: speed restrictions, access road constructed with road base aggregate, and an on-call streetsweeper/water truck to further limit dust.

Additional Information:

During Director Review, the following COAs were added to the Form 4 Sundry to update Location BMPs Doc# 402556091:

- COA: Operator will comply with all COA's and BMP's on the previously approved Form 2A (doc# 401290161) by Ward Petroleum Corporation, in addition to all BMP's and COA's on the most recently approved Form 4 Sundry (doc# 402556091). If there is a conflict between COA or BMP language, the most recently approved COA or BMP will be followed.
- Noise COA: Prior to commencement of construction operations, Operator will submit via Form 4, Sundry Notice for Director approval of a noise mitigation plan. The plan will describe how the Operator will achieve compliance with Rule 423, as adopted by the Commission on November 23, 2020.
- Lighting COA: Prior to commencement of construction operations, Operator will submit via Form 4, Sundry Notice for Director approval of a lighting mitigation plan. The plan will describe how the Operator will achieve compliance with Rule 424, as adopted by the Commission on November 23, 2020.
- Odor COA: Prior to commencement of construction operations, Operator will submit via Form 4, Sundry Notice for Director approval of an odor mitigation plan. The plan will describe how the Operator will achieve compliance with Rule 426, as adopted by the Commission on November 23, 2020.
- Dust COA: Prior to commencement of construction operations, Operator will submit via Form 4, Sundry Notice for Director approval of a dust mitigation plan. The plan will describe how the Operator will achieve compliance with Rule 427, as adopted by the Commission on November 23, 2020.

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.