

Objective Criteria Review Memo Kerr-McGee Oil & Gas Onshore LP PROWANT 4-18HZ PAD Form 2A, Document #401810307

This summary explains how COGCC staff conducted its technical review of the Kerr-McGee Oil & Gas Onshore LP (KMG), PROWANT 4-18HZ PAD, Form 2A, document #401810307, within the context of SB 19-181 and for the required Objective Criteria. This is a new Location for eight (8) wells and no planned production facilities. The proposed construction of this Location meets the following Objective Criteria:

OBJECTIVE CRITERIA MET

- (Criteria #1) Location lies within 1,500 feet of eight Building Units (BUs);
- (Criteria #3) Location lies within 1,500 feet of a municipal boundary, platted subdivision, or county boundary; and
- (Criteria #5.c) Location lies 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 feet of a Building Unit

Site Specific Description of Applicability of Criteria 1: The Location is within 1,500 feet of eight Building Units (seven homes and one commercial office). The closest building unit is approximately 300 feet southeast of the Location and is owned by the KMG.

Site Specific Measures to Address Criteria 1: The nearest Building Unit is owned by Anadarko. KMG has confirmed this Building Unit is vacant and will remain vacant until development of the location is completed.

KMG held a community meeting on October 16, 2019. Invitations were sent out to BU occupants within one mile of the location. A total of 258 invites were sent out with 26 people attending. Per KMG, sentiment from the meeting was positive. In December 2019 KMG again sent out invitations for a second community meeting. Invitations were sent out to BU occupants within 2,000 feet of the location and everyone residing in the Indianhead West subdivision. This second community meeting was held on December 12, 2019. Both COGCC and CDPHE attended this second community meeting and answered questions regarding the drilling and location permits and the recent CDPHE Health Study. Questions posed to KMG by the attendees included concerns with haul routes, noise impacts, and planned mitigation measures. The primary concern was regarding the timing of KMG's operations as the residents want KMG to avoid drilling and well completion activities during the

summer months so as not to disturb their outdoor activities. Per KMG, construction of the location is planned to commence no later than mid-January 2020, production drilling will commence in March 2020. KMG would then return to the location in December 2020 to conduct well completions. Attendees also expressed interest in KMG's planned air monitoring program for this location.

KMG also provided the following BMPs on the Form 2A to mitigate impacts from nuisance conditions to the occupants of the Building Units.

1) Dust: Water will be placed on dirt access roads to mitigate dust as needed. Magnesium chloride will also be used as needed on access roads to further abate dust.

2) Noise: Sound surveys have been conducted on each rig type and are utilized to anticipate any additional effective noise mitigation once a drilling rig is determined. At a minimum, and pending a safety review after construction of the location, sound mitigation barriers (sound walls) will be placed around the well pad with the exception of the very southwestern portion of pad location to dampen noise and minimize impact to the nearby residences and to Weld County Road 13 / Larimer County Road 1 and Highway 34 during drilling and completions. Should technological advancements allow for better noise mitigation at the time of drilling and completion operations on this location, Kerr-McGee will re-evaluate the most effective method at that time.

3) Odors: KMG will comply with the provisions of 805.b. Additional BMPs for the Prowant 4-18HZ location are: 1) the storage of excess drilling fluid (e.g., fluid not being used in the active mud system) in closed, upright tanks; and 2) the use of an odor neutralizer in the active mud system.

4) Lights: Site lighting shall be shielded and directed downward and inward toward operations to avoid glare on public roads and nearby Building Units.

Criteria 1 Summary:

KMG has sent out notices and held neighborhood meetings for all BU owners and residents within 2,000 feet of the location. KMG has also provided BMPs for avoiding or minimizing impacts to the public health, safety, and welfare of nearby residents from nuisance conditions.

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

Site Specific Description of Applicability of Criteria 3: The Location is approximately 350 feet from the Windsor municipal boundary, 450 feet from the Johnstown municipal boundary, 1,300 feet from the Indian Head subdivision, and approximately 235 feet from the Larimer County line.

Site Specific Measures to Address Criteria 3: KMG indicated they notified Larimer County, Johnstown, and Windsor as part of the WOGLA process and that none of those municipalities provided comments on the proposed operations.

KMG held a community meeting on October 16, 2019. Invitations were sent out to BU occupants within one mile of the location including the IndianHead subdivision. A total of 258 invites were sent out with 26 people attending. Per KMG, sentiment from the meeting was positive. In December 2019 KMG again sent out invitations for a second community meeting. Invitations were sent out to BU occupants within 2,000 feet of the location and everyone residing in the Indianhead West subdivision. This second community meeting was held on December 12, 2019. Both COGCC and CDPHE attended this second community meeting and answered questions regarding the drilling and location permits and the recent CDPHE Health Study. Questions posed to KMG by the attendees included concerns with haul routes, noise impacts, and planned mitigation measures. The primary concern was regarding the timing of KMG's operations as the residents want KMG to avoid drilling and well completion activities during the summer months so as not to disturb their outdoor activities. Per KMG, construction of the location is planned to commence no later than mid-January 2020, production drilling will commence in March 2020. KMG would then return to the location in December 2020 to conduct well completions. Attendees also expressed interest in KMG's planned air monitoring program for this location.

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- 3) Odors: KMG will comply with the provisions of 805.b. Additional BMPs for the Prowant 4-18HZ location are: 1) the storage of excess drilling fluid (e.g., fluid not being used in the active mud system) in closed, upright tanks; and 2) the use of an odor neutralizer in the active mud system.
- 4) Lights: Site lighting shall be shielded and directed downward and inward toward operations to avoid glare on public roads and nearby Building Units.

Criteria 3 Summary:

KMG received no comments from Larimer County, Johnstown, and Windsor on their proposed operations. KMG has sent out notices and held neighborhood meetings for all BU owners and residents within 2,000 feet of the location. KMG has also provided BMPs for avoiding or minimizing impacts to the public health, safety, and welfare of nearby residents from nuisance conditions.

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

Site Specific Description of Applicability of Criteria 5.c: The Location is within a Sensitive Area for water resources. The closest down gradient surface water feature is an irrigation ditch 304 feet west. There are other irrigation ditches that are closer (44 feet northwest, 85 feet northwest, and 155 feet north), but they are topographically upgradient of the location.

Site Specific Measures to Address Criteria 5.c: KMG provided the following BMPs on the Form 2A to protect groundwater from impacts during well drilling and completion activities.

1) In order to prevent incidental spills from impacting groundwater a liner will be placed beneath the rig during drilling. During completions secondary containment (liners) will be in place for heavy equipment, transfer manifolds and tanks (excluding fresh water tanks).

2) Leak Detection Plan: Automation technology will be utilized at this facility. This technology includes the use of fluid level monitoring for the tanks and produced water sumps, high-level shut offs, and electronic sensors to monitor the interstitial space of double-walled produced water sumps. All automation is monitored by Kerr-McGee's Integrated Operations Center (IOC), which is manned 24 hours per day, 7 days per week.

A Condition of Approval was applied to the Form 2A requiring KMG to construct berms or diversion dikes, use site grading, or other comparable measures, sufficient to protect the nearby irrigation ditches in proximity of the Location from releases of produced fluids and chemical products that could occur during drilling, completion, and production operations.

Criteria 5.c Summary:

KMG has provided BMPs for minimizing impacts to shallow groundwater. A COA has been applied to the Form 2A for the protection of the nearby surface water feature.

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.

