

**Objective Criteria Review Memo Kerr-McGee Oil & Gas Onshore LP DAMORE 5-18HZ PAD Form 2A, Document #401801129**

This summary explains how COGCC staff conducted its technical review of the Kerr-McGee Oil & Gas Onshore LP (KMG), DAMORE 5-18HZ PAD, Form 2A, document #401801129, within the context of SB 19-181 and for the required Objective Criteria. This is a new Location for eight (8) wells, 9 tanks, 23 separators, and other 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;
- (Criteria #5.c) Location lies within a Sensitive Area for water resources; and
- (Criteria #8) Location with storage of hydrocarbons or produced liquid in more than 18 tanks

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 12 Building Units (eight homes and four commercial office spaces). The closest building unit is approximately 239 feet northeast of the Location and is owned by the Anadarko.

**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 November 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 entire perimeter of the pad location to dampen noise and minimize impact to the nearby residences and to Weld County Roads 13 and Larimer CR 1 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 Damore 5-18HZ 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 1,300 feet from the Windsor municipal boundary, 1,300 feet from the Johnstown municipal boundary, 1,400 feet from the Indian Head subdivision, and approximately 100 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 November 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 entire perimeter of the pad location to dampen noise and minimize impact to the nearby residences and to Weld County Roads 13 and Larimer CR 1 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 Damore 5-18HZ 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 the Farmers Ditch which splits the location with the Prowant production facilities north of the ditch and the Damore wells and production facilities south of the ditch. There is also another irrigation ditch 52 feet south 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.
- 3) Tank Specifications: A geosynthetic liner will be laid under the tanks on this location and a steel containment will be constructed.
- 4) Berm Construction: A geosynthetic liner will be laid under the tanks on this location and a metal containment will be constructed. Berms or other secondary containment devices will be constructed around crude oil, condensate, and produced water storage tanks and shall enclose an area sufficient to contain and provide secondary containment for 150% of the largest single tank. Berms and other secondary containment devices shall be inspected at scheduled intervals and maintained in good condition. Kerr-McGee will create tertiary containment by construction of a berm or diversion dike, site grading, or other comparable measures sufficient to further protect the Farmers Ditch located between the drill pad and Prowant Production facility, and the unmanned irrigation ditch located 52 feet south of this proposed oil and gas location.

5) During the construction phase, we will ensure that on pad compaction is adequate as to serve as a secondary barrier to protect shallow groundwater and prevent the migration of spills or leaks to shallow groundwater. 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).

**Criteria 5.c Summary:**

KMG has provided BMPs for minimizing impacts to nearby surface water features and groundwater.

**Criteria #8:** Oil and Gas Locations with storage of hydrocarbon or produced liquid in more than 18 tanks.

**Site Specific Description of Applicability of Criteria 8:** KMG has proposed this location to have 2 permanent condensate tanks, 7 permanent water tanks, and 8 temporary water tanks.

**Site Specific Measures to Address Criteria 8:** KMG has indicated the 8 temporary water tanks will be onsite during the initial high water phase at the onset of production and will be removed as the volume of produced water drops. The temporary tanks will also have emission control in place. It is anticipated these produced water tanks will be on the location for approximately 9 to 12 months. Once gone, the location will have no more than 9 tanks as the produced fluids will be primarily piped from the location.

KMG has provided the following BMPs on the Form 2A related to the storage tanks.

1) Tank Specifications: A geosynthetic liner will be laid under the tanks on this location and a steel containment will be constructed. Storage tanks will be designed, constructed and maintained in accordance with National Fire Protection Association (NFPA) Code 30 (2008 version).

2) Leak Detection: 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.

KMG also has an approved WOGLA from Weld County. The WOGLA requires an Emergency Action Plan be included and coordination with local emergency responders in case of fires or explosions.

**Criteria 8 Summary:**

KMG proposes to have more than 18 tanks on the location only temporarily during the initial high water phase of production. Once this high water phase of production ends, KMG will have no more than 9 tanks on the location. KMG has provided BMPs for minimizing impacts to nearby residents from the storage tanks.

**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.