



Extraction's Response to Public Comments on Extraction's COGCC Form 2A for Interchange A&B, Northwest A, and Northwest B

Requested by: COGCC
Submitted by: Extraction Oil & Gas
Date: 07/23/2018

1. **Please clarify the apparent confusion between Extraction's agreement (CDP and MOU) with Broomfield and the COGCC permitting process.**

The Broomfield Municipal Code provides two available methods for obtaining a local permit approval for oil and gas development within the municipality. The first method is a Use by Special Review application. The second method is seeking an administrative approval by memorandum of understanding. When seeking an administrative approval by memorandum of understanding ("MOU" or "Operator Agreement") the operator first enters into an Operator Agreement with the City, with enhanced standards that may exceed local and state regulations. Once the Agreement is approved by the City, the applicant/operator is required to follow the terms of the Agreement as well as provide the submittal requirements set forth in the Use by Special Review criteria of the Broomfield Municipal Code. The Use by Special Review criteria (which includes various mitigation plans) together with the terms of the Agreement comprise what is called a Comprehensive Drilling Plan or "CDP," as described and defined in Section 9 of the Operator Agreement.

The CDP functions as a local process compliance document specific to the requirements set forth in the Operator Agreement and the Broomfield Municipal Code. The CDP includes various baseline studies and mitigation plans, and serves as the plan for Extraction's development. Extraction's CDP is different from a Colorado Oil and Gas Conservation Commission ("Commission" or "COGCC") Rule 216 Comprehensive Drilling Plan. The purpose of the Operator Agreement was to provide the local government and residents where the wells are located the opportunity to consult in the initial planning phase regarding the siting of the operations prior to engagement with the Commission, as has been the ongoing request by many local governments. On February 21, 2017, Broomfield held a Town Hall Meeting at the First Bank Center prior to execution of the Operator Agreement, at which Extraction engaged with Broomfield (the local government where siting was to occur), the Commission, the Colorado Department of Public Health and the Environment, and residents. The COGCC also held a forum on October 12, 2017.

The Broomfield local permitting process is separate and unrelated to the COGCC permitting process. The COGCC has its own permitting and approval process for the location assessment (Form 2A) as well as the application to drill (Form 2). Approval of the COGCC Form 2As or Form 2s is not linked to the Broomfield local process. Extraction's Operator Agreement with the City and County of Broomfield was approved by the City Council on October 24, 2017.

2. **Please prepare responses to address the concerns about site-specific nuisances, including traffic, noise, lights, odors, dust, etc. These responses can also point to BMPs on the Form 2As.**

- a. Traffic: Traffic will be routed to minimize local interruption. A traffic plan is required by the City and County of Broomfield and shall be coordinated with the local jurisdiction prior to commencement of move-in and rig-up. Fresh water and produced water and oil will be transported through a pipeline gathering system which will significantly reduce truck traffic. Also, Extraction will use a proppant delivery system, such as the Liberty PropX delivery system, that will reduce truck traffic, dust and noise impacts by improving the manner the proppant is transported.

In its Operator Agreement with the City and County of Broomfield, Extraction has agreed to restrict non-essential traffic to and from Well Sites from occurring during the time periods of 7-9a.m. and 3-6 p.m., which are considered peak traffic hours.

- b. Noise: Thirty-two-foot-high perimeter sound walls will be used during drilling and completion operations. Sound walls will be installed on the edges impacting nearest neighbors.

For this location, Extraction will use the Liberty Quiet Fleet or comparable technology from an alternative vendor on all Well Sites. The "Quiet Fleet" is a step change in noise mitigation during the completion process. Noise is significantly reduced during the completion phase of the wells.

Baseline noise monitoring will be conducted prior to commencement of pad construction. Additional sound mitigation measures will be considered and implemented pursuant to third-party recommendations. All noise survey data will be made available to the COGCC inspector upon request.

The Operator shall continuously monitor noise and continuously collect and store noise readings with instruments placed between the Oil and Gas Location and residential Building Units. The Operator shall conduct the monitoring and data collection during construction, drilling, and completions operations. This data shall be available to COGCC on tables or graphs within 48 hours of being requested by COGCC. The Operator shall conduct a 72-hour baseline noise survey from a minimum of three points prior to the commencement of construction.

To provide long-term noise mitigation at this location, all production equipment will be powered by electricity. If needed, sound mitigation panels will be installed around the compressors during production operations to shield sensitive areas.

Extraction is working with United Power to supply sufficient electrical power for the drilling rig to drill the wells. Easements are being procured from the Landowners and the existing infrastructure is being upgraded in order to handle the larger electrical loads. While Extraction plans on drilling these wells on electrical power only, the rig will have back-up diesel-powered generators in the event of an upset condition with the electrical supply from United Power. At that point, Extraction would use the diesel generators to power the rig until service from United Power was restored.

The use of pipelines to transport water, oil and gas will also minimize noise impacts associated from truck traffic.

- c. Lights: All lights will be directed downward, inward and shielded so light pollution is minimized during the Drilling and Completion Phases, consistent with applicable law.

Operator will construct a 32-foot high perimeter sound wall surrounding the well pads and operations area, as permitted, to reduce light escaping from the site.

The use of berms and hay bales together with the 32-foot high perimeter sound walls will also mitigate night time light associated with truck traffic.

- d. Odors: Oil and gas facilities and equipment shall be operated in such a manner that odors do not constitute a nuisance or hazard to public welfare. Extraction will use a mud cooling system to control the release of odors within the drilling and fracturing fluids. Odor-preventing additives will be on site for use if and when needed. Extraction will use a base fluid that will decrease the measurable aromatic properties by more than 50% of regular drilling fluid. Operator is prohibited from masking odors from any oil and gas facility site by using masking fragrances.
- e. Dust: During construction and through the life of this location, Extraction will utilize watering, via water trucks, to control fugitive dust. Additionally, the access road will be constructed with aggregate road base material and recycled asphalt, and vehicle speeds will be limited to 25 miles per hour to reduce dust.

Extraction shall employ practices for control of fugitive dust caused by its operations. Such practices shall include, but are not limited to, the use of speed restrictions, regular road maintenance, restriction of construction activity during high-wind days, and silica dust controls when handling sand used in hydraulic fracturing operations. Additional management practices such as road surfacing, wind breaks and barriers may be used.

As stated previously, Extraction will use a proppant delivery system such as the Liberty PropX delivery system that will reduce truck traffic, dust and noise impacts by improving the manner the proppant is transported.

- f. Emissions/Leak Detection: Saleable gas will not be flared, it will be sent downline. For maintenance or upset conditions a maintenance vessel and emission control devices will be utilized. Extraction will monitor production facilities weekly at a minimum to a maximum of daily to identify fluid leaks, including, but not limited to, visually inspecting all wellheads and equipment. As part of Extraction's Leak Detection and Repair (LDAR) program, all equipment including above ground flowlines and piping will be inspected quarterly with an infra-red camera for the first five years of production.
3. **Please prepare responses that addresses coordination with local emergency responders and the public's concerns about safety, explosion, fire risks, and proximity to schools. These responses can also point to BMPs on the Form 2As.**

Extraction maintains a Tactical Response Plan (TRP), also at times referred to as the Emergency Response Plan, which is designed to provide Extraction employees and designated Emergency Response Team (ERT) members with the information necessary to respond to incidents in a safe, rapid, effective, and efficient manner. The TRP is kept at Extraction's office and a copy is provided to the North Metro Fire Rescue District and the City of Broomfield. Extraction will place the TRP summary card in strategic places on the facilities

during specific operations, and copies of the summary card is provided to the North Metro Fire Rescue District to be kept in the responding fire engines. The access road will be constructed to accommodate local emergency vehicles.

The nearest school, Prospect Ridge Academy, is over 4,000 feet away from the Interchange A&B, Northwest A, and Northwest B pads.

4. Please prepare responses to the public's concerns regarding threats to drinking water and potential spills. These responses can also point to BMPs on the Form 2As.

Surface casing depth will be set deeper than the lowest underground source of drinking water. Multiple layers of cement and casing protect the groundwater. Baseline water samples will be collected in compliance with Commission Rule 318A(1)f, which addresses water sampling.

In order to contain any potential spills, Extraction shall utilize steel-rim berms around all permanent facility equipment at the Well Sites with sufficient capacity to contain 1.5 times the maximum volume of all liquids that will be contained at a facility at any given time plus sufficient freeboard to prevent overflow. All berms and containment devices shall be inspected quarterly by the Operator and maintained in good condition. Secondary containment such as duck ponds or lined earthen berms for temporary tanks shall also be used.

5. Response to Comments Regarding Location of Northwest A, Northwest B, and Interchange A&B Well Pads related to Alternative Site Analysis

Extraction provides the following response to public comments regarding Extraction's decision to plan its surface locations for the Broomfield Development Project on the proposed Northwest A, Northwest B, and Interchange A&B well pads.

A. Synopsis of Alternative Site Analysis and Siting Rationale

In 2015, Extraction began its site analysis for the development of its oil and gas interest within the City and County of Broomfield following its acquisition of certain interests that comprise what is known today as the Broomfield Development Project. Extraction undertook at least six versions of potential development plans that consisted of the evaluation of potential surface sites throughout Broomfield. The initial version of the Broomfield Development Plan had twelve well sites from its two acquisitions from other operators. The Sovereign Oil and Gas Operator Agreement ("Original Operator Agreement") entered with Broomfield, to which Extraction was the predecessor interest, provided ten locations in which Extraction had the right to develop; and the Noble Surface Use Agreement ("Noble SUA") provided for two additional sites. Extraction developed a plan to consolidate the ten well sites from the Original Operator Agreement to three well sites. This was memorialized in a Supplement to the Original Operator Agreement. Extraction also reduced the Noble SUA sites from two to one. At that point, in June of 2016, the proposed Broomfield Development Plan ("Plan" or "Broomfield Development Plan") reduced the overall well sites located in Broomfield from twelve down to four.

Extraction developed multiple versions of the proposed Broomfield Development Plan, each time balancing many factors in the Plan including, but not limited to, best management practices ("BMPs"), natural

topographical advantages, proximity to residences, hospitals, commercial establishments, locating well sites proximate to existing infrastructure and future pipeline infrastructure used to transport the products, and shifting a significant number of wells out of Broomfield and away from Adams County altogether. The result was to create, in the aggregate, the greatest setback from any building structure. These versions of the plans were developed through Extraction's engagement with Broomfield as well as considerations from the Task Force's recommendations to Broomfield's Oil and Gas Chapter. The plans were presented at public meetings. On October 24, 2017, after considering extensive public comment, including comments from Adams County, the Broomfield City Council approved City Council Resolution 2017-186, entering into the Amended and Restated Operator Agreement ("Operator Agreement").

B. Broomfield Development Plan and Operator Agreement Benefits to Adams County

While the focus on the alternative site analysis was a result of engagement with Broomfield and compliance as required under the Operator Agreement, the Broomfield Development Plan provides many direct and indirect advantages and benefits to the Adams County community through the Northwest A, Northwest B and Interchange A&B locations, consistent with the Operator Agreement.

The benefits to Adams County from the current Broomfield Development Plan and the current planned locations include:

- 12 legacy wells will be removed from operation and reclaimed within 500 ft. of over 30 homes, shopping centers and apartment complexes;
- 7 acres of land will be reclaimed for the community;
- portions of legacy pipeline infrastructure will be decommissioned and reclaimed;
- elimination of approximately 72 truck trips per month;
- approximately 2,800 mineral acres of Adams County minerals developed without any surface locations within Adams County;
- noise mitigation because of topography and existing highway infrastructure; and
- use of state-of-the-art technologies such as electric drilling and quiet completions.

The Operator Agreement has a significant number of BMPs including, but not limited to noise, air, traffic and light mitigation that provide for measures that are not regulated by the Colorado Oil and Gas Conservation Commission, or exceed COGCC rules and regulations as well as local municipal rules. Adams County directly benefits from the Operator Agreement and the alternative site analysis associated with the Operator Agreement because the final proposed plan shifts the number of wells previously planned on the former well sites and relocates a significant number of wells that would have been proximate to Adams County within Broomfield to pad locations outside of Broomfield County on the Coyote Trails well pad. The shift in the number of wells out of Broomfield and away from Adams County reduces impacts on Adams County. Furthermore, the Operator Agreement has 57 BMPs which will be used on the Northwest A, Northwest B, Interchange A&B well pad sites, many of which are on the Form 2As.

C. No Requirement for Proximate Local Government Notice and Consultation to Adams County

The Local Government Designee for the proposed Broomfield Development Plan locations is City and County of Broomfield. Extraction was not required to provide notice and consult to Adams County because the planned oil and gas development does not fall within a Large Urban Mitigation Area as defined by the COGCC Rules. *See* Rule 305.a.(3). Regardless, Adams County participated in meetings with Extraction in advance of the Operator Agreement approval, at which input from Adams County regarding the siting was received by Extraction. Additionally, Adams County commented at Broomfield City Council public meetings, before the COGCC in the October 30-31, 2017 hearings.

For more information on the determination of the locations, please refer to the alternative site analysis incorporated in the Comprehensive Drilling Plan, “Section (W) Alternative Site Analysis, Broomfield Development,” attached here. The complete Comprehensive Drilling Plan is available for review.