

FORM  
2A

Rev  
08/13

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

401477000

(SUBMITTED)

Date Received:

01/16/2018

Oil and Gas Location Assessment

☒ New Location ☐ Refile ☐ Amend Existing Location Location#: \_\_\_\_\_

This Oil and Gas Location Assessment is to be submitted to the COGCC for approval prior to any ground disturbance activity associated with oil and gas operations. Approval of this Oil and Gas Location Assessment will allow for the construction of the below specified Location; however, it does not supersede any land use rules applied by the local land use authority. Please see the COGCC website at <http://cogcc.state.co.us/> for all accompanying information pertinent this Oil and Gas Location Assessment.

Location ID:

Expiration Date:

☒ This location assessment is included as part of a permit application.

CONSULTATION

- ☐ This location is included in a Comprehensive Drilling Plan. CDP # \_\_\_\_\_
- ☐ This location is in a sensitive wildlife habitat area.
- ☐ This location is in a wildlife restricted surface occupancy area.
- ☐ This location includes a Rule 306.d.(1)A.ii. variance request.

Operator

Operator Number: 10459

Name: EXTRACTION OIL & GAS INC

Address: 370 17TH STREET SUITE 5300

City: DENVER State: CO Zip: 80202

Contact Information

Name: Alyssa Andrews

Phone: (720) 481-2379

Fax: ( )

email: aandrews@extractionog.com

RECLAMATION FINANCIAL ASSURANCE

☒ Plugging and Abandonment Bond Surety ID: 20130028

☐ Gas Facility Surety ID: \_\_\_\_\_

☐ Waste Management Surety ID: \_\_\_\_\_

LOCATION IDENTIFICATION

Name: Interchange A & B Pad

Number: \_\_\_\_\_

County: BROOMFIELD

QuarterQuarter: N2SW Section: 10 Township: 1S Range: 68W Meridian: 6 Ground Elevation: 5213

Define a single point as a location reference for the facility location. When the location is to be used as a well site then the point shall be a well location.

Footage at surface: 2474 feet FSL from North or South section line

1550 feet FWL from East or West section line

Latitude: 39.978918 Longitude: -104.991656

PDOP Reading: 1.4 Date of Measurement: 09/28/2017

Instrument Operator's Name: T. WINNICKI

## RELATED REMOTE LOCATIONS

(Enter as many Related Locations as necessary. Enter the Form 2A document # only if there is no established COGCC Location ID#)

This proposed Oil and Gas Location is:

LOCATION ID #

FORM 2A DOC #

## FACILITIES

Indicate the number of each type of oil and gas facility planned on location

Wells	33	Oil Tanks*		Condensate Tanks*		Water Tanks*		Buried Produced Water Vaults*	
Drilling Pits		Production Pits*		Special Purpose Pits		Multi-Well Pits*		Modular Large Volume Tanks	
Pump Jacks		Separators*	33	Injection Pumps*		Cavity Pumps*		Gas Compressors*	4
Gas or Diesel Motors*		Electric Motors		Electric Generators*		Fuel Tanks*		LACT Unit*	
Dehydrator Units*		Vapor Recovery Unit*		VOC Combustor*		Flare*		Pigging Station*	

## OTHER FACILITIES\*

### Other Facility Type

### Number

Air Compressor	1
Compressor Drain Tank	1
Electrical Switchrack	1
Emission Control Device	1
Fuel Gas Scrubber	1
Gas Lift Metering Building	4
Gas Lift Suction Scrubber	1
Maintenance Vessel	1
Oil Surge Drum	1
Piperack Modules	13
Produced Water Surge Drum	1
Sales Gas Meter	1
Transformer	1

\*Those facilities indicated by an asterisk (\*) shall be used to determine the distance from the Production Facility to the nearest cultural feature on the Cultural Setbacks Tab.

Per Rule 303.b.(3)C, description of all oil, gas, and/or water pipelines:

Extraction will trench flowlines in one piping corridor that runs between the drill pad and the separator pad and be placed at 12" centers. These lines will most likely be 2" or 3" fusion bonded SCH160 steel pipe and have proper cathodic protection throughout the run. Extraction will then sweep up with a long radius that will tie off each line to the appropriate separator. All welds on these are 100% x-ray and hydro tested to the API and Manufactures specs for a class 1500 series flange. Also meets ASME code B31.4.

## CONSTRUCTION

Date planned to commence construction: 06/01/2018 Size of disturbed area during construction in acres: 21.94  
Estimated date that interim reclamation will begin: 09/01/2018 Size of location after interim reclamation in acres: 8.90  
Estimated post-construction ground elevation: 5213

## DRILLING PROGRAM

Will a closed loop system be used for drilling fluids: Yes

Is H<sub>2</sub>S anticipated? No

Will salt sections be encountered during drilling: No

Will salt based mud (>15,000 ppm Cl) be used? No

Will oil based drilling fluids be used? Yes

## DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Method: Commercial Disposal

Cutting Disposal: OFFSITE Cuttings Disposal Method: Commercial Disposal

Other Disposal Description:

Beneficial reuse or land application plan submitted?

Reuse Facility ID:  or Document Number:

Centralized E&P Waste Management Facility ID, if applicable:

## SURFACE & MINERALS & RIGHT TO CONSTRUCT

Name: 7N LLC

Phone:

Address: 370 17TH ST, SUITE 5300

Fax:

Address:

Email:

City: DENVER State: CO Zip: 80202

Surface Owner: ☒ Fee ☐ State ☐ Federal ☐ Indian

Check all that apply. The Surface Owner: ☒ is the mineral owner

☒ is committed to an oil and Gas Lease

☒ has signed the Oil and Gas Lease

☒ is the applicant

The Mineral Owner beneath this Oil and Gas Location is: ☒ Fee ☐ State ☐ Federal ☐ Indian

The Minerals beneath this Oil and Gas Location will be developed from or produced to this Oil and Gas Location: Yes

The right to construct this Oil and Gas Location is granted by: applicant is owner

Surface damage assurance if no agreement is in place:  Surface Surety ID:

Date of Rule 306 surface owner consultation

## CURRENT AND FUTURE LAND USE

Current Land Use (Check all that apply):

Crop Land: ☐ Irrigated ☐ Dry land ☐ Improved Pasture ☐ Hay Meadow ☐ CRP

Non-Crop Land: ☒ Rangeland ☐ Timber ☐ Recreational ☐ Other (describe):

Subdivided: ☐ Industrial ☐ Commercial ☐ Residential

**Future Land Use (Check all that apply):**

Crop Land: ☐ Irrigated ☐ Dry land ☐ Improved Pasture ☐ Hay Meadow ☐ CRP

Non-Crop Land: ☒ Rangeland ☐ Timber ☐ Recreational ☐ Other (describe): \_\_\_\_\_

Subdivided: ☐ Industrial ☐ Commercial ☐ Residential

**CULTURAL DISTANCE INFORMATION**

Provide the distance to the nearest cultural feature as measured from Wells or Production Facilities onsite.

	From WELL	From PRODUCTION FACILITY
Building:	808 Feet	780 Feet
Building Unit:	1002 Feet	1187 Feet
High Occupancy Building Unit:	4941 Feet	5116 Feet
Designated Outside Activity Area:	5280 Feet	5280 Feet
Public Road:	364 Feet	234 Feet
Above Ground Utility:	849 Feet	1037 Feet
Railroad:	5280 Feet	5280 Feet
Property Line:	279 Feet	149 Feet

**INSTRUCTIONS:**

- All measurements shall be provided from center of nearest Well or edge of nearest Production Facility to nearest of each cultural feature as described in Rule 303.b. (3)A.

- Enter 5280 for distance greater than 1 mile.

- Building - nearest building of any type. If nearest Building is a Building Unit, enter same distance for both.

- Building Unit, High Occupancy Building Unit, and Designated Outside Activity Area - as defined in 100-Series Rules.

- For measurement purposes only, Production Facilities should only include those items with an asterisk(\*) on the Facilities Tab.

**DESIGNATED SETBACK LOCATION INFORMATION**

Check all that apply. This location is within a:

- ☐ Buffer Zone
- ☐ Exception Zone
- ☐ Urban Mitigation Area

- Buffer Zone - as described in Rule 604.a. (2), within 1,000' of a Building Unit.

- Exception Zone - as described in Rule 604.a.(1), within 500' of a Building Unit.

- Urban Mitigation Area - as defined in 100-Series Rules.

- Large UMA Facility - as defined in 100-Series Rules.

Pre-application Notifications (required if location is within 1,000 feet of a building unit):

Date of Rule 305.a.(1) Urban Mitigation Area Notification to Local Government: \_\_\_\_\_

Date of Rule 305.a.(2) Buffer Zone Notification to Building Unit Owners: \_\_\_\_\_

**FOR MULTI-WELL PADS AND PRODUCTION FACILITIES WITHIN DESIGNATED SETBACK LOCATIONS ONLY:**

- ☐ Check this box if this Oil and Gas Location has or will have Production Facilities that serve multiple wells (on or offsite) and the Production Facilities are proposed to be located less than 1,000 feet from a Building Unit. *(Pursuant to Rule 604.c.(2)E.i., the operator must evaluate alternative locations for the Production Facilities that are farther from the Building Unit, and determine whether those alternative locations were technically feasible and economically practicable for the same proposed development.)*
- ☐ By checking this box, I certify that no alternative placements for the Production Facilities, farther from the nearest Building Unit, were available based on the analysis conducted pursuant to Rule 604.c.(2)E.i.

In the space below, explain rationale for siting the multi-well Production Facility(ies) that supports your Rule 604.c.(2)E.i determination. Attach documentation that supports your determination to this Form 2A.

**SOIL**

List all soil map units that occur within the proposed location. attach the National Resource Conservation Service (NRCS) report showing the "Map Unit Description" report listing the soil typical vertical profile. This data is to be used when segregating topsoil.



The required information can be obtained from the NRCS web site at <http://soildatamart.nrcs.usda.org/> or from the COGCC web site GIS Online map page found at <http://colorado.gov/cogcc>. Instructions are provided within the COGCC web site help section.

NRCS Map Unit Name: UIC—Ulm loam, 3 to 5 percent slopes

NRCS Map Unit Name: UID—Ulm loam, 5 to 9 percent slopes

NRCS Map Unit Name: PIB—Platner loam, 0 to 3 percent slopes, PIC—Platner loam, 3 to 5 percent slopes

## PLANT COMMUNITY:

Complete this section only if any portion of the disturbed area of the location's current land use is on non-crop land.

Are noxious weeds present: Yes ☐ No ☒

Plant species from: ☒ NRCS or, ☐ field observation Date of observation: \_\_\_\_\_

List individual species:

### Check all plant communities that exist in the disturbed area.

- ☐ Disturbed Grassland (Cactus, Yucca, Cheatgrass, Rye)
- ☒ Native Grassland (Bluestem, Grama, Wheatgrass, Buffalograss, Fescue, Oatgrass, Brome)
- ☐ Shrub Land (Mahogany, Oak, Sage, Serviceberry, Chokecherry)
- ☐ Plains Riparian (Cottonwood, Willow, Aspen, Maple, Poplar, Russian Olive, Tamarisk)
- ☐ Mountain Riparian (Cottonwood, Willow, Blue Spruce)
- ☐ Forest Land (Spruce, Fir, Ponderosa Pine, Lodgepole Pine, Juniper, Pinyon, Aspen)
- ☐ Wetlands Aquatic (Bullrush, Sedge, Cattail, Arrowhead)
- ☐ Alpine (above timberline)
- ☐ Other (describe): \_\_\_\_\_

## WATER RESOURCES

Is this a sensitive area: ☒ No ☐ Yes

Distance to nearest

downgradient surface water feature: 33 Feet

water well: 960 Feet

Estimated depth to ground water at Oil and Gas Location 630 Feet

Basis for depth to groundwater and sensitive area determination:

Nearest surface water feature: Ditch 33' NE  
Nearest water well: Permit #261200- -, 960' SE, no depth to ground water provided  
Depth to ground water: 630' provided by water well with permit # 43543-F -R, 1592' S

Is the location in a riparian area: ☒ No ☐ Yes

Was an Army Corps of Engineers Section 404 permit filed ☒ No ☐ Yes If yes attach permit.

Is the location within a Rule 317B Surface Water Supply Area buffer No  
zone:

If the location is within a Rule 317B Surface Water Supply Area buffer have all public water supply systems within 15 miles been notified: \_\_\_\_\_

Is the Location within a Floodplain? ☒ No ☐ Yes Floodplain Data Sources Reviewed (check all that apply)

☐ Federal (FEMA)

☒ State

☐ County

☐ Local

☐ Other \_\_\_\_\_

## GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule 318A

## WILDLIFE

☐ This location is included in a Wildlife Mitigation Plan

☐ This location was subject to a pre-consultation meeting with CPW held on \_\_\_\_\_

### Operator Proposed Wildlife BMPs

No BMP

## DESIGNATED SETBACK LOCATION EXCEPTIONS

Check all that apply:

- ☐ Rule 604.a.(1)A. Exception Zone (within 500' of a Building Unit) and is in an Urban Mitigation Area
- ☐ Rule 604.b.(1)A. Exception Location (existing or approved Oil & Gas Location now within a Designated Setback as a result of Rule 604.a.)
- ☐ Rule 604.b.(1)B. Exception Location (existing or approved Oil & Gas Location is within a Designated Setback due to Building Unit construction after Location approval)
- ☐ Rule 604.b.(2) Exception Location (SUA or site-specific development plan executed on or before August 1, 2013)
- ☐ Rule 604.b.(3) Exception Location (Building Units constructed after August 1, 2013 within setback per an SUA or site-specific development plan)

## RULE 502.b VARIANCE REQUEST

☐ Rule 502.b. Variance Request from COGCC Rule or Spacing Order Number \_\_\_\_\_

ALL exceptions and variances require attached Request Letter(s). Refer to applicable rule for additional required attachments (e.g. waivers, certifications, SUAs).

## OPERATOR COMMENTS AND SUBMITTAL

Comments Single point location reference in the Location Identification section is the proposed Interchange B N35-20-1N well.  
Notification Zone Drawing and UMA Check Exhibit both attached as "OTHER". This location is not in a buffer zone or UMA.

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: \_\_\_\_\_ Date: 01/16/2018 Email: aandrews@extractionog.com

Print Name: Alyssa Andrews Title: Regulatory Analyst

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: \_\_\_\_\_ Director of COGCC Date: \_\_\_\_\_

### Conditions Of Approval

All representations, stipulations and conditions of approval stated in this Form 2A for this location shall constitute representations, stipulations and conditions of approval for any and all subsequent operations on the location unless this Form 2A is modified by Sundry Notice, Form 4 or an Amended Form 2A.

### COA Type

### Description

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### Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Planning	Well Sites. The Operator agrees that the maximum number of New Wells to be drilled at the Interchange A & B site to be as follows:  Interchange A Pad – 16 New Wells; and Interchange B Pad – 17 New Wells.
2	Planning	Regulations. The Operator shall comply with all applicable state, and federal regulations and agreements in place with the local government.
3	Planning	Inspections. Operator will allow inspections of the wellsite with reasonable notice by the city to the operator. The Operator shall provide a safety escort to accompany the Inspector. If the Inspector notifies the Operator of any conditions that the Inspector believes are out of compliance, Operator shall promptly address such conditions.
4	Planning	Discharge Valves. Open-ended discharge valves on all storage tanks, pipelines and other containers within the Well Site shall be secured and shall not be accessible to the general public. Open-ended discharge valves within the Well Site shall be placed within the interior of the secondary containment area.

5	Planning	<p>Emergency Preparedness Plan. The Operator is required to complete a detailed Emergency Plan, and Operator shall pay for any reasonably necessary training and equipment of emergency response personnel specifically required due to the operations, including any inventory of Aqueous Film Forming Foam (AFFF) required to be purchased from time to time so that sufficient quantities are on-hand to respond to emergencies at the Well Sites. Extraction will have an Emergency Plan approved by North Metro Fire Rescue District before the Drilling Phase commences.</p> <p>The Emergency Plan will be filed with the City of Broomfield and the North Metro Fire Rescue District and updated on an annual basis or as conditions change (responsible field personnel change, ownership changes, etc.). The Emergency Plan shall include a notification system for potentially affected citizens and occupied buildings and an evacuation plan.</p> <p>The Emergency Plan will have the following information:</p> <p>A. Name, address and phone number, including twenty-four (24)-hour emergency numbers for at least two persons responsible for emergency field operations as well as the contact information for any subcontractor of Operator engaged for well-control emergencies.</p> <p>An as-built facilities map in a format suitable for input into the City's GIS system depicting the locations and type of above and below ground facilities, including sizes and depths below grade of all oil and gas flow lines and associated equipment, isolation valves, surface operations and their functions, as well as transportation routes to and from exploration and development sites, for emergency response and management purposes.</p> <p>B. Detailed information addressing each reasonable potential emergency that may be associated with the operation. This may include any or all of the following: explosions, fires, gas, oil or water pipeline leaks or ruptures, hydrogen sulfide or other toxic gas emissions, or hazardous material vehicle accidents or spills. A provision that any spill outside of the containment area, that has the potential to leave the facility or to threaten waters of the state, or as required by the City-approved Emergency Plan shall be reported to the local emergency dispatch and the COGCC Director in accordance with COGCC regulations.</p> <p>C. Detailed information identifying access or evacuation routes, and health care facilities anticipated to be used.</p> <p>D. A project-specific plan for any project that involves drilling or penetrating through known zones of hydrogen sulfide gas.</p> <p>E. A statement and detailed information indicating that the Operator has adequate personnel, supplies, and training to implement the Emergency Plan immediately at all times during construction and operations.</p> <p>F. The Operator will have current Material Safety Data Sheets (MSDS) for all chemicals used or stored on a site. The MSDS sheets shall be provided immediately upon request to City officials, a public safety officer, or a health professional as required by COGCC Rule 205.</p> <p>G. The Emergency Plan shall include a provision establishing a process by which the Operator notifies surrounding neighbors to inform them about the on-site operations and provide sufficient contact information for surrounding neighbors to communicate with the Operator.</p> <p>H. All training associated with the Emergency Plan shall be coordinated with the City and the North Metro Fire Rescue District.</p> <p>I. A provision obligating the Operator to reimburse the appropriate emergency agencies for their expenses resulting from the Operator's operations, to the extent required by Colorado State Statutes.</p> <p>J. Operator will provide the City with its emergency shutdown protocols and promptly notify the City of any emergency shut downs that would have an impact to any area beyond the confines of the Well Site.</p>
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6	Planning	Fencing. A fencing plan is not required by local government for this location.
7	Planning	Flammable Material. All ground within twenty-five (25) feet of any tank, or other structure containing flammable or combustible materials, shall be kept free of dry weeds, grass or rubbish, and shall conform to COGCC 600 Series Safety Regulations and the applicable Fire Code.
8	Planning	<p>Water Quality Monitoring Plan. Oil and gas operations will, to the extent practicable, avoid causing degradation to surface or ground waters within the City and to wetlands within the City. The following standards set forth are consistent with the COGCC rules and regulations:</p> <p>Using records of the Colorado Division of Water Resources, Operator must implement a water quality monitoring and well testing plan that includes the following:</p> <p>A. Operator will obtain initial baseline samples and subsequent monitoring samples from all available water sources within a one-half (1/2) mile radius of the Well Sites. Water sources include registered water wells or permitted or adjudicated springs.</p> <p>B. Operator will collect initial testing of baseline samples from available water sources prior to the commencement of drilling a well, or prior to the re-stimulation of an existing well for which no samples were collected and tested during the previous 6-12 months.</p> <p>C. Post-stimulation samples of available water sources shall be collected and tested pursuant to the following time frame:</p> <ol style="list-style-type: none"> <li>1. One sample approximately one (1) year after commencement of the Production Phase;</li> <li>2. One sample approximately three (3) years after commencement of the Production Phase; and</li> <li>3. One sample approximately six (6) years after commencement of the Production Phase.</li> </ol> <p>D. Operator will collect a sample from at least one upgradient and two down-gradient water sources within a one-half (1/2) mile radius of a Well Site. If no such water sources are available, Operator shall collect samples from additional water sources within a radius of up to one (1) mile from the Well Site until samples from a total of at least one upgradient and two down-gradient water sources are collected. Operator should give priority to the selection of water sources closest to the Well Site.</p> <p>E. Operator may rely on existing groundwater sampling data from any water source within the radii described above that was collected in accordance with accepted standards, provided the data was collected within the 12 months preceding the commencement of Drilling Phase for such Well Site, the data includes measurement of all of the constituents measured in Table 1 below and there has been no significant oil and gas activity within a one-mile radius in the time period between the original sampling and the commencement of the Drilling Phase for such Well Site.</p> <p>F. Operator shall make reasonable efforts to obtain the consent of the owner of the water source.</p> <p>G. Testing for the analytes listed in Table 1 below, and subsequent testing as necessary or appropriate.</p> <p>H. Operator must follow standard industry procedures in collecting samples, consistent with the COGCC model Sampling and Analysis Plan.</p> <p>I. Operator must report the location of the water source using a GPS with submeter resolution.</p> <p>J. Operator must report results of field observations including reporting on damaged or unsanitary well conditions, adjacent potential pollution sources, odor, water color, sediment, bubbles, and effervescence.</p> <p>K. Operator must provide copies of all test results described above to the City, the COGCC, and the water source owners within 30 days after receiving the samples.</p>

L. Subsequent sampling. If sampling shows water contamination, additional measures may be required including:

1. If free gas or a dissolved methane concentration level greater than one (1) milligram per liter (mg/l) is detected in a water source, determination of the gas type using gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen).

2. If the test results indicate thermogenic or a mixture of thermogenic and biogenic gas, an action plan to determine the source of the gas.

3. Immediate notification to the City, the COGCC, and the owner of the water well if the methane concentration increases by more than five (5) mg/l between sampling periods, or increases to more than ten (10) mg/l.

4. Immediate notification to the City, the COGCC and the owner of the water well if BTEX and/or TPH are detected as a result of testing. Such detections may result in required subsequent sampling for additional analytes.

5. Further water well sampling in response to complaints from water source owners.

6. Timely production and distribution of test results in electronic deliverable format to the City, the COGCC and the water source owners.

7. Qualified Independent Professional Consultant. All water source testing must be conducted by the Operator or, if requested by a surface owner, by a qualified independent professional consultant.

If sampling of water testing program reveals water contamination, the Operator shall work with the City and the COGCC to help identify the source of the contamination.

TABLE 1  
GENERAL WATER QUALITY

Alkalinity, Conductivity & TDS, pH, Dissolved Organic Carbon (or Total Organic Carbon), Bacteria, and Hydrogen Sulphide

MAJOR IONS

Bromide, Chloride, Fluoride, Magnesium, Potassium, Sodium, Sulfate, and Nitrate + Nitrite as N

METALS

Arsenic, Barium, Boron, Chromium, Copper, Iron, Lead, Manganese, Selenium, Strontium, Mercury, Uranium, and Radium

DISSOLVED GASES and VOLATILE ORGANIC COMPOUNDS

Methane, Ethane, Propane, BTEX as Benzene, Toluene, Ethylbenzene and Xylenes, Total Petroleum, and Hydrocarbons (TPH)

OTHER

Water Level, Stable isotopes of water (Oxygen, Hydrogen, Carbon), Phosphorus.

9 Planning

Landscaping. Operator shall implement the Visual Mitigation Plan for a Well Site approved during the application process for such Well Site.

10	Planning	Lighting. The intent of this provision is to minimize light spillage beyond the perimeter of the Well Sites and for the Operator to take appropriate steps in order to achieve this. All permanent lighting or lighting higher than a perimeter wall must be downward facing. All bulbs must be fully shielded to prevent light emissions above a horizontal plane drawn from the bottom of the fixture. The lighting plan shall indicate the location of all outdoor lighting on the site and any structures, and include cut sheets (manufacturer's specifications with picture or diagram) of all proposed fixtures. During the Drilling and Completion Phases, consistent with applicable law, Operator will construct a minimum 32 foot wall around as much of the perimeter of the well pads as operations allow to reduce light escaping from the site, unless shorter walls are mutually agreed to by City and Operator on a site-specific basis.
11	Planning	Maintenance of Machinery. Routine field maintenance of vehicles or mobile machinery shall not be performed within three hundred (300) feet of any water body. All fueling must occur over impervious material.
12	Planning	Mud Tracking. The Operator shall take all practicable measures to ensure that vehicles do not track mud or debris onto City streets. If mud or debris is nonetheless deposited on City streets, in excess of de minimus levels, the streets shall be cleaned immediately by the Operator. If for some reason this cannot be done, or needs to be postponed, the City shall be notified of the Operator's plan for mud removal.
13	Planning	Temporary Access Roads. Temporary access roads associated with oil and gas operations at the Well Sites shall be reclaimed and revegetated to the original state within a reasonable amount of time, taking into account planting seasons, or as directed by the landowner in a Surface Use Agreement and subject to applicable COGCC variances. Operator must control erosion while access roads are in use.
14	Planning	Trailers. A construction trailer(s) is permitted as an accessory use during active drilling and well completion or workover operations only. No permanent residential trailers shall be permitted at the Well Sites; provided, however, that until ninety (90) days following the end of the Completion Phase on a Well Site, temporary residential and/or security trailers are permitted, as needed for on-site operations, for exclusive use by the Operator's personnel and the personnel of its subcontractors on a temporary basis.
15	Planning	Wastewater and Waste Management. Operator will submit a waste management plan to the City that complies with the following: All fluids shall be contained and there shall be no discharge of fluids. Waste shall be stored in tanks, transported by tanker trucks and/or pipelines, and disposed of at licensed disposal or recycling sites. The plan shall incorporate secondary containment and stormwater measures. No land treatment of oil impacted or contaminated drill cuttings are permitted. A copy of the Operator's Spill Prevention, Control, and Countermeasure Plan (SPCC) will be given to the City, which describes spill prevention and mitigation practices. The Operator shall not dispose of any wastewater within the City. All other waste shall be disposed of in accordance with state regulations.
16	Planning	Noxious Weed Control. The Operator shall be responsible for ongoing noxious weed (as defined under State law) control at the Well Sites and along access roads
17	Planning	Insurance. The Operator agrees to provide liability and insurance
18	Planning	Injection Wells. The Operator shall drill no injection wells in Broomfield.
19	Planning	Alternative Site Analysis. Operator has consulted with the City over a period of two years, to the City's satisfaction, in order to identify alternative sites based upon factors determined by the City. The Well Sites were mutually selected by the Operator and the City as the final sites following this consultation.



20	Planning	<p>Fires and Explosions. Any accident or natural event involving a fire, explosion or detonation shall be reported to the City within 24 hours. This report shall include such specifics, to the extent available:</p> <ul style="list-style-type: none"> <li>A. Fuel source</li> <li>B. Location</li> <li>C. Proximity to residences and other occupied buildings</li> <li>D. Cause</li> <li>E. Duration</li> <li>F. Intensity</li> <li>G. Volume</li> <li>H. Specifics and degree of damage to properties, if any beyond the Well Site</li> <li>I. Injuries to person(s)</li> <li>J. Emergency management response; and</li> <li>K. Remedial and preventive measures to be taken within a specified amount of time</li> </ul> <p>The Operator shall provide the City with an additional report containing the information above after the conclusion of the accident or natural event if lasting more than 24 hours.</p>
21	Planning	<p>Risk Assessment. Operator has a risk management plan in place, which will include the identification of potential risks, methods of risk avoidance and controls that implement techniques to prevent accidents and losses and reduce the impact or cost after the occurrence of identified potential events.</p>
22	Planning	<p>Automatic Safety Protective Systems and Surface Safety Valve. An automated safety system, governed by safety devices and a programmable logic computer, will be installed at the Well Sites. The automated safety system shall include the installation, monitoring and remote control of a Surface Safety Valve ("SSV") among many other engineered measures and devices that are implemented to greatly reduce or eliminate the potential for a well event. All New Wells will have a SSV installed prior to the commencement of the Production Phase connected to the production tubing at the surface. The SSV will be equipped to operate remotely via the automated safety protective system, which monitors multiple flowing pressures and rates which have predetermined maximum and/or minimum threshold values programmed and will remotely shut the well in should certain upset conditions be detected. Additionally, the automated safety system provides the ability to remotely shut-in wells on demand through operator remote intervention. The SSV will have documented quarterly testing to ensure functionality. The practice of utilizing automated safety protective systems, including SSV's, exceeds the current State regulations and requirements for wells operated within Colorado.</p>
23	Community Outreach and Notification	<p>Notification to the City Regarding Commencement of Operations. Operator shall provide written notice to the City no less than thirty (30) days prior to the commencement of any of the following: Construction Phase (unless the Construction Phase commences within 45 days of the approval of the applicable Form 2 or Form 2A), Drilling Phase, Completion Phase, or any recompletion, re-drilling or plugging and abandonment of a New Well. Any notification provided by Operator to City pursuant to this Agreement may be used by the City for public notification.</p>



24	Traffic control	<p>Transportation and Circulation. The Operator will comply with all Transportation and Circulation requirements as contained in the City Land Use Code as may be reasonably required by the City's Traffic Engineer and will comply with all applicable hazardous material regulations. The Operator will submit a traffic plan to the City that includes detailed descriptions of all proposed access routes for equipment, water, sand, waste fluids, waste solids, mixed waste, and all other material to be hauled on the public streets and roads of the City. The Operator will obtain necessary access permits. The traffic plan shall include the following:</p> <p>A. estimated weights of vehicles when loaded, a description of the vehicles, including the number of wheels and axles of such vehicles and trips per day.</p> <p>B. Detail of access locations for each well site including sight distance, turning radius of vehicles and a template indicating this is feasible, sight distance, turning volumes in and out of each site for an average day and what to expect during the peak hour.</p> <p>C. Truck traffic volumes converted to equivalent single axle loads and compared with existing volumes. Trucks anticipated on roadways that are being accessed to equivalent single axle loads using existing volumes and proposed with extraction activities.</p> <p>D. Core drilled samples of City roads to be used and determined the adequacy of the existing roadway structure and determined that the roadway section is adequate for extraction activities.</p> <p>E. Truck routing map and truck turning radius templates with a listing of required and determined that certain improvements are necessary at intersections along the route.</p> <p>F. Complete traffic report, determining operational changes and geometric modifications necessary as a result of extraction activities.</p> <p>G. Identification of need for any additional traffic lanes, which would be subject to the final approval of the City's engineer.</p> <p>H. Restriction of non-essential traffic to and from Well Sites to periods outside of peak am and pm traffic periods and during school hours (generally 7-9am and 3-6pm).</p>
25	General Housekeeping	Burning. No open burning shall occur on the site of any oil and gas operation.
26	General Housekeeping	Chains. Traction chains from heavy equipment shall be removed before entering a City street.
27	General Housekeeping	Color. Permanent facilities shall be painted in a uniform, non-contrasting, non-reflective color, to blend with the surrounding landscape and, with colors that match the land rather than the sky, consistent with COGCC regulations. If the City desires a specific color or colors, it shall notify Operator of such color or colors prior to the Pad Construction of a Well Site and Operator shall utilize such color or colors.
28	General Housekeeping	Cultural and Historical Resource Protection. The Operator has completed a site assessment and is not currently aware of any historical or cultural sites on the Well Sites. However, if a significant surface or sub-surface archaeological site is discovered during construction, the Operator shall be responsible for reporting of the discovery. If any disturbance of a site deemed by the State Historic Preservation Office to be a historical or cultural resource occurs, the Operator shall be responsible for mitigating the disturbance to the cultural or historical property through a data recovery plan in consultation with the City's Historic Landmark Board and the State Historic Preservation Office, with copy to the City.
29	General Housekeeping	Removal of Debris. All construction-related debris shall be removed from the site for proper disposal in a timely manner. The site shall be maintained free of debris and excess materials at all times during operation. Operator shall not burn or bury debris at any time on the Well Sites.

30	General Housekeeping	Removal of Equipment. All equipment used for drilling, re-completion and maintenance of the facility shall be removed from the site within thirty (30) days of completion of the work, weather condition permitting, unless otherwise agreed to by the surface owner. Permanent storage of removable equipment on Well Sites shall not be allowed.
31	General Housekeeping	General Maintenance. Operator shall operate and maintain all equipment pursuant to manufacturer specifications consistent with technological limitations and reasonable and customary maintenance practices.
32	Storm Water/Erosion Control	Stormwater Control Plan. All oil and gas operations at the Well Sites shall comply and conform with the City's stormwater control regulations, including the submission of an Erosion Control Report and Plan.
33	Material Handling and Spill Prevention	<p>Chemical Disclosure and Storage. All fracturing chemicals must be disclosed to the City pursuant to the process set forth below before bringing on site. Prior to the bringing of such chemicals onto the property, the Operator shall make available to the City, in table format, the name, Chemical Abstracts Service (CAS) number, storage, containment and disposal method for such chemicals to be used on the Well Sites, which the City may make available to the public as public records. Fracturing chemicals shall be uploaded onto the Frac Focus website within sixty days of the completion of fracturing operations. The Operator shall not permanently store fracturing chemicals, flowback from hydraulic fracturing, or produced water in the City limits. Operator shall remove all hydraulic fracturing chemicals at a Well Site within thirty (30) days following the completing of hydraulic fracturing at that Well Site. In addition to any substances that not permitted to be used in accordance with state or federal rules or regulations in place from time to time, the following chemicals shall not be utilized in hydraulic fracturing fluid at the Well Sites:</p> <p>Ingredient Name CAS #  Benzene 71-43-2  Lead 7439-92-1  Mercury 7439-97-6  Arsenic 740-38-2  Cadmium 7440-43-9  Chromium 7440-47-3  Ethylbenzene 100-41-4  Xylenesf 1330-20-7  1,3,5-trimethylbenzene 108-67-8  1,4-dioxane 123-91-1  1-butanol 71-36-3  2-butoxyethanol 111-76-2  N,N-dimethylformamide 68-12-2  2-ethylhexanol 104-76-7  2-mercaptoethanol 60-24-2  benzene, 1,1'-oxybis-, tetrapropylene derivatives, sulfonated, sodium salts (BOTS) 119345-04-9  butyl glycidyl ether 8/6/2426  polysorbate 80 9005-65-6  quaternary ammonium compounds, dicoco alkyldimethyl, chlorides (QAC) 61789-77-3  bis hexamethylene triamine penta methylene phosphonic acid (BMPA) 35657-77-3  diethylenetriamine penta (methylene-phosphonic acid)(DMPA) 15827-60-8  FD&amp;C blue no. 1 3844-45-9  Tetrakis(triethanolaminato) zirconium(IV) (TTZ) 101033-44-7</p>
34	Material Handling and Spill Prevention	Flowlines. Any newly constructed or substantially modified flowlines on the Well Sites shall be constructed and operated under the provisions of the COGCC 1100 Series Flowline regulations, any future COGCC flowline regulations, and any applicable surface use agreements with the surface owners. Operator shall pressure test all flowlines following their construction, including those rated at less than 15 PSI. Operator will provide to the City all records required to be submitted to State agencies related to inspections, pressure testing, accidents and other safety incidents related to flowlines at the Well Sites and, upon specific request by the City, Operator will provide to the City any other records submitted to State agencies related to flowlines at the Well Sites.

35	Material Handling and Spill Prevention	Recordation of Flowlines. All new flowlines and pipelines shall have the legal description of the location recorded with the Clerk and Recorder of the City within thirty (30) days of completion of construction. Abandonment of any recorded flowlines shall be recorded with the Clerk and Recorder of the City within thirty (30) days after abandonment.
36	Material Handling and Spill Prevention	Spills. Operator must notify the City of any spill of any material on permeable ground on the Well Sites that has a reportable spill quantity under any law. The Operator will also provide the City with a copy of any self-reporting submissions that Operator provides to the COGCC due to any spills at the Well Sites.
37	Dust control	Fugitive Dust Suppression. Dust associated with on-site activities and traffic on access roads shall be minimized throughout construction, drilling and operational activities such that there are no visible dust emissions from access roads or the Well Sites to the extent practical given wind conditions. No untreated produced water or other process fluids shall be used for dust suppression. The Operator will avoid creating dust or dust suppression activities within three hundred (300) feet of the ordinary high water mark of any waterbody, unless the dust suppressant is water. Material Safety Data Sheets (MSDS) for any chemical based dust suppressant, other than magnesium chloride, shall be submitted to the City prior to use. Operator will submit to the City a grading, drainage, dust mitigation and erosion control plan
38	Construction	<p>Containment Berms. The Operator 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 liquids that such facility will contain 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. No potential ignition sources shall be installed inside the secondary containment area unless the containment area encloses a fired vessel or such sources are rated in accordance with industry codes and standards. Secondary containment such as duck ponds or lined earthen berms for temporary tanks shall also be used.</p> <p>A. Permanent containment berms shall be constructed of steel rings, designed and installed to prevent leakage and resist degradation from erosion or routine operation.</p> <p>B. Secondary containment for tanks shall be constructed with a synthetic or engineered liner that contains all primary containment vessels and is mechanically connected to the steel ring to prevent leakage.</p> <p>C. For locations within five hundred (500) feet and up-gradient of a surface water body, tertiary containment, such as an earthen berm, is required around production facilities.</p>
39	Construction	Anchoring. All New Well equipment and all existing equipment at the Well Sites shall be anchored to the extent necessary to resist flotation, collapse, lateral movement, or subsidence in compliance with applicable Federal Emergency Management Agency (FEMA) (as administered by this City) and COGCC rules and regulations.
40	Noise mitigation	Quiet Technology. The Operator agrees to use the Liberty Quiet Fleet or comparable technology from an alternative vendor on all Well Sites.
41	Noise mitigation	Electric Equipment. The drilling rig(s) used during the Drilling Phase and all permanent production equipment, such as compressors, motors and pump jacks, shall utilize electric line power in order to mitigate noise and to reduce emissions



42	Noise mitigation	<p>Noise Mitigation. Noise mitigation measures shall be constructed along any edge of any Well Site if such edge is in proximity to existing residential development. The noise mitigation measures shall use the most current equipment to minimize noise impact during the Drilling and Completion Phases. Operator shall comply with the sound limitation regulations set forth in COGCC 800 Series Aesthetic and Noise Control Regulations. The Operator shall not unload pipe between 8:00 p.m. and 7:00 a.m. The Operator will complete a baseline noise mitigation study at each Well Site that demonstrates that noise is expected to be mitigated to the extent practicable and a copy will be provided to the City. A noise mitigation study has been completed that demonstrated that noise is expected to be mitigated to the extent practicable and to levels acceptable to the City. The Operator shall address C scale noise/vibration through berming and other associated BMPs. During the Drilling and Completion Phases, the operator shall construct a perimeter wall and/or use hay bales to mitigate noise as appropriate on a case-by-case or modeled basis. If Operator uses any engines that are not electrically operated, Operator shall use quiet design mufflers (also referred to as hospital grade or dual dissipative) or equivalent and shall use acoustically insulated housing or covers to enclose the engines.</p> <p>The Operator shall comply with all provisions of COGCC Rule 802 on Noise Abatement with respect to the Well Sites; provided, however, that the Operator and City agree that the maximum permissible noise levels to be applied under Rule 802 shall be, other than during pad construction at the Well Sites, the greater of (i) the levels set forth for the land use type of "Residential/Agricultural/Rural" under Rule 802 if measurements are taken at 1,000 feet from the sound walls at the Well Site and (ii) 4 dB(A) higher than baseline ambient sound measured at 1,000 feet from the sound walls at the Well Site. During pad construction at the Well Sites, the Operator agrees that noise levels shall not exceed those produced by the construction of a typical residential or commercial development. All measurements considered for compliance with this BMP shall be taken by a third party contractor using industry standard equipment and practices.</p> <p>Both the City and the Operator have conducted an Ambient noise survey for each Well Site at baseline and will place noise meters near Well Sites to monitor ongoing noise levels until the commencement of the Production Phase.</p>
43	Noise mitigation	<p>Possible Berms, Bales or Sound Walls. Operator shall utilize the additional mitigation measures of berms, bales, and/or sound walls. The particular measure(s) employed at any such location shall be as determined by mutual agreement between the City and the Operator.</p>
44	Emissions mitigation	<p>Air Modeling Study. The Operator has completed an air modeling study that meets the standards requested by the City and such study has been conducted and indicates that emissions from the equipment proposed on the Well Sites meets EPA standards.</p>



45	Emissions mitigation	<p>Air Quality. In order to minimize degradation to air quality, Operator agrees to the provisions set forth in this Section. Operator must eliminate, capture, or minimize all potentially harmful emissions and minimize dust associated with onsite activities and traffic on access roads Operator shall comply with all applicable state and federal regulations including regulations promulgated by CDPHE, COGCC and US EPA.</p> <p>Minimization of Emissions. To protect air quality, the following will be required:</p> <ol style="list-style-type: none"> <li>1. The use of electric equipment and line power</li> <li>2. The use of Tier 2 and liquefied natural gas dual fuel hydraulic fracturing pumps. If Tier 4 fracturing pumps become commonly available, Operator will begin using Tier 4 fracturing pumps.</li> <li>3. Operator will comply with the limitations on truck traffic to and from the site.</li> <li>4. Operator will utilize pipelines</li> <li>5. Manufacture test or other data demonstrating hydrocarbon destruction or control efficiency that complies with a design destruction efficiency of 98% or better.</li> <li>6. The use of no-bleed continuous and intermittent pneumatic devices. This requirement can be met by replacing natural gas with electricity or instrument air, or routing the discharge emissions to a closed loop-system or process.</li> <li>7. Any flare, auto ignition system, recorder, vapor recovery device or other equipment used to meet the hydrocarbon destruction or control efficiency requirement shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.</li> <li>8. No use of glycol dehydrators.</li> <li>9. No use of desiccant gas processing dehydrators.</li> <li>10. Year-round application of odor requirements pursuant to COGCC and CDPHE regulations.</li> <li>11. Reduction or elimination of emissions of associated gas from hybrid gas-oil wells (i.e. gas that is co-produced from a well that primarily produces oil), including prohibition of uncontrolled venting.</li> <li>12. Best management practices during liquids unloading (i.e. maintenance activities to remove liquids from existing wells that are inhibiting production), including at least 90% emissions reduction when utilizing combustion and the installation of artificial lift or unloading through the separator where feasible.</li> <li>13. Reduction or elimination of emissions from oil and gas pipeline maintenance activities such as pigging or blowdowns. If any maintenance activity will involve the intentional venting of gas from a well tank, compressor or pipeline, beyond routine pipeline maintenance activity and pigging, the operator will provide forty eight (48) hour advance written notice to the City of such proposed venting. Such notice shall identify the duration and nature of the venting event, a description as to why venting is necessary, a description of what vapors will likely be vented, what steps will be taken to limit the duration of venting, and what steps the operator proposes to undertake to minimize similar events in the future. If emergency venting is required, or if accidental venting occurs, the operator shall provide such notice to the City of such event as soon as possible, but in no event longer than 24 hours from the time of the event, with the information listed above and with an explanation as to the cause and how the event will be avoided in the future.</li> <li>14. Dust suppression techniques</li> <li>15. Consolidation of product treatment and storage facilities within a Well Site.</li> <li>16. Centralization of compression facilities within a Well Site.</li> <li>17. Telemetric control and monitoring systems, including surveillance monitors to detect when pilot lights on control devices are extinguished.</li> <li>18. Operator will comply with all CDPHE air permits, if any, and will comply with all OSHA work practice requirements with respect to benzene.</li> <li>19. Flaring shall be eliminated or minimized to the maximum extent practicable.</li> <li>20. Exhaust from all engines, motors, coolers, and all other equipment must be vented up and away from nearest residences.</li> <li>21. Operator agrees to participate in Natural Gas STAR program or other voluntary programs to encourage innovation in pollution control at well sites.</li> <li>22. Use of a pressure-suitable separator and vapor recovery unit (VRU) where applicable.</li> <li>23. Pipeline infrastructure will be constructed prior to the Production Phase.</li> </ol>
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46	Emissions mitigation	<p>Reduced Emission Completions (Commonly known as Green Completions). At Well Sites Operator shall employ reduced emission completions, also commonly known as green completions, which comply with federal and state requirements. In addition, Operator shall comply with the following:</p> <p>A. Gas gathering lines, separators, and sand traps capable of supporting green completions as described in COGCC Rule 805 shall be installed per the provisions of COGCC Rule 805.</p> <p>B. Operator shall comply with 40 CFR 60.5375(a)(1), (2) for green completions.</p> <p>C. Uncontrolled venting is prohibited other than where necessary for safety.</p> <p>D. Temporary flowback flaring and oxidizing equipment where allowed shall include the following:</p> <ol style="list-style-type: none"> <li>1. Adequately sized equipment to handle 1.5 times the largest flowback volume of gas from a vertical/directional and/or horizontally completed well respectively as reported to the COGCC in a ten mile radius;</li> <li>2. Valves and porting available to divert gas to flaring and oxidizing equipment; pursuant to the above Rules 40 CFR 60.5375 &amp; COGCC Rule 805;</li> <li>3. Auxiliary fueled with sufficient supply and heat to combust or oxidize non-combustible gases in order to control odors and hazardous gases. The flowback combustion device shall be equipped with a reliable continuous ignition source over the duration of flowback, except in conditions that may result in a fire hazard or explosion; and</li> <li>4. The Operator has a general duty to safely maximize resource recovery and minimize releases to the atmosphere during flowback and subsequent recovery/operation.</li> </ol>
47	Emissions mitigation	<p>Exhaust. The exhaust from all engines, motors, coolers and other mechanized equipment shall be vented up or in a direction away from the nearest occupied building.</p>
48	Emissions mitigation	<p>Flares and Combustion Devices. To the extent flares, thermal oxidizers, or combustion devices are utilized, all such flares shall be designed and operated as follows:</p> <p>A. The flare must be fired with natural gas and designed to operate with a 98% of higher hydrocarbon destruction efficiency.</p> <p>B. The flare must be designed and operated in a manner that will ensure no visible emissions during normal operation. Visible emissions means observations of smoke for any period or periods of duration greater than or equal to one (1) minute in any fifteen (15) minute period during normal operation, pursuant to EPA Method 22. Visible emissions do not include radiant energy or water vapor.</p> <p>C. The flare must be operated with a flame present at all times when emissions may be vented to it, or other mechanism that does not allow uncontrolled emissions.</p> <p>D. All combustion devices must be equipped with an operating auto-igniter.</p>
49	Emissions mitigation	<p>Leak Detection and Repair. Operator shall develop and maintain an acceptable leak detection and repair ("LDAR") program as required by CDPHE using modern leak detection technologies such as infra-red cameras for equipment used on the Well Sites. For the five (5) year period beginning with the start of the Drilling Phase at the first Well Site, Operator shall conduct quarterly IR camera monitoring of all equipment at the Well Sites. When an IR camera is used, Operator must retain an infrared image or video of all leaking components before and after repair. Such records must be maintained for two years and must be made available to the COGCC and local government upon request. Except when an emergency circumstance would necessitate an immediate repair, Operator must repair leaks as quickly as practicable. If more than 48-hours repair time is needed after a leak is discovered, an explanation of why more time is required will be submitted to the City. Operator shall conduct continuous pressure monitoring to detect leaks. At least once per year, the Operator shall notify the City five (5) business days prior to an LDAR inspection of its facilities to provide the City the opportunity to observe the inspection.</p>

50	Emissions mitigation	<p>Ambient Air Sampling. The Operator shall conduct a specific ambient air quality test that includes:</p> <ol style="list-style-type: none"> <li>1. Pre-construction baseline air quality testing shall be completed within 500 feet of the Well Sites by a consultant approved by the City and paid for by the Operator.</li> <li>2. Operator has agreed to provide the City with an annual payment towards air quality sampling.</li> <li>3. In addition, the City may require the Operator to conduct additional air monitoring as needed to respond to emergency events such as spill, process upsets, or accidental releases.</li> <li>4. Operator shall provide access to the Well Sites to the City's designated inspector to allow air sampling to occur.</li> </ol> <p>An air modeling and emissions inventory based upon the proposed development and equipment have been completed by a third-party consultant.</p>
51	Emissions mitigation	<p>Air Quality Action Days. The Operator shall respond to air quality Action Day advisories posted by the Colorado Department of Public Health and Environment for the Front Range Area by implementing their suggested air emission reduction measures as feasible. Emission reduction measures shall be implemented for the duration of an air quality Action Day advisory and may include measures such as:</p> <ol style="list-style-type: none"> <li>1. Minimize vehicle and engine idling;</li> <li>2. Reduce truck traffic and worker traffic;</li> <li>3. Delay vehicle refueling;</li> <li>4. Suspend or delay use of fossil fuel powered ancillary equipment; and</li> <li>5. Postpone construction activities, if feasible.</li> <li>6. Within 30 days following the conclusion of each annual Air Quality Action Day season, Operator must submit a report to the City that details which measures it implemented during any Action Day advisories.</li> </ol>
52	Emissions mitigation	<p>Compliance. The Operator will submit annual reports to the City certifying (a) compliance with these air quality requirements and documenting any periods of material non-compliance, including the date and duration of each such deviation and a compliance plan and schedule to achieve compliance, (b) that the equipment at the Well Sites continues to operate within its design parameters, and if not, what steps will be taken to modify the equipment to enable the equipment to operate within its design parameters. The annual report must contain a certification as to the truth, accuracy and completeness of the reports, signed by a responsible corporate official. The Operator may satisfy this reporting obligation in whole or in part by submitting its AQCC Regulations No. 7 annual reports for the prior calendar year to the City, and supplementing them as needed to meet these reporting requirements for covered facilities within the City. The Operator will also provide the City with a copy of any self-reporting submissions that Operator provides to the CDPHE due to any incidence of non-compliance with any CDPHE air quality rules or regulations at the Well Sites.</p>
53	Odor mitigation	<p>Odor. Odor emitting from Well Sites must be controlled. Operator to prevent odors from oil and gas operations by proactively addressing and, to the extent possible, resolving complaints filed by impacted members of the community, in coordination with City public health staff. Operator must use a filtration system or additives to the drilling and fracturing fluids to minimize odors. Operator is prohibited from masking odors from any oil and gas facility site by using masking fragrances.</p>
54	Drilling/Completion Operations	<p>Use of Pipelines. The Operator agrees to build pipelines for the transport of oil, gas, and produced water from the Well Sites and to utilize such pipelines at the Well Sites before the Production Phase commences. During the Completion Phase, the Operator will use pipelines for produced water for flowback to the maximum extent feasible. All fresh water shall be transported to the Well Sites by means other than by truck. The Operator's obligation to build and utilize such pipelines is subject to the City granting Operator all necessary right-of-way and the City issuing Operator the necessary Public/Private Improvement Permits. Operator shall be permitted to utilize temporary tanks during drilling, flowback, workover, completion, hydraulic fracturing and maintenance operations. If requested by the City, Operator will conduct a risk analysis to identify potential risks associated with pipelines and the measures implemented that are intended to mitigate such risks.</p>



55	Drilling/Completion Operations	Closed-Loop Pitless Systems for the Containment and/or Recycling of Drilling Fluids. Wells shall be drilled, completed and operated using closed-loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced fluids. Operator shall recycle fluids to the maximum extent practicable, with the understanding that Operator is limited in its ability to recycle all fluids, as doing so would necessitate the use of permanent tanks, which is otherwise prohibited by the terms of the Agreement, and result in the potential for additional emissions. Other than for irrigating landscape material, Operator shall not use City water for any of its oil and gas operations. Operator shall not store waste onsite for periods longer than 30 days.
56	Drilling/Completion Operations	<p>Plugged and Decommissioned Well Testing. Prior to and following the fracturing of any New Well, Operator shall assess the integrity of plugged and decommissioned wells or removed from use and dry, or removed from use ("Previously Abandoned Wells), within one-quarter (¼) mile of the projected track of the borehole of the proposed New Well.</p> <p>This shall include:</p> <ol style="list-style-type: none"> <li>1. Based upon examination of COGCC and other publicly available records, identification of all Previously Abandoned Wells located within one-quarter (¼) mile of the projected track of the borehole of a proposed well.</li> <li>2. Risk assessment of leaking gas or water to the ground surface or into subsurface water resources, taking into account plugging and cementing procedures described in any recompletion or plugged and abandoned report filed with the COGCC.</li> <li>3. Notification of the City and COGCC of the results of the assessment of the plugging and cementing procedures.</li> <li>4. Permission from each surface owner with a Previously Abandoned Well on their property to access the property to test the soil within a 10' radius of the Previously Abandoned Well. If a surface owner has not provided permission to access and test after thirty (30) days from receiving notice, the Operator shall not be required to test the Previously Abandoned Well. Notice to the surface owner will be sent by Certified US Mail, return receipt requested, to assure that the surface owner receives proper notice.</li> <li>5. For each Previously Abandoned Well for which access and permission to test is granted, a soil gas survey to test the soil within a 10' radius of the Previously Abandoned Well shall be completed prior to production from the proposed New Well and again one (1) year after production has commenced on the New Well.</li> <li>6. Notification of the results of the soil gas survey to the City and the COGCC within three (3) months of conducting the survey or advise the City that access to the Previously Abandoned Wells could not be obtained from the surface owner.</li> </ol>
57	Drilling/Completion Operations	Water Supply. The Operator agrees to comply with applicable State of Colorado, Department of Natural Resources and other applicable State regulations concerning the source(s) of water used in the Drilling Phase and Completions Phase. The Operator shall notify the City, upon its request, of the source(s) of water to be used at Well Sites during the Drilling Phase and Completion Phase and will provide the City with an estimate of the volumes of water to be utilized, with such estimates subject to change. All water volumes actually used by Operator shall be reported by the Operator to the State of Colorado in accordance with its regulations.
58	Drilling/Completion Operations	Well Integrity. Operator must equip the bradenhead access to the annulus between the production and the surface casing, as well as any intermediate casing, with a fitting to allow safe and convenient determinations of pressure and fluid flow. Valves used for annular pressure monitoring shall remain exposed and not buried to allow for visual inspection. The Operator shall take bradenhead pressure readings as required by the COGCC.
59	Drilling/Completion Operations	Bradenhead Monitoring. Operator will conduct bradenhead monitoring on the New Wells in accordance with COGCC Rules.
60	Final Reclamation	Reclamation. Operator must submit an oil and gas site reclamation plan and reclaim a Well Site not later than six (6) months after plugging and abandoning the last New Well at such Well Site, weather and planting season permitting.

Total: 60 comment(s)



## Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
401477000	FORM 2A SUBMITTED
401484079	ACCESS ROAD MAP
401484081	HYDROLOGY MAP
401484082	LOCATION DRAWING
401484083	LOCATION PICTURES
401484084	MULTI-WELL PLAN
401484085	OTHER
401484086	REFERENCE AREA MAP
401484087	REFERENCE AREA PICTURES
401484088	OTHER
401484191	WASTE MANAGEMENT PLAN
401484234	NRCS MAP UNIT DESC
401484235	NRCS MAP UNIT DESC
401484236	NRCS MAP UNIT DESC
401484237	NRCS MAP UNIT DESC
401525632	FACILITY LAYOUT DRAWING

Total Attach: 16 Files

## General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)

## **Public Comments**

No public comments were received on this application during the comment period.

