

FORM
2

Rev
08/16

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:

401504444

Date Received:

02/26/2018

APPLICATION FOR PERMIT TO:

☒ Drill ☐ Deepen ☐ Re-enter ☐ Recomplete and Operate

TYPE OF WELL OIL ☒ GAS ☐ COALBED ☐ OTHER _____

Refiling ☐

ZONE TYPE SINGLE ZONE ☒ MULTIPLE ZONES ☐ COMMINGLE ZONES ☐

Sidetrack ☐

Well Name: INTERCHANGE A

Well Number: S22-30-11N

Name of Operator: EXTRACTION OIL & GAS INC

COGCC Operator Number: 10459

Address: 370 17TH STREET SUITE 5300

City: DENVER

State: CO

Zip: 80202

Contact Name: Alyssa Andrews

Phone: (720)481-2379

Fax: ()

Email: aandrews@extractionog.com

RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20130028

WELL LOCATION INFORMATION

QtrQtr: SWNW Sec: 10 Twp: 1S Rng: 68W Meridian: 6

Latitude: 39.980478

Longitude: -104.993006

Footage at Surface: 2247 Feet FNL/FSL FNL 1173 Feet FEL/FWL FWL

Field Name: WATTENBERG

Field Number: 90750

Ground Elevation: 5232

County: BROOMFIELD

GPS Data:

Date of Measurement: 09/28/2017 PDOP Reading: 1.4 Instrument Operator's Name: T. WINNICKI

If well is ☐ Directional ☒ Horizontal (highly deviated) submit deviated drilling plan.

Footage at Top of Prod Zone: FNL/FSL FEL/FWL Bottom Hole: FNL/FSL FEL/FWL
150 FNL 2320 FEL 460 FSL 2273 FEL
Sec: 10 Twp: 1S Rng: 68W Sec: 22 Twp: 1S Rng: 68W

LOCATION SURFACE & MINERALS & RIGHT TO CONSTRUCT

Surface Ownership: ☒ Fee ☐ State ☐ Federal ☐ Indian

The Surface Owner is: ☒ is the mineral owner beneath the location.

(check all that apply)

☒ 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 by this Well: Yes

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

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

LEASE INFORMATION

Using standard QtrQtr, Sec, Twp, Rng format, describe one entire mineral lease that will be produced by this well (Describe lease beneath surface location if produced. Attach separate description page or map if necessary.)

Please see the Mineral Lease Map attached.

Total Acres in Described Lease: 147 Described Mineral Lease is: ☒ Fee ☐ State ☐ Federal ☐ Indian

Federal or State Lease # _____

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 0 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 1011 Feet
Building Unit: 1315 Feet
High Occupancy Building Unit: 5280 Feet
Designated Outside Activity Area: 5280 Feet
Public Road: 400 Feet
Above Ground Utility: 1160 Feet
Railroad: 5280 Feet
Property Line: 315 Feet

INSTRUCTIONS:

- All measurements shall be provided from center of the Proposed Well to nearest of each cultural feature as described in Rule 303.a.(5).
- 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.

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.

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: _____

SPACING and UNIT INFORMATION

Distance from completed portion of proposed wellbore to nearest completed portion of offset wellbore permitted or completed in the same formation: 259 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 150 Feet (Enter 5280 for distance greater than 1 mile.)

Federal or State Unit Name (if appl): _____ Unit Number: _____

SPACING & FORMATIONS COMMENTS

DSU #4:
Unit Setbacks:
460' from South & West unit boundaries;
150' from North & East unit boundaries.

OBJECTIVE FORMATIONS

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
NIOBRARA	NBRR	407-2222	1920	S.10, 15 & 22 - ALL

DRILLING PROGRAM

Proposed Total Measured Depth: 24117 Feet

Distance from the proposed wellbore to nearest existing or proposed wellbore belonging to another operator, including plugged wells:

Enter distance if less than or equal to 1,500 feet: 158 Feet ☐ No well belonging to another operator within 1,500 feet

Will a closed-loop drilling system be used? Yes

Is H₂S gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No (If Yes, attach an H₂S Drilling Operations Plan)

Will salt sections be encountered during drilling? No

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

Will oil based drilling fluids be used? Yes

BOP Equipment Type: ☒ Annular Preventor ☒ Double Ram ☒ Rotating Head ☐ None

GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule 318A

DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Methods: Commercial Disposal

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Commercial Disposal

Other Disposal Description:

Beneficial reuse or land application plan submitted?

Reuse Facility ID: or Document Number:

CASING PROGRAM

Casing Type	Size of Hole	Size of Casing	Wt/Ft	Csg/Liner Top	Setting Depth	Sacks Cmt	Cmt Btm	Cmt Top
CONDUCTOR	24	16	42	0	80	100	80	0
SURF	12+1/4	9+5/8	36	0	1500	400	1500	0
1ST	8+1/2	5+1/2	20	0	24117	3295	24117	1500

☐ Conductor Casing is NOT planned

DESIGNATED SETBACK LOCATION EXCEPTIONS

Check all that apply:

- ☐ Rule 604.a.(1)A. Exception Zone (within 500' of Building Unit)
- ☐ 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)

GREATER WATTENBERG AREA LOCATION EXCEPTIONS

Check all that apply:

- ☒ Rule 318A.a. Exception Location (GWA Windows).
- ☒ Rule 318A.c. Exception Location (GWA Twinning).

RULE 502.b VARIANCE REQUEST

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

OTHER LOCATION EXCEPTIONS

Check all that apply:

☐ Rule 318.c. Exception Location from Rule or Spacing Order Number _____

☐ Rule 603.a.(2) Exception Location (Property Line Setback).

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 Anti-Collision report used to determine distances. Please find the report attached as "Other".
Distance from completed portion to nearest completed portion of wellbore permitted/completed in the same formation:
259' (Ref. well: INTERCHANGE A S22-30-12N, Extraction)
Distance to nearest wellbore belonging to another operator: 158' (Ref. well: CAHB 2-10, Status: PA, NOBLE ENERGY)

Extraction Oil & Gas Inc. is the surface owner and self-waives Rules 318A.a. & 318A.c.

All BMPs on the related Form 2A for the Interchange A&B pad are applicable to this well.

This application is in a Comprehensive Drilling Plan _____ CDP #: _____

Location ID: _____

Is this application being submitted with an Oil and Gas Location Assessment application? _____ Yes

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

Signed: _____ Print Name: Alyssa Andrews

Title: Regulatory Analyst Date: 2/26/2018 Email: aandrews@extractionog.com

Operator must have a valid water right or permit allowing for industrial use or purchased water from a seller that has a valid water right or permit allowing for industrial use, otherwise an application for a change in type of use is required under Colorado law. Operator must also use the water in the location set forth in the water right decree or well permit, otherwise an application for a change in place of use is required under Colorado law. Section 37-92-103(5), C.R.S. (2011).

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: 8/23/2018

Expiration Date: 08/22/2020

API NUMBER

05 014 20762 00

Conditions Of Approval

All representations, stipulations and conditions of approval stated in the Form 2A for this location shall constitute representations, stipulations and conditions of approval for this Form 2 Permit-to-Drill and are enforceable to the same extent as all other representations, stipulations and conditions of approval stated in this Permit-to-Drill.

<u>COA Type</u>	<u>Description</u>
	<p>Operator acknowledges the proximity of the listed wells. Operator agrees to: provide mitigation option 1 or 2 (per the DJ Basin Horizontal Offset Policy) to mitigate the situation, ensure all applicable documentation is submitted based on the selected mitigation option chosen, and submit a Form 42 ("OFFSET MITIGATION COMPLETED") stating that appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of this well. Aquifer isolation to be verified or provided.</p> <p>014-08876 SHARPE 2-10; 001-08428, POITZ 1-22;</p>
	<p>1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU (spud notice) for the first well activity with a rig on the pad and provide 48 hour spud notice via Form 42 for all subsequent wells drilled on the pad.</p> <p>2) Comply with Rule 317.j. and provide cement coverage from TD to a minimum of 200' above Niobrara and from 200' below Sussex to 200' above Sussex. Verify coverage with cement bond log.</p> <p>3) Oil-based drilling fluid is to be used only after setting surface casing.</p> <p>Bradenhead tests shall be performed and reported according to the following schedule and Form 17 submitted within 10 days of each test:</p> <p>1) Within 60 days of rig release, prior to stimulation. If any pressure greater than 200 psi, must contact COGCC engineer prior to stimulation.</p> <p>2) 6 months after rig release, prior to stimulation (delayed completions).</p> <p>3) Within 30 days of first production, as reported on Form 5A.</p>

Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Drilling/Completion Operations	317.p One of the first wells drilled on the pad will be logged with open-hole Resistivity Log and Gamma Ray Log from the kick-off point into the surface casing. All wells on the pad will have a cement bond log with gamma-ray run on production casing (or on intermediate casing if production liner is run) into the surface casing. The horizontal portion of every well will be logged with a measured-while-drilling gamma-ray log. The Form 5, Completion Report, for each well on the pad will list all logs run and have those logs attached. The Form 5 for a well without open-hole logs shall clearly state "No open-hole logs were run" and shall clearly identify (by API#, well name & number) the well in which open-hole logs were run.
2	Drilling/Completion Operations	Operator acknowledges and will comply with COGCC policy for Bradenhead Monitoring during Hydraulic Fracturing treatments in the Greater Wattenberg Area dated May 29, 2012.
3	Drilling/Completion Operations	Anti-collision: Operator will perform an anti-collision evaluation of all active (producing, shut in, or temporarily abandoned) offset wellbores that have the potential of being within 150 feet of a proposed well prior to drilling operations for the proposed well. Notice shall be given to all offset operators prior to drilling.

Total: 3 comment(s)

Applicable Policies and Notices to Operators

Notice Concerning Operating Requirements for Wildlife Protection.
http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf

Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area.
<http://cogcc.state.co.us/documents/reg/Policies/PolicyGwaBradenheadMonitoringFinal.pdf>

Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
401504444	FORM 2 SUBMITTED
401522312	WELL LOCATION PLAT
401522843	MINERAL LEASE MAP
401524378	DIRECTIONAL DATA
401524379	DEVIATED DRILLING PLAN
401524874	OTHER
401536180	OffsetWellEvaluations Data
401554925	EXCEPTION LOC REQUEST
401742143	OFFSET WELL EVALUATION

Total Attach: 9 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final Review Completed.	08/23/2018
Permit	<p>Corrections made with Operator concurrence:</p> <ul style="list-style-type: none"> - changed distance to nearest lease line from 325' to 0', as both lease and wellbore are within unit. - changed spacing order from 407-2221 (which establishes DSU but only allows for a single horizontal well) to 407-2222 (which amends 407-2221 to allow up to 20 horizontal wells in DSU #4). - deleted extraneous spacing comments, and added "DSU #4" and unit setback details. <p>Permitting review complete.</p>	07/06/2018
Permit	<p>LATE COMMENT FROM LGD RECEIVED APRIL 6, 2018 - (Part 1 of 2):</p> <p>As the Local Government Designee for the City and County of Broomfield (Broomfield), Broomfield would like to provide the COGCC with an update related to Extraction Oil and Gas, LLC (Extraction) Form 2 permits, by the Colorado Oil and Gas Conservation Commission (COGCC), including with the following Document Numbers (Permits):</p> <p>401504480 401475422 401475425 401475423 401504490 401504533 401504532 401504531 401504530 401504529 401504528 401504524 401504461 401504469 401504468 401504467 401504466 401504465 401504464 401504462 401504442 401504447 401504445 401504444 401504401</p>	04/11/2018

401504476
401504487
401504486
401504485
401504482

By way of an update to the COGCC, on October 24, 2017, Extraction and Broomfield entered into an Amended and Restated Operator Agreement (Agreement). Section 9 of the Agreement provides that Extraction must submit a "Comprehensive Drilling Plan and Application" to Broomfield for such new wells or well sites (Plan). Per the Agreement, that Plan is subject to the review and approval by the City.

Broomfield has not approved the Plan as required by the Agreement. Broomfield has been working diligently with Extraction on the Plan, through weekly meetings and timely and reasonable communications with Extraction. The COGCC spacing orders for these spacing units, dated as of October 31, 2017, indicate that any Permits for the wells within these spacing units must "comport with" the Agreement.

As stated above, Section 9 of the Agreement provides that Extraction must submit a Comprehensive Drilling Plan for all of the well sites that is subject to Broomfield's approval. On December 15, 2017, Extraction submitted a draft Plan for the Livingston and Interchange B well pads. On January 22, 2018, Broomfield submitted 220 comments on that draft Plan, which included the comment that the Agreement requires the Plan to be for all of the well sites (Comments). On January 26, 2018, Extraction submitted a draft Plan for the Northwest A & B, United, and Interchange A & B Pads. On February 15, 2018, Extraction responded to Broomfield's comments, which relate to the Livingston and Interchange B portion of the Plan. Broomfield is in the process of reviewing Extraction's February 15th comments and providing comments on the second Plan submitted by Extraction on January 26, 2018.

In both citizens' and staff comments we have identified areas where Broomfield is requesting additional information and where we believe the Plan is not complete. Broomfield believes that Extraction has an obligation to correct or update any deficient statements in the Plan. The issues that remain outstanding in the Plan include the following:

- At meetings with Extraction on February 7, 2018, and February 14, 2018, Broomfield identified engineering issues that need to be resolved before permitting of the pipeline for all the well sites could go forward.
- At a meeting on February 16, 2018, Broomfield outlined deficiencies in Extraction's proposed Traffic Plan that need to be corrected.
- As of the date of these comments, Broomfield is still working with Extraction on required updates to its Emergency Response Plan and Risk Analysis Plan before those can be approved. Extraction has only provided a broad Risk Analysis Plan despite the requirement that risks and responses be identified.
- Extraction has not identified each type of hazard for each location and specific responses by phases, including referencing Broomfield's Emergency Response Plan and the COGCC Emergency Response Plan.
- It is Broomfield's understanding that Extraction has yet to talk with all Broomfield and Adams County residents to determine their desired mitigation measures for the well sites and truck roads to the north, even though Extraction committed to such individual communications.
- Extraction has not committed in writing to any necessary specific mitigation measures between residents and well sites to the north and east of residents in Adams County and Broomfield.
- Extraction has not yet committed in writing to necessary road improvements, stemming from increased truck traffic related to the Extraction operations.
- Extraction has yet to identify all traffic signage or committed to install such signage on its traffic plans.
- Extraction has yet to agree in the Plan that all class 7 and above vehicles are not allowed to operate on Public Roadways during the peak hours of 7-9 a.m. and 3-6 p.m. for Extraction activities
- Extraction has not submitted a final pavement design report for approval by the

	<p>City and County Engineer.</p> <ul style="list-style-type: none"> -- Extraction has yet to agree in the Plan to ensure the safety of emergency response teams, construction workers and the general public. Extraction has yet to agree in the Plan that Buffers shall be created as required on site to shield dust, noise, and light from residents -- Extraction has yet to provide a complete stormwater management plan. -- Extraction has failed to provide a more detailed GANTT chart on timing for all well sites. -- Extraction has not provided a long term reclamation plan. -- Extraction has not included practices it will use to address weeds at the sites. -- Extraction has not provided a complete explanation of its noise modeling approach. -- Extraction has not detailed the noise reduction levels it can achieve. -- Extraction has not provided written detail on the process of "Conduct Recovery Operations" including involvement of Broomfield's Public Health Division. -- Despite the fact that many Broomfield and Adams County residents to the south of the well sites are on well water, Extraction has not included 12 additional requested requirements in its Water Quality Plan. -- Extraction not complied with 2 requirements for the Wetlands Plan. -- Extraction has given only general responses to specific environmental site review requests. -- Extraction has not provided details of planning and installation of electrical infrastructure at the well sites as required for the Electrification Plan and Extraction has indicated that they will be updating the plan. -- Extraction has not provided a detailed visual mitigation plan for the well sites, service road, or pig launcher station. -- Broomfield is requesting that the phrase "The meteorological data that was used are "regional" and could be applied to a range of sites in the area. If the proposed development is similar and has the same or fewer wells, then the results could be extended to further characterizations" be added to the Plan concerning air modeling. -- Broomfield is requesting that the tank be removed from Figure 3 of the Plan since this tank will NOT be present. The diagram should correctly reflect what will be on site. -- Extraction has not provided a list of the hazardous materials that will be used on-site. <p>(comment continued...)</p>		
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Permit	<p>LATE COMMENT FROM LGD RECEIVED APRIL 6, 2018 - (Part 2 of 2):</p> <p>Other Comments concerning the Form 2 permits include:</p> <p>Interchange and Northwest Pads Form 2 A Comments</p> <p>-- The FACILITIES section indicates there are 2 gas compressors planned for the location. Extraction should provide information associated with the purpose of the compressors and how will they be fueled.</p> <p>-- Do CDOT and the Northwest Parkway Authority need to be notified since portions of I-25 and the Northwest Parkway are within the notification zone?</p> <p>-- The waste management plan only addresses E&P Waste. It does not discuss secondary containment and stormwater measures as required by Item 41 in the Best Management Practices of the Operator Agreement.</p> <p>Interchange and Northwest Pads Form 2 Comments</p> <p>-- Broomfield requests that COGCC take a close look at the offset well evaluations provided by Extraction Oil and Gas to verify the estimates of offset distances of existing wells (including plugged and abandoned wells) from the new proposed horizontal wells. Broomfield was unable to confirm many of the distances indicated in the OPERATOR COMMENTS AND SUBMITTAL section of the Form 2s based on the OFFSET WELL EVALUATIONS spreadsheet or from the ANTI-COLLISION reports provided.</p> <p>-- According to the OFFSET WELL EVALUATIONS spreadsheet provided in the Form 2s, there are many plugged and abandoned wells and several producing wells that have horizontal offsets of less than 150 feet from the proposed new horizontal wells and it is indicated that No Remediation Is Required for these wells. Broomfield is very concerned about the short offset distance for some of these wells; therefore, Broomfield requests that COGCC take a close look to verify the proposed mitigation measures indicated by Extraction Oil and Gas are appropriate as defined by the DJ Basin Horizontal Offset Policy.</p> <p>Broomfield asks that COGCC leave the comment period on the Permits open until all issues are resolved regarding the Plan. Broomfield will continue to work diligently with Extraction on the Plan.</p>	04/11/2018
Permit	Passed Completeness.	03/05/2018
Permit	Returned to draft per operator's request.	02/26/2018

Total: 6 comment(s)