

APPLICATION FOR PERMIT TO:

Drill Deepen Re-enter Recomplete and Operate

TYPE OF WELL OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> COALBED <input type="checkbox"/> OTHER _____ ZONE TYPE SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONES <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/>	Refiling <input type="checkbox"/> Sidetrack <input type="checkbox"/>
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Date Received:
05/12/2016

Well Name: VT-LDS Well Number: 3-16-18

Name of Operator: EXTRACTION OIL & GAS LLC 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@extractionoil.com

RECLAMATION FINANCIAL ASSURANCE
Plugging and Abandonment Bond Surety ID: 20130028

WELL LOCATION INFORMATION

QtrQtr: SWNW Sec: 15 Twp: 5N Rng: 65W Meridian: 6

Latitude: 40.401290 Longitude: -104.656800

Footage at Surface: 1892 Feet FNL 578 Feet FWL

Field Name: WATTENBERG Field Number: 90750

Ground Elevation: 4648 County: WELD

GPS Data:
Date of Measurement: 09/18/2015 PDOP Reading: 1.9 Instrument Operator's Name: C. WESTHOLMES

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
1391	FNL	2190	1320	FNL	460
	FWL			FWL	
Sec: 16	Twp: 5N	Rng: 65W	Sec: 18	Twp: 5N	Rng: 65W

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: No

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 attached lease map.

Total Acres in Described Lease: 0 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: 600 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 525 Feet

Building Unit: 590 Feet

High Occupancy Building Unit: 1378 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 570 Feet

Above Ground Utility: 597 Feet

Railroad: 5280 Feet

Property Line: 388 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: 10/06/2015

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: 201 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 460 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

Spacing Unit:
Section 18-5N-65W: N/2
Section 17-5N-65W: N/2
Section 16-5N-65W: NW/4

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		800	GWA

DRILLING PROGRAM

Proposed Total Measured Depth: 20404 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: 58 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	7+7/8	5+1/2	20	0	20404	1950	20404	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 Distance from completed portion to nearest completed portion of wellbore permitted/completed in the same formation: 201' (Ref. well: Carlson G-15-16HN - Bayswater)
Distance to nearest wellbore belonging to another operator: 58' (Ref. well: SANDUSKY #1 - Bayswater) *Not to completed portion of the wellbore, therefore no waiver required as per Rule 317.s.
Distance to completed portion from Sandusky #1 is 3842'. Please see the attached Anti-Collision report for VT-LDS 3-16-18 used for measuring distances.

The surface owner, 7N LLC (An Extraction company), leased the property to Richmark Real Estate Partners. Richmark then entered into a surface use agreement with Extraction. The SUA grants Extraction an irrevocable, exclusive easement to use the surface of the Property to conduct oil and gas operations. Please see the attached Ground Lease and Option to Purchase (attached as 'Other') and the SUA.

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

Location ID: 322888

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: 5/12/2016 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: *Matthew Lee* Director of COGCC Date: 3/11/2017

Expiration Date: 03/10/2019

API NUMBER
05 123 44417 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>
	This Permit to Drill is approved subject to all the BMPs and COAs on the most recently approved Form 2A and any subsequently approved Form 4 for the Oil and Gas Location (Location ID #322888). The most recently approved Form 2A and any subsequent Form 4s containing applicable COAs for this location shall be posted onsite during construction, drilling, and completions operations.
	Operator acknowledges the proximity of the following non-operated 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") for the remediated wells, referencing the API number of the proposed horizontal well(s) stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of this well. FAY 1 (API NO 123-12802)
	Bradenhead tests shall be performed and reported according to the following schedule and Form 17 submitted within 10 days of each test.: 1) Within 60 days of rig release, prior to stimulation. 2) 6 months after rig release, prior to stimulation. 3) Within 30 days of first production, as reported on Form 5A.
	1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU (Spud Notice), for the first well/activity on the pad and provide 48 hour spud notice for all subsequent wells drilled on the pad. 2) Comply with Rule 317.j and provide cement coverage from the end of production casing to a minimum of 200' above Niobrara. Verify coverage with cement bond log.

Best Management Practices

No	BMP/COA Type	Description
1	Planning	604.c.(2)J.i Blowout Prevention Equipment (“BOPE”): A double ram and annular preventer will be used during drilling. Stabbing valves shall be installed in the event of reverse circulation and shall be prior tested with low and high pressure fluid.
2	Planning	604.c.(2)J.ii Backup stabbing valves will be required on well servicing operations during reverse circulation. Valves shall be pressure tested before each well servicing operation using both low-pressure air and high-pressure fluid.
3	Drilling/Completion Operations	604.c.(2)L. Closed chamber drill stem tests shall be allowed. All other drill stem tests shall require approval by the Director. None planned for this well.
4	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.
5	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.
6	Drilling/Completion Operations	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.

Total: 6 comment(s)

Applicable Policies and Notices to Operators

Policy
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

Att Doc Num	Name
1176034	ANTI-COLLISION REPORT
400939407	FORM 2 SUBMITTED
401009345	DEVIATED DRILLING PLAN
401009346	WELL LOCATION PLAT
401009348	DIRECTIONAL DATA
401016049	MINERAL LEASE MAP
401033550	SURFACE AGRMT/SURETY
401053379	OffsetWellEvaluations Data
401056881	PROPOSED SPACING UNIT
401058576	OTHER
401231007	OFFSET WELL EVALUATION

Total Attach: 11 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Final Review	Described mineral lease is <1 acre so listed as 0.	03/11/2017
Permit	Removed all BMP's not related to Drilling/Completions. Final Review Complete	03/09/2017
Permit	Open Hole Logging BMP submitted by operator. Added location ID # 322888. Permitting Review Complete	03/09/2017
Permit	IN PROCESS: The objection to the GWA wellbore units has been withdrawn.	09/30/2016
Permit	ON HOLD: The Form 2's for this location have been placed on hold. There is an objection to the GWA wellbore units.	09/01/2016
Engineer	Offset Wells Evaluated.	08/08/2016
Engineer	Changed "1st Liner" to "First String" on the Casing tab.	08/08/2016
LGD	<p>The City of Greeley is providing comment on the proposed Vetting oil/gas drill site in the context that the subject site is within the City of Greeley's Long Range Expected Growth Area (LREGA). This is the area in which the community anticipates development occurring in the upcoming 20 or more years, consisting of both incorporated and unincorporated lands. The following comments are made to attempt to increase compatibility of this proposed development with the future urbanization of this area, and to avoid non-conforming, nuisance situations in the future as much as possible.</p> <p>In general, the proposed use is industrial in character and, as such, is ill-suited for location in proximity to a school and emerging dense residential neighborhoods, even if meeting technical qualifications. Such siting introduces traditional land use conflicts associated with intensity of use, such as pedestrian/traffic conflicts, noise, and increased activity.</p> <p>Recognizing, however, that such conflicts may be able to be mitigated to meet the minimum standards set for state permitting, the City notes the following.</p> <p>First, the proposed use of the site seems unnecessarily dispersed. It is recommended that the applicant work to compact the site layout to minimize the area affected by this use.</p> <p>Next, it is recommended that the applicant propose to utilize Best Management Practices that are similar to those that were approved by the Greeley City Council for the Triple Creek drilling site within the City (Greeley Land Use File No. USR 6:14). The City has found these to be effective mitigation tools in an urban/urbanizing setting. (See attached.)</p> <p>The City of Greeley adopted Parks, Trails, and Open Lands Master Plan recommends a trail along the Greeley #3 Ditch. Please situate equipment so that a trail can be placed along the ditch and still maintain a setback of at least 150 feet from any equipment.</p> <p>A combination of solid fencing, berming, and landscaping should be provided on all sides of the proposed site to adequately screen and buffer this use from neighboring uses of different intensities. A solid fence and/or berm is recommended on all sides. It is recommended that the applicant install permanent irrigation and a detailed plan for landscape maintenance. Fences or walls ideally should include variation in appearance at least every 50 feet. This can be achieved by constructing columns or offsetting the angle.</p> <p>The City of Greeley 2035 Comprehensive Transportation Plan indicates that Cherry</p>	06/30/2016

Avenue will be a two-lane minor arterial roadway requiring a 100' total public right-of-way (50' half right-of-way). Please ensure that the site map calls out the future east half of the right-of-way for Cherry Avenue and that all wellheads, production equipment and associated structures are set back a minimum of 150 feet or 1 ½ times the height of the derrick, whichever is greater, from the future right-of-way line [per Sec. 18.56.040.a.1 of the Greeley Municipal Code]. Similarly, it is recommended that landscaping be installed adjacent to, but outside of, the future required right-of-way for Cherry Avenue, so that future widening does not result in having to remove established landscaping.

Note, too, that a complete street section of Cherry Avenue at build-out would include sidewalks; the applicant is encouraged to provide these at this time as part of developing this land, which would be consistent with the requirements of any other development proposal, and is appropriate and needed as safety mitigation against potential pedestrian/vehicle conflicts.

Portions of Cherry Avenue and 24th Street on the proposed truck route are within the City of Greeley. During the drilling and completion phase, the amount of traffic on these roads will substantially increase. As such, the City of Greeley will require that the operator enter into a road maintenance agreement with the City of Greeley to utilize roads within the City. A draft of this agreement will be provided once completed by staff. This agreement will specify terms as to which the operator will be required to maintain or repair Cherry Avenue and 24th Street due to increased traffic during the drilling and completion operations.

The City of Greeley's current water infrastructure in the subject area is not sufficient to supply water for a fracturing operation. The City will not be able to provide Extraction with any direct water for the proposed drill site without improvements being made to the current water distribution system. The City has not received any requests from Extraction for water service to date.

The subject development is in the Western Hills Fire Protection District, which is serviced by the Greeley Fire Department. As such, the proposed development must meet City fire codes and standards. Access roads to tank batteries must meet the requirements set forth in IFC Section 503.2. An all-weather surface is required and the maximum grade of access road is 10%. The angle of approach and departure for any means of access shall not exceed 8 degrees. Furthermore, access roads to tank batteries and wellheads must be at least 20' wide and have a minimum unobstructed overhead clearance of 13' 6" [ref. Sec. 18.56.090 of the Greeley Code].

Permit	Passed completeness.	06/10/2016
Permit	Returned to draft per operator request.	06/03/2016
Permit	Returned to draft per operator request.	05/18/2016

Total: 11 comment(s)