

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 _____	Refilling <input type="checkbox"/>
ZONE TYPE SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONES <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/>	Sidetrack <input type="checkbox"/>

Date Received:
09/23/2015

Well Name: Thomas East Well Number: 1

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: Jennifer Grosshans Phone: (303)928-7128 Fax: (303)218-5678

Email: regulatory@petro-fs.com

RECLAMATION FINANCIAL ASSURANCE
Plugging and Abandonment Bond Surety ID: 20130028

WELL LOCATION INFORMATION

QtrQtr: NWNE Sec: 16 Twp: 10N Rng: 67W Meridian: 6

Latitude: 40.840446 Longitude: -104.891594

Footage at Surface: <u>345</u> feet	FNL/FSL	FEL/FWL
<u>FNL</u> <u>1336</u> feet	<u>FEL</u>	

Field Name: WILDCAT Field Number: 99999

Ground Elevation: 5587 County: WELD

GPS Data:
Date of Measurement: 03/27/2015 PDOP Reading: 1.3 Instrument Operator's Name: Ben Hardenbergh

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

Footage at Top of Prod Zone: <u>300</u> feet	FNL/FSL	FEL/FWL	Bottom Hole: <u>300</u> feet	FNL/FSL	FEL/FWL
<u>FNL</u> <u>1980</u> feet	<u>FEL</u>		<u>FSL</u> <u>1980</u> feet	<u>FEL</u>	

Sec: 16 Twp: 10N Rng: 67W Sec: 21 Twp: 10N Rng: 67W

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: Surface Use Agreement

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.)

Township 10 North, Range 67 West of the 6th PM
Section 16: All

Total Acres in Described Lease: 640 Described Mineral Lease is: Fee State Federal Indian

Federal or State Lease # 109218

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

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 1772 Feet
 Building Unit: 1829 Feet
 High Occupancy Building Unit: 5280 Feet
 Designated Outside Activity Area: 5280 Feet
 Public Road: 1181 Feet
 Above Ground Utility: 1148 Feet
 Railroad: 5280 Feet
 Property Line: 345 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 Wellbore to Nearest Wellbore Permitted or Completed in the same formation: 1282 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 300 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

Nearest wellbore permitted or completed in the same formation is the Thomas West 2.

Codell - Unit Configuration - T10N,R67W:
 Sec 16 - All
 Sec 21 - All

OBJECTIVE FORMATIONS

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
CODELL	CODL	535-679	1280	10N 67W: 16 & 21 All

DRILLING PROGRAM

Proposed Total Measured Depth: 18505 Feet

Distance to nearest permitted or existing wellbore penetrating objective formation: 1282 Feet (Including plugged wells)

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 609

DRILLING WASTE MANAGEMENT PROGRAM

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

Cuttings Disposal: ONSITE Cuttings Disposal Method: Other

Other Disposal Description:

Drill cuttings will either be hauled off by a licensed third party transporter to a Commercial Facility, or recycled and re-used on location using Bio-Remediation.

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	18505	1650	18505	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: Nearest permitted or existing wellbore penetrating objective formation is Thomas West 2.
Pending Spacing Order Docket Number 150900542 to modify Order Number 535-579 was approved at the September 14th hearing.
SUA has a clause stating that it is binding upon any other assigns.

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: Jennifer Grosshans

Title: Regulatory Analyst Date: 9/23/2015 Email: regulatory@petro-fs.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: 10/16/2015

Expiration Date: 10/15/2017

API NUMBER

05 123 42285 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.

COA Type

Description

- 1) Provide 48 hour notice prior to spud via electronic Form 42.
- 2) Provide cement coverage to a minimum of 200' above Niobrara. Verify coverage with cement bond log.

Best Management Practices

No	BMP/COA Type	Description
1	Pre-Construction	<p>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.</p> <p>Identification of plugged and abandoned wells will be identified pursuant to 319.a.(5)</p>
2	General Housekeeping	<p>Visual Impacts: Equipment, regardless of construction date, which are observable from any public highway shall be painted with uniform, non-contrasting, non-reflective color tones (similar to the Munsell Soil Color Coding System), and with colors matched to, but slightly darker than, the surrounding landscape.</p>
3	Material Handling and Spill Prevention	<p>Leak Detention Plan: Pumper will visit the location daily and visually inspect all wellheads and fittings for leaks. Additionally, monthly documented SPCCP inspections are conducted pursuant to 40 CFR 112.</p> <p>Control of fire hazards: All material that is considered a fire hazard shall be a minimum of 25' from the wellhead. Electrical equipment shall comply with API IRP 500 and will comply with the current national electrical code.</p> <p>Operator shall comply with state and federal laws, rules and regulations governing the presence of any petroleum products, toxic or hazardous chemicals or wastes on the Subject lands.</p>
4	Dust control	<p>Operator shall employ practices for control of fugitive dust caused by their operations. Such practices shall include but are not limited to the use of speed restrictions, regular road maintenance, restriction of construction activity during high- wind days, and silica dust controls when handling sand used in hydraulic fracturing operations. Additional management practices such as road surfacing, wind breaks and barriers may be used.</p>
5	Emissions mitigation	<p>805.b.(3)A. Green completion practices are not required for this area as it is considered exploratory. If it is determined that the wells will produce gas in economic quantities, then Extraction will negotiate with nearby midstream operators to connect to their gas sales line.</p>
6	Odor mitigation	<p>Equipment shall be operated in such a manner that odors and dust do not constitute a nuisance or hazard to public welfare.</p>

7	Drilling/Completion Operations	<p>A closed –loop system will be used for drilling operations.</p> <p>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.</p> <p>Bioremediation of Drill Cuttings</p> <p>1. Mixing and Treatment:</p> <p>A. All cuttings shall be mixed on location</p> <p>B. Cuttings shall be mixed with additives. The amount of additives shall be determined based on laboratory analysis of untreated cuttings.</p> <p>C. Mixing shall be performed with equipment to ensure contact between the cuttings and additives</p> <p>D. Additives</p> <p>i. CMC – polymer absorbent, non-toxic, non-hazardous</p> <p>ii. Oppenheimer Piranha – bioremediation of hydrocarbons</p> <p>iii. Water soluble calcium – chemical reduction of SAR</p> <p>2. Stockpile Management:</p> <p>A. Treated, solidified cuttings shall be stored on location in individual well stockpiles. One stockpile per well. Each stockpile shall be marked with the name of the well.</p> <p>B. Stockpiles shall be windrows with a height as tall as practical. Taller windrows aid in the retention of warmth increasing microbial activity</p> <p>C. Leachate shall be managed by absorbent material. The inherent properties of CMC reduces leachate levels of TDS to below standards based on laboratory analysis.</p> <p>D. An earthen berm, one foot in height, shall be constructed around the stockpile(s) to minimize storm water runoff</p> <p>E. As the solidified cuttings dry, a protective crust layer will form on the surface of the stockpile. This crust layer helps retain moisture and heat within the stockpile while also protecting the native landscape from windborne contaminated particulate. Care shall be taken by the Operator and all contractors to minimize stockpile disturbance until a properly trained soil sampling technician visits the site.</p> <p>3. Sampling & Testing:</p> <p>A. The stockpile of treated cuttings will be sampled and tested according to standard laboratory and sampling protocols and COGCC table 910-1. Stockpiles will be sampled in increments no greater than 100 cubic yards. Ten samples shall be taken from each segment of the stockpile of treated drill cuttings, mixed and then one composite sample will be used for testing. Samples will be taken from the stockpile in such as way as to preserve any potential volatile organic compounds. Ten random samples shall be taken of the stockpile of subsoil for use as a source for background data.</p> <p>B. After the cuttings have achieved the threshold limits specified in table 910-1, the treated material will be thin spread on the well site and incorporated into the reclamation fill material.</p> <p>A permanent record of the laboratory analysis shall be maintained by the Operator.</p>
8	Drilling/Completion Operations	<p>One of the first wells drilled on the pad will be logged with openhole 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 openhole logs were run.</p>
9	Final Reclamation	<p>Within 90 days subsequent to the time of plugging and abandonment of the entire site, superfluous debris and equipment shall be removed from the site. The Operator shall restore the surface of the Land affected by such terminated operations as near as possible to the previous state that existed prior to operations.</p>

Total: 9 comment(s)

Attachment Check List

Att Doc Num	Name
400828374	FORM 2 SUBMITTED
400868915	OffsetWellEvaluations Data
400903944	DIRECTIONAL DATA
400903945	DEVIATED DRILLING PLAN
400903946	WELL LOCATION PLAT
400904104	SURFACE AGRMT/SURETY

Total Attach: 6 Files

General Comments

User Group	Comment	Comment Date
Permit	Final review completed.	10/15/2015 9:13:38 AM
Engineer	Evaluated existing wells within 1500' of proposed directional.	10/9/2015 5:23:14 PM
Permit	Catie Stitt, State Land Board, confirms lease & bond are in good order.	10/8/2015 9:32:08 AM
Permit	Spacing order changed from 535-692 to 535-579 per operator.	10/5/2015 9:07:09 AM
Permit	Spacing order provided does not cover wellbore. Contacted operator for correction. Emailed State Land Board requesting verification of valid mineral lease.	10/2/2015 2:41:13 PM
Public	<p>I firmly believe the State of Colorado and the fracking industry have violated our Inalienable Rights, acted in an arbitrary and capricious manner, acted in abuse of discretion, have not offered citizens equal protection, violated the Clean Air Act, Colorado Air Pollution Prevention and Control Act, Oil and Gas Conservation Act, Breach of Fiduciary Duty, have allowed the cause of irreparable harm, threatened our fundamental rights to life, liberty and property.</p> <p>This specific permit warrants further investigation into whether the operator can successfully and fully operate in a manner consistent with the protection of public health safety and welfare.</p> <p>Colorado citizens need to be able to protect themselves, their families, their environment, the values of their homes and exercise their civil rights to safety, but they cannot, and are in fact prohibited by the state and fracking industry from doing so.</p> <p>Also, there is a compendium of health studies that show mining using hydraulic fracturing, is not safe and cannot be conducted in a manner consistent with public health, safety and welfare. See: http://concernedhealthny.org/compendium/</p> <p>The associated risks of the fracking industry are too great, and a precautionary principle must be addressed before any operations take place. I recommend that this permit be denied immediately.</p>	10/2/2015 1:16:10 PM
Permit	Pass completeness	9/24/2015 10:36:16 AM

Total: 7 comment(s)