

**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:  
12/08/2015

Well Name: CS-SHERWOOD      Well Number: C5-1-13  
 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)420-5749      Fax: (    )  
 Email: alyssa.andrews@iptenergyservices.com

**RECLAMATION FINANCIAL ASSURANCE**  
 Plugging and Abandonment Bond Surety ID: 20130028

**WELL LOCATION INFORMATION**  
 QtrQtr: SWSE      Sec: 36      Twp: 6N      Rng: 66W      Meridian: 6  
 Latitude: 40.438370      Longitude: -104.722860  
 Footage at Surface: 339 feet      FNL/FSL FSL 1944 feet      FEL/FWL FEL  
 Field Name: WATTENBERG      Field Number: 90750  
 Ground Elevation: 4664      County: WELD  
 GPS Data:  
 Date of Measurement: 07/30/2014      PDOP Reading: 1.5      Instrument Operator's Name: J. MCCABE  
 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  
    460      FNL      2492      FEL      2198      FNL      2547      FEL  
    Sec: 1      Twp: 5N      Rng: 66W      Sec: 13      Twp: 5N      Rng: 66W

**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: 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.)

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: 224 Feet

## CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 372 Feet

Building Unit: 386 Feet

High Occupancy Building Unit: 2979 Feet

Designated Outside Activity Area: 2979 Feet

Public Road: 5280 Feet

Above Ground Utility: 328 Feet

Railroad: 314 Feet

Property Line: 135 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: 664 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

Proposed spacing unit:  
Sec.1-5N-66W: W/2E/2 & E/2W/2  
Sec.12-5N-66W: W/2E/2 & E/2W/2  
Sec.13-5N-66W: W/2NE/4 & E/2NW/4

## 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		800	GWA

## DRILLING PROGRAM

Proposed Total Measured Depth: 20528 Feet

Distance from proposed wellbore to nearest existing or permitted wellbore belonging to another operator:

664 Feet (Including plugged wells)

Will a closed-loop drilling system be used? Yes

Is H<sub>2</sub>S gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No (If Yes, attach an H<sub>2</sub>S 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	100	80	100	0
SURF	12+1/4	9+5/8	36	0	1500	400	1500	0
1ST	7+7/8	5+1/2	20	0	20528	1963	20528	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 to well completed in the same formation: 664' (Ref. Well: CS-Kinkade C6-1-13)  
Distance to well penetrating the formation: 664' (Ref. Well: CS-Kinkade C6-1-13)  
  
The C-Street location (Location ID 430474) was approved 10-17-12. Additionally, a Surface Use Agreement with the surface owner was signed on 02-15-12. Original owner of the location was Mineral Resources.  
  
Exception to rule 318A.a. waived in SUA page 2 part 4.

This application is in a Comprehensive Drilling Plan \_\_\_\_\_ CDP #: \_\_\_\_\_

Location ID: 430474

Is this application being submitted with an Oil and Gas Location Assessment application? No

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: Operations Engineer Date: 12/8/2015 Email: alyssa.andrews@iptenergyservi

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: 3/15/2016

Expiration Date: 03/14/2018

**API NUMBER**  
05 123 42913 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>1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU for the first well activity with a rig on the pad and provide 48 hour spud notice for each subsequent well drilled on the pad.</p> <p>2) Comply with Rule 317.j and provide cement coverage from TD to a minimum of 200' above the Niobrara. Verify coverage with cement bond log.</p> <p>3) Oil based drilling fluid is to be used only after all aquifers are covered.</p>
	<p>1) Bradenhead test shall be performed within 60 days of rig release and prior to stimulation. Test results shall be submitted on Form 17 within 10 days of test.</p> <p>2) Bradenhead test shall be performed between 6 and 7 months after rig release and shall be submitted on Form 17 within 10 days of test.</p> <p>3) Bradenhead test shall be performed within 30 days of First Production as reported on Form 5A and shall be submitted on Form 17 within 10 days of test.</p>

## Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Planning	804. Visual Impacts: All existing structures have been and any future long term facility structures will be painted a color that enables the facilities to blend in with the natural background color of the landscape, as seen from a viewing distance and location typically used by the public. Maintain appearance with garbage clean-up; a trash bin will be located on site to accumulate waste by the personnel drilling the wells. Site will have unused equipment, trash and junk removed immediately.
2	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.
3	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.
4	Planning	604.c.(2)N. Control of fire hazards: All material that is considered a fire hazard shall be a minimum of 25' from the wellhead tanks or separators. Electrical equipment shall comply with API IRP 500 and will comply with the current national electrical code.
5	Planning	The C Street location is fenced with a combination of chain link and wood privacy fencing. Wood privacy fencing is located along the south side of the location, adjacent to C Street, and chain link fencing is located along the west, east, and north sides. Access to the site is controlled by an automated security gate.
6	Planning	The C Street location has an approved Use by Special Review permit with Weld County, USR 13-0009.
7	Traffic control	604.c.(2)S. Access Roads: The access road has been constructed to accommodate local emergency vehicles. The access road is paved from C Street to the gate entrance to reduce dust and sediment tracking onto C Street.
8	General Housekeeping	604.c.(2)P. Trash Removal: All trash, debris and material not intrinsic to the operation of the oil and gas facility shall be removed and legally disposed of as applicable.
9	Storm Water/Erosion Control	Implement and maintain BMPs to control stormwater runoff in a manner that minimizes erosion, transport of sediment offsite, and site degradation. A water quality pond is located in the northeastern corner of the property to provide sediment retention from stormwater flows. An Erosion and Sediment Control Plan was submitted to Weld County as part of the approved grading permit and will be covered under Extraction Oil & Gas's field wide CDPHE permit, permit number COR03M013.

10	Material Handling and Spill Prevention	604.c.(2)F. Leak Detention Plan: Pumper will visit the location daily and visually inspect all tanks and fittings for leaks. Additionally, monthly documented SPCCP inspections are conducted pursuant to 40 CFR 112.
11	Material Handling and Spill Prevention	604.c.(2)R Tank Specifications: Tanks will be designed, constructed and maintained in accordance with NFPA Code 30. The tanks are visually inspected once a day for issues, and recorded inspections are conducted once a month.
12	Dust control	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. The access road from C Street to the gate entrance has been paved to minimize dust and sediment tracking off of the location.
13	Construction	604.c.(3)B. Berm Construction. The berming around the tank battery is constructed of a steel ring with an engineered liner, designed to contain 150% of the capacity of the largest tank. All berms will be visually checked periodically to ensure proper working condition. Secondary containment devices shall be sufficiently impervious to contain any spilled or released material. Tertiary containment, such as an earthen berm, will be installed around additional production facilities. All berms will be visually checked periodically to ensure proper working condition.
14	Construction	803 Light sources during all phases of operations will be directed downwards and away from occupied structures where possible. Permanent lighting shall be mounted at compressor stations on a pole or building and directed downward to illuminate key areas within the facility, while minimizing the amount of light projected outside the facility.
15	Construction	604.c.(2).Q. All guy line anchors left buried for future use shall be identified by a marker of bright color not less than four (4) feet in height and not greater than one (1) foot east of the guy line anchor.
16	Noise mitigation	604.c.(2)A. Extraction intends on powering the drilling rig off of highline power, which would eliminate the noise caused by the generators on the rig. This noise mitigation solution requires proper infrastructure supplied by Xcel Energy. Extraction is currently working with Xcel Energy to have this infrastructure in place prior to the start of drilling. It is anticipated that this infrastructure will be ready for use by October 2015. Additionally sound walls will be constructed around this location to aid in the reduction of noise levels.
17	Emissions mitigation	604.c.(2)C.i. Green Completions - Emission Control System: Test separators and associated flow lines and sand traps shall be installed on-site to accommodate green completions techniques pursuant to COGCC Rules. In the anticipated absence of a viable gas sales line, the flowback gas shall be thermally oxidized in an emissions control device (ECD), which will be installed and kept in operable condition for least the first 90-days of production pursuant to CDPHE rules. This ECD shall have an adequate capacity for 1.5 times the largest flowback within a 10 mile radius, will be flanged to route gas to other or permanent oxidizing equipment and shall be provided with the equipment needed to maintain combustions where non-combustible gases are present.
18	Emissions mitigation	805: Oil & gas facilities and equipment shall be operated in such a manner that odors and dust do not constitute a nuisance or hazard to public welfare. The production facilities will have VOC combustors with emission control devices to comply with the Department of Public Health and Environment, Air Quality Control Commission.
19	Drilling/Completion Operations	604.c.l: Upon initial rig-up and at least once every thirty (30) days during drilling operations thereafter, pressure testing of the casing string and each component of the blowout prevention equipment including flange connections shall be performed to seventy percent (70%) of working pressure or seventy percent (70%) of the internal yield of casing, whichever is less. Pressure testing shall be conducted and the documented results shall be retained by the operator for inspection by the Director for a period of one (1) year. Activation of the pipe rams for function testing shall be conducted on a daily basis when practicable.

20	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.
21	Drilling/Completion Operations	604.c.(2).K. Drilling and Completion- Pit level Indicators shall be used on location.
22	Drilling/Completion Operations	604.c.(2).O. Drilling and Completion-All loadlines shall be bullplugged or capped.
23	Drilling/Completion Operations	604.c.(2)B.i Operator will be utilizing a closed loop system
24	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.
25	Drilling/Completion Operations	Requirement to log well. 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.
26	Drilling/Completion Operations	Landscaping and screening has been installed adjacent to C Street in accordance with the approved landscape plan per the Use by Special Review permit. Landscaping includes a mix of evergreen trees and deciduous shrubs planted along berms. A wood privacy fence is installed on the top of the berms and access is controlled by a cast iron security gate.
27	Interim Reclamation	Operator shall be responsible for segregating the topsoil, backfilling, repacking, reseeding, and re-contouring the surface of any disturbed area so as not to interfere with Owner's operations and shall reclaim such area to be returned to pre-existing conditions as best as possible with control of all noxious weeds.
28	Final Reclamation	604.c.(2)T. 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. Identification of plugged and abandoned wells will be identified pursuant to 319.a.(5)
29	Final Reclamation	604.c.(2).U. Final Reclamation-The operator shall identify the location of the wellbore with a permanent monument as specified in Rule 319.a.(5). The operator shall also inscribe or imbed the well number and date of plugging upon the permanent monument.

Total: 29 comment(s)

### **Applicable Policies and Notices to Operators**

Policy
Notice Concerning Operating Requirements for Wildlife Protection. <a href="http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf">http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf</a>
Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area. <a href="http://cogcc.state.co.us/documents/reg/Policies/PolicyGwaBradenheadMonitoringFinal.pdf">http://cogcc.state.co.us/documents/reg/Policies/PolicyGwaBradenheadMonitoringFinal.pdf</a>

### **Attachment Check List**

<b>Att Doc Num</b>	<b>Name</b>
400865243	FORM 2 SUBMITTED
400865246	WELL LOCATION PLAT
400865413	DIRECTIONAL DATA
400865414	DEVIATED DRILLING PLAN
400932781	OffsetWellEvaluations Data
400932782	EXCEPTION LOC REQUEST
400932784	EXCEPTION LOC REQUEST
400932785	SURFACE AGRMT/SURETY
400933923	EXCEPTION LOC REQUEST
400946557	MINERAL LEASE MAP
400949373	PROPOSED SPACING UNIT

Total Attach: 11 Files

### General Comments

<b>User Group</b>	<b>Comment</b>	<b>Comment Date</b>
Permit	Final Review Complete.	3/15/2016 11:50:14 AM
Permit	Sundry # 400957956 approved for Location ID#430474 to change drilling mud to OBM and update waste management plan.	3/13/2016 5:05:17 PM
Engineer	Offset wells evaluated.	3/4/2016 3:41:53 PM
Permit	Permit task passed.	2/26/2016 10:26:28 AM
LGD	The subject site is within the City of Greeley's Long Range Expected Growth Area (LREGA), which is the area in which urban-scale development is anticipated to occur within the next 20+ years. The site is presently bordered by the City of Greeley to the north, south, and west. Existing area development is already fairly urban, with several existing medium-density neighborhoods in the vicinity. The City of Greeley has previously fielded complaints regarding previous operations at this site concerning noise, activity, and fugitive dust. Because of its proximity to a high number of residences and its visibility from C Street, an important community thoroughfare, the operator should be mindful regarding impacts of the operation. We encourage the operator to take steps to control and reduce the impacts regarding traffic, noise, refuse, and visual aesthetics that can be created by the operations contemplated by this permit. A list of additional preferred Best Management Practices can be provided by contacting the City.	12/17/2015 12:44:41 PM
Permit	Passed completeness.	12/16/2015 11:22:46 AM

Total: 6 comment(s)