

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"/> |
|---|---|

Date Received:
08/21/2015

Well Name: Leffler FE Well Number: 20-179HC

Name of Operator: GREAT WESTERN OPERATING COMPANY LLC COGCC Operator Number: 10110

Address: 1801 BROADWAY #500

City: DENVER State: CO Zip: 80202

Contact Name: Allison Linz Phone: (303)398-0355 Fax: ()

Email: regulatorypermitting@gwogco.com

RECLAMATION FINANCIAL ASSURANCE
Plugging and Abandonment Bond Surety ID: 20090080

WELL LOCATION INFORMATION

QtrQtr: NENE Sec: 21 Twp: 6N Rng: 66W Meridian: 6

Latitude: 40.478569 Longitude: -104.774133

Footage at Surface: 942 feet FNL 215 feet FEL

Field Name: WATTENBERG Field Number: 90750

Ground Elevation: 4751.4 County: WELD

GPS Data:
Date of Measurement: 04/21/2015 PDOP Reading: 1.3 Instrument Operator's Name: Dallas Nielsen

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

2163 FNL 460 FEL 2173 FNL 470 FWL

Sec: 21 Twp: 6N Rng: 66W Sec: 20 Twp: 6N 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: Yes

The right to construct the Oil and Gas Location is granted by: oil and gas lease

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.)

Irregular Lease Description Please See Attached Map

Total Acres in Described Lease: 526 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: 843 Feet

Building Unit: 869 Feet

High Occupancy Building Unit: 5280 Feet

Designated Outside Activity Area: 5258 Feet

Public Road: 201 Feet

Above Ground Utility: 237 Feet

Railroad: 5280 Feet

Property Line: 215 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: 07/21/2015

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: 6 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

Brown 20-13 is the nearest well completed in the same formation and the nearest penetrating well.
Proposed wellbore spacing unit: N2 Sec 20, N2 Sec 21

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 | | 640 | GWA |

DRILLING PROGRAM

Proposed Total Measured Depth: 17406 Feet

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

6 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 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? No

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 | 121 | 80 | 0 |
| SURF | 13+1/2 | 9+5/8 | 36 | 0 | 1700 | 707 | 1700 | 0 |
| 1ST | 7+7/8 | 5+1/2 | 17 | 0 | 17406 | 1685 | 17406 | 0 |

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

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

Location ID: _____

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: Allison Linz

Title: Regulatory tech Date: 8/21/2015 Email: regulatorypermitting@gwogco.c

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: 1/31/2016

Expiration Date: 01/30/2018

API NUMBER

05 123 42677 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) Bradenhead test shall be performed within 30 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> |
| | <p>Operator acknowledges the proximity of the listed non operated well(s). Operator agrees to provide mitigation Option 1 or 2 (per the DJ Basin Horizontal Offset Policy, ensure all applicable documentation is submitted based on the selected mitigation option chosen, and submit Form 42(s) "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 the proposed wells.</p> <p>Billings 43-21 (API #123-14890) Doris 1 (API #123-11846) Hall 1 (API #123-11379) Pope 19-1G6 (API #123-18559) English 31-20 (API #123-11165) Lindblad 20-21 (API #123-20031) Brown 20-13 (API #123-22068) Harold "B" 1 (API #123-12905) Leffler 1 21-2 (API #123-23328) Leffler 1 21-6 (API #123-23329)</p> |
| | <p>Operator acknowledges the proximity of the listed well(s). Operator agrees to provide mitigation Option 1 or 2 (per the DJ Basin Horizontal Offset Policy, ensure all applicable documentation is submitted based on the selected mitigation option chosen, and submit Form 42(s) "OFFSET MITIGATION COMPLETED" for the remediated well(s), referencing the API Number of the proposed horizontal wells stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of the proposed wells.</p> <p>Fritzler 1-17 (API #123-10764) Ward English 42-20 (API #123-11154)</p> |
| | <p>1) Submit Form 42 (Spud Notice) electronically to COGCC 48 hours prior to MIRU for the first well activity with a rig on the pad.</p> <p>2) Submit Form 42 (Spud Notice) electronically to COGCC 48 hours prior to spud for each subsequent well drilled on the pad.</p> <p>3) 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>4) Surface casing interval shall be drilled with water-based fluids.?</p> |
| | <p>Operator acknowledges the proximity of the listed non-producing wells. Operator agrees to provide mitigation Option 3 (per the DJ Basin Horizontal Offset Policy, ensure all applicable documentation is submitted , and submit Form 42(s) "OFFSET MITIGATION COMPLETED" for the remediated wells, referencing the API Number of the proposed horizontal wells stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of the proposed wells.</p> <p>Leffler Farm 2-21 (API #123-11566) Alice M. Hoffner 1-22 (API #123-11209)</p> |

Best Management Practices

| No | BMP/COA Type | Description |
|----|--------------------------------|---|
| 1 | General Housekeeping | General housekeeping will consist of neat and orderly storage of materials and fluids. Wastes will be temporarily stored in sealed containers and regularly collected and disposed of at offsite, suitable facilities. If spills occur prompt cleanup is required to minimize any commingling of waste materials with storm water runoff. Routine maintenance will be limited to fueling and lubrication of equipment. Drip pans will be used during routine fueling and maintenance to contain spills or leaks. Any waste product from maintenance will be containerized and transported offsite for disposal or recycling. There will be no major equipment overhauls conducted onsite. Equipment will be transported offsite for major overhauls. Cleanup will consist of patrolling the roadways, access areas, and other work areas to pick up trash, scrap debris, other discarded materials, and any contaminated soil. These materials will be disposed of properly and promptly. |
| 2 | Noise mitigation | The subject Great Western Operating Company, L.L.C. (GWOC) location will operate in accordance with maximum permissible noise levels per COGCC Rule 604.c.(2)A. and 802, as applicable. During the drilling phase, Great Western plans to construct sound/visual walls that will be placed along the Northern, Southern, Eastern and Western edges of the pad. This will also assist to block out any lighting from nearby occupied structures. Where possible, drilling rig and completion equipment engine exhaust will be directed away from occupied buildings to assist with noise mitigation. No noise compliance issues are expected from the production area. Sealed tanks with pressure relief valves and emissions controls will also be utilized during the production phase. |
| 3 | Odor mitigation | Where possible, drilling rig and completion equipment engine exhaust will be directed away from occupied buildings to assist in mitigating potential odors. Light sources will be directed downwards, and away from occupied structures where possible. While GWOC does not anticipate any mitigation measures will be necessary for odors, sealed tanks with pressure relief valves and emissions controls will be utilized for the production phase. Once the drilling and completion rigs leave the site, there will be no permanently installed lighting on site. |
| 4 | Drilling/Completion Operations | Prior to drilling operations, Operator will perform an anti-collision scan of existing offset wells that have the potential of being within close proximity of the proposed well. This anti-collision scan will include definitive MWD or gyro surveys of the offset wells with included error of uncertainty per survey instrument, and compared against the proposed wellpath with its respective error of uncertainty. If current surveys do not exist for the offset wells, Operator may have gyro surveys conducted to verify bottomhole location. The proposed well will only be drilled if the anti-collision scan results indicate that there is not a risk for collision, or harm to people or the environment. |
| 5 | Drilling/Completion Operations | 317.p One of the first wells drilled on the pad will be logged with open-hole Resistivity 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 id production liner is run) into the surface casing. The horizontal portion of every well will be logging with a measure-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 and number) the well in which open-hole logs were run. |
| 6 | Drilling/Completion Operations | GWOC will comply with the "COGCC Policy for Bradenhead Monitoring during Hydraulic Fracturing Treatments in the Greater Wattenberg Area", dated May 29, 2012 |
| 7 | Drilling/Completion Operations | Load line containment is a necessary part of a complete secondary containment system. In any designated setback zone all loadlines are capped or bullplugged or locked shut to reduce the likelihood of a release occurring. In addition, GWOC places all load line receivers/valves inside secondary. |

| | | |
|---|--------------------------------|--|
| 8 | Drilling/Completion Operations | A BOPE with a minimum pressure rating of 3,000 psi will be utilized. At a minimum it will consist of 2 ram preventers and 1 annular preventer. The blind rams will be positioned below the pipe rams. A backup system of pressure control will be onsite consisting of at a minimum 1,000 psi accumulator (backup pressure). Accumulator is tested to 1,000 psi. Operator may use fixed sized pipe rams matching the tubular size. The annular preventer will be pressure tested to 250 psi low and 2,000 psi high for 10 minutes each. The ram preventers will be tested to 250 psi low and 2,500 psi high for 10 minutes each. All remaining well control equipment will be tested to 250 psi low and 2,500 psi high for 10 minutes each. The pressure tests will be conducted when the equipment is first installed and every 30 days thereafter. Pipe rams and blind rams will be function tested before every well service operation. Annual BOP inspections and pressure tests will be performed by the service company and will be charted & retained for 1 year. Backup stabbing valves shall be used on operations that require reverse circulation. Valves will be pressure tested before each well service operation in low pressure and high pressure range. The GWOC onsite representative will be certified in Well Control Operations by a Well-Cap certified training service. |
| 9 | Drilling/Completion Operations | Conventional drill stem tests will not be conducted on DJ Basin horizontal wells currently being executed or planned by GWOC. If plans change in the future a well specific drill stem testing plan will be prepared for that particular well. Note that GWOC may elect to use one of several available wireline deployed tools for the purpose of measuring downhole formation pressures and/or collecting downhole fluid samples from the target formation(s) of a particular well. |

Total: 9 comment(s)

Applicable Policies and Notices to Operators

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

Attachment Check List

| <u>Att Doc Num</u> | <u>Name</u> |
|---------------------------|-----------------------------|
| 400845188 | FORM 2 SUBMITTED |
| 400879245 | WELL LOCATION PLAT |
| 400879246 | DEVIATED DRILLING PLAN |
| 400879257 | SURFACE AGRMT/SURETY |
| 400879259 | MINERAL LEASE MAP |
| 400879261 | DIRECTIONAL DATA |
| 400882766 | OffsetWellEvaluations Data |
| 400884057 | PROPOSED SPACING UNIT |
| 400892849 | EXCEPTION LOC REQUEST |
| 400892851 | STIMULATION SETBACK CONSENT |

Total Attach: 10 Files

General Comments

| <u>User Group</u> | <u>Comment</u> | <u>Comment Date</u> |
|-------------------|---|---------------------------|
| Permit | Operator corrected minerals beneath this location will be developed by this well from "NO" to "YES". | 12/28/2015 10:33:40 AM |
| Permit | Final review complete. | 12/24/2015 10:29:26 AM |
| Permit | Operator agreed to the addition of BMP's regarding Noise, Odor & Dust and 317.p Open Hole Logging Exception. Permit task passed. | 12/23/2015 1:55:19 PM |
| Permit | Added proposed spacing unit description from attachment to the spacing & formations comment box. | 12/1/2015 2:55:31 PM |
| LGD | The City of Greeley notes that the proposed well and appurtenances, while not currently in city limits, are proposed within the City's adopted Long-Range Expected Growth Area. Urban-scale development is anticipated within all areas of the Long-Range Expected Growth Area, supported by sewer and water utility planning and other long-term strategic capital investment by the city. In that context, the city anticipates that the intersection of Highway 392 and County Road 31 (future 59th Avenue), being the intersection of two major roads, would likely be the location for a future major commercial activity node. As such, the proposed location, only 500' from the intersection, would create a major constraint on future efforts to best utilize this corner in an urban context. We respectfully suggest that the landowner and operator consider moving the site more internally to the site, and maintain a larger area in the corner for a viable future development site. | 9/23/2015 9:33:57 AM |
| Permit | Pass completeness | 3/3/2015 1:02:10 PM |

Total: 6 comment(s)