

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 <u>UNPLANNED</u>	Refiling <input type="checkbox"/>	Date Received: 07/17/2018
ZONE TYPE SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONES <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/>	Sidetrack <input checked="" type="checkbox"/>	

Well Name: Sack KE Well Number: 21-319HC

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

Address: 1001 17TH STREET #2000

City: DENVER State: CO Zip: 80202

Contact Name: Geoff Lee Phone: (720)5952155 Fax: ()

Email: glee@gwogco.com

RECLAMATION FINANCIAL ASSURANCE
Plugging and Abandonment Bond Surety ID: 20160041

WELL LOCATION INFORMATION

QtrQtr: SWSW Sec: 21 Twp: 1N Rng: 66W Meridian: 6

Latitude: 40.031512 Longitude: -104.790185

Footage at Surface: <u>757</u> Feet	FNL/FSL	FEL/FWL
<u>FSL</u> <u>359</u> Feet	<u>FSL</u> <u>359</u> Feet	<u>FWL</u>

Field Name: WATTENBERG Field Number: 90750

Ground Elevation: 5018 County: WELD

GPS Data:
Date of Measurement: 04/18/2018 PDOP Reading: 1.5 Instrument Operator's Name: JAMES FRESHWATER

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
<u>1315</u> FSL <u>460</u> FWL	<u>1265</u> FSL <u>370</u> FEL		
Sec: <u>21</u> Twp: <u>1N</u> Rng: <u>66W</u>	Sec: <u>21</u> Twp: <u>1N</u> Rng: <u>66W</u>		

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.)

T1N R66W Sec. 21: S/2, less and except Lot A (18.03 acres) and Lot B (62.00 acres), and a 21.41 acre tract.

Total Acres in Described Lease: 217 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: 537 Feet

Building Unit: 537 Feet

High Occupancy Building Unit: 5280 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 347 Feet

Above Ground Utility: 339 Feet

Railroad: 4861 Feet

Property Line: 359 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: 10/19/2017

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: 240 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

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	407-1709	320	SEC. 21: S2

DRILLING PROGRAMProposed Total Measured Depth: 12344 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: 240 Feet No well belonging to another operator within 1,500 feetWill a closed-loop drilling system be used? YesIs 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? NoWill salt based (>15,000 ppm Cl) drilling fluids be used? NoWill oil based drilling fluids be used? YesBOP 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 DisposalCuttings 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
SURF	13+1/2	9+5/8	36	0	1524	707	1524	0
1ST	8+1/2	5+1/2	17	0	12344	1048	12344	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

Great Western is proceeding with the unplanned sidetrack of the above referenced horizontal Codell well.

Sidetrack information:

- i. An 8-1/2" hole was drilled to the planned TD of 12,322 / 7639' MD/TVD. Unexpected geologic structure caused the bottom 1500 – 2000' of lateral to be positioned in the Carlisle shale rather than the Codell sand.
- ii. Great western will carry out an open hole sidetrack and re-drill the well so that the lateral is in the Codell sand.
- iii. Operations carried out to date:
 - a. 13-1/2" surface hole was drilled to 1524' MD/TVD
 - b. 9-5/8" surface casing was run and cemented at 1524' MD/TVD
 - c. 8-1/2" hole was drilled to TD of 12,322 / 7639' MD/TVD.
 - iv. No fish will be left in the hole.
 - v. This will be an open-hole sidetrack and no cement plugs will be set.
 - vi. No cement plugs will be set.
 - vii. Estimated sidetrack point will be 9200' / 7619 MD/TVD.
 - viii. The proposed objective formation will not be changed and will be the Codell.
 - ix. To avoid intersecting the original hole, the sidetrack wellbore and the BHL for the sidetrack will be moved approximately 50' to the South as shown in the attachment. The mineral interest owners will not change from the original BHL.

This well has a bottom hole location beyond the unit boundary setback. The bottom of the completed interval will be within the unit boundary setback at 1265' FSL and 470' FEL of Section 21. The wellbore beyond the unit boundary setback will be physically isolated and will not be completed.

Distance from completed portion of the wellbore to nearest wellbore permitted or completed in the same formation was measured to the proposed Sack KE 21-282HN. this distance is measured in 3D

This application is in a Comprehensive Drilling Plan No CDP #: _____

Location ID: 446474

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: Geoff Lee

Title: Regulatory Analyst Date: 7/17/2018 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: 7/22/2018

Expiration Date: 07/21/2020

API NUMBER

05 123 46995 01

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

Best Management Practices

No	BMP/COA Type	Description
1	Drilling/Completion Operations	<p>Multi Well Open-Hole Logging – Rule 317.p One of the first wells drilled on the pad will be logged with an 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 (intermediate casing or production liner if run) to the surface casing. The horizontal portion of every well will be logged with a MWD/GR 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 an open hole log 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.</p>
2	Drilling/Completion Operations	<p>Bradenhead Monitoring GWOC will comply with the “COGCC Policy for Bradenhead Monitoring during Hydraulic Fracturing Treatments in the Greater Wattenberg Area”, dated May 29, 2012</p>
3	Drilling/Completion Operations	<p>BOPE for well servicing (Rule 604.c.(2)J 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.</p>
4	Drilling/Completion Operations	<p>Stimulation Setback – Rule 317.s GWOG shall obtain signed written consent for any portion of the proposed wellbore's treated interval within 150' of an existing (producing, Shut-in, or temporarily abandoned) or permitted oil and gas well's treated interval belonging to another operator prior to completion of the well.</p>
5	Drilling/Completion Operations	<p>Wellbore Collision Prevention – Rule 317.r Prior to drilling operations, GWOG 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 well path with its respective error of uncertainty. If current surveys do not exist for the offset wells, Operator may have gyro surveys conducted to verify bottom hole 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.</p>
6	Drilling/Completion Operations	<p>Drill stem tests (Rule 604.c.(2)L 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 down hole formation pressures and/or collecting down hole fluid samples from the target formation(s) of a particular well.</p>

Total: 6 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>
401705521	FORM 2 SUBMITTED
401705627	OffsetWellEvaluations Data
401705666	WELL LOCATION PLAT
401705700	DEVIATED DRILLING PLAN
401705707	DIRECTIONAL DATA
401705924	CORRESPONDENCE
401705928	WELLBORE DIAGRAM
401709728	OFFSET WELL EVALUATION

Total Attach: 8 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final review complete.	07/18/2018
Permit	Permitting review complete.	07/18/2018
Permit	Passed completeness. LGD and public comment waived for this application for an unplanned sidetrack with drilling in progress.	07/18/2018
Permit	Returned to draft: - incorrect Location ID#. - change wellbore attachment label from "Other" to "Wellbore Diagram". - missing COGCC Engineering verbal approval in Correspondence PDF. - request revised wellbore diagram, missing API#, Qtr/Qtr data.	07/17/2018

Total: 4 comment(s)