

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.)

Sec. 20, T7S, R94W - SWNW, NWSW, W2SENE, W2NESW.

Total Acres in Described Lease: 120 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: 662 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 1198 Feet

Building Unit: 1198 Feet

High Occupancy Building Unit: 5280 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 349 Feet

Above Ground Utility: 5280 Feet

Railroad: 5280 Feet

Property Line: 924 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: 255 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 662 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

Caerus Piceance LLC plans to amend Spacing Order 139-73 and establish one 640-acre drilling and spacing unit for Sec. 20 - T7S, R94W - All. See Docket No. 171000740. The hearing is scheduled for January 29, 2018.

OBJECTIVE FORMATIONS

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
WILLIAMS FORK	WMFK	139-127	640	Sec. 20 - All

DRILLING PROGRAM

Proposed Total Measured Depth: 9512 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: _____ 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? No

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: ONSITE Drilling Fluids Disposal Methods: Recycle/reuse

Cuttings Disposal: ONSITE Cuttings Disposal Method: Beneficial reuse

Other Disposal Description:

Waste Management Plan was previously submitted with Form 2A.

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	30	20	53#	0	100	218	100	0
SURF	14+3/4	9+5/8	40#	0	2500	826	2500	0
1ST	8+3/4	4+1/2	11.6#	0	9512	789	9512	4909

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 The SHL, BHL, and all drilling information have been revised since the initial submittal. Form 2A previously approved; expires December 17, 2018.

Nearest offset non-operated producing/plugged well is operated by Laramie Energy LLC, Savage 18-08C (API No. 05-045-19140).

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

Location ID: 414880

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: Reed Haddock

Title: Sr. Regulatory Specialist Date: 1/11/2018 Email: rhaddock@caerusoilandgas.co

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: 10/16/2018

Expiration Date: 10/15/2020

API NUMBER

05 045 18925 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>
	Operator shall comply with Notice to Operators: Interim Reclamation Procedures for Delayed Operations (dated January 5, 2017).
	If the well has not been drilled by the expiration of the 2A (12/17/2018) a new form 2A must be submitted.
	<p>1) Operator shall comply with the most current revision of the Northwest Notification Policy.</p> <p>2) Operator shall comply with the most current revision of the Garfield County Rulison Field Notice to Operators, with the following exception: All field notice requirements specified in that Notice to Operators are superseded by the requirements of the most current revision of the Northwest Colorado Notification Policy (see Condition of Approval #1).</p> <p>3) Operator shall provide cement coverage from the production casing shoe (4+1/2" FIRST STRING) to a minimum of 200' above the Lower Wasatch (as defined by COGCC in the report "Casing and Cement Standards for Geologic Isolation Piceance Basin Bradenhead Monitoring Area and Nearby Fields," dated April 18, 2016, COGCC Document No. 2056199, Appendix A Field Scout Cards and Annotated Type Logs) to provide isolation of the Lower Wasatch, all Mesaverde Group formations including the Ohio Creek Formation, and underlying formations, if penetrated. Verify production casing cement coverage with a cement bond log.</p> <p>4) The Operator shall monitor the bradenhead pressure of the proposed well and all offset wells under Operator's control which penetrate the stimulated formation and have a treated interval separation of 300 feet or less. Monitoring shall occur from 24 hours prior to stimulation and shall continue until 24 hours after stimulation is complete. Recording shall be at a frequency of at least once per 24 hours with the capability of recording the maximum pressure observed during each 24 hour period. Operator shall notify COGCC Engineering staff if bradenhead pressures increase by more than 200 psig.</p>

Best Management Practices

No	BMP/COA Type	Description
1	Planning	The first well drilled on the 20F Pad will be logged with an open-hole Resistivity Log and Gamma Ray Log from TD into the surface casing. All wells on the pad will have a Cement Bond Log with cased-hole Gamma Ray run on the production casing. The Form 5 Completion Report will list all the logs run in the subject well and identify the well that was logged with the open-hole Resistivity Log.
2	Drilling/Completion Operations	Closed loop system will be used. No pits will be built. Caerus will ensure 110 percent secondary containment for any potential volume of fluids that may be released.
3	Drilling/Completion Operations	<p>CUTTINGS MANAGEMENT</p> <ul style="list-style-type: none"> • The moisture content of any cuttings shall be as low as practicable to prevent accumulation of liquids greater than de minimis amounts. Solids control equipment consisting of shale shakers, centrifuges, and flocculating unit will be utilized to separate water/bentonite-based drilling mud (WBM) generated cutting solids from liquids (water/bentonite drilling mud). Drill cuttings will be segregated between surface casing cuttings, intermediate zone, and production zone cuttings and stockpiled on location. Cuttings samples will be periodically collected and will be submitted for laboratory analysis of COGCC Table 910-1 analytes. If cuttings meet Table 910-1 standards, they will be treated as soil and beneficially reused on location (cuttings management area, the cut portion of the pad, cuttings trench, dry cuttings drilling pit, or utilized in onsite interim reclamation activities). • For those cuttings meet the applicable standards of Table 910-1, offsite beneficial reuse or disposal of cuttings to another oil and gas location will require prior approval of a Beneficial Reuse Plan or Waste Management Plan (submitted via a Form 4 Sundry Notice) specifying disposal location and proposed use or disposal; and any additional waste characterization method (if necessary). • Any excess cuttings may potentially be transported to an authorized waste facility. In the event that a certain volume of drill cuttings analytically demonstrate constituents above Table 910-1 standards, the cuttings will be remediated. At the time of interim reclamation, if the remediated drill cuttings are to be beneficially reused onsite, they will be adequately remediated to be below all applicable standards of Table 910-1. • For those cuttings that are not sampled and tested for laboratory analysis of COGCC Table 910-1 analytes while still onsite, and they need to be sent offsite for beneficial reuse or disposal of cuttings to another oil and gas location; a Beneficial Reuse Plan or Waste Management Plan (submitted via a Form 4 Sundry Notice) requesting a variance from Rule 907.e.(1). and specifying disposal location, proposed use or disposal, and additional waste characterization, will need to be submitted and approved prior to offsite transport. • No liners (if used) are allowed to be disposed of with the drill cuttings. Commercial disposal of drill cuttings will require notification (no prior approval) to COGCC via a Form 4 Sundry Notice.

Total: 3 comment(s)

Applicable Policies and Notices to Operators

Piceance Rulison Field - Notice to Operators.

<http://cogcc.state.co.us/documents/reg/Policies/NoticeToOp-20060623-2.pdf>

NW Colorado Notification Policy.

http://cogcc.state.co.us/documents/reg/Policies/nw_notification_procedures.pdf

Notice Concerning Operating Requirements for Wildlife Protection.

http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf

Attachment Check List

Att Doc Num	Name
401326469	FORM 2 SUBMITTED
401385405	WELL LOCATION PLAT
401458336	DEVIATED DRILLING PLAN
401458337	DIRECTIONAL DATA

401510845

SURFACE AGRMT/SURETY

Total Attach: 5 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final review complete.	10/15/2018
OGLA	10/11/2018 - reviewed Form 2A #400913858 Waste Management Plan (WMP) and added a 'Cuttings Management' BMP based on the operator's WMP and COGCC's current requirements for onsite and offsite cuttings beneficial reuse and/or disposal per discussion with operator and email response from operator on 10-12-18; operator response to Cuttings Management BMP email: "Dave: I read this and this is fine. Thanks Reed"; 10/12/2018 - passed OGLA task by Dave Kubeczko with the addition of a "Drilling/Completion Operations" BMP describing Cuttings Management in the 'OPERATOR BMP/COA' section of the Form 2.	10/11/2018
Permit	Corrected spacing order from 139-73 to new order 139-127.	10/10/2018
Permit	There is no change in the drilling and waste management program from the last approved 2A. SPACING ORDER WAS POSTPONED.	04/04/2018
Engineer	Offset water well check: COGCC evaluated offset water wells within one mile of this proposed well's surface hole location. This information was used in addition to locally-available geophysical logs and hydrogeologic information to evaluate the adequacy of the operator's proposed surface casing setting depth. The deepest water well within one mile is 150 feet. Offset Well Evaluation: Existing offset oil and gas wells within 1,500 feet of the wellbores on this pad meet standards. No mitigation required.	01/29/2018
Permit	Passed Completeness.	01/18/2018

Total: 6 comment(s)