

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.)

The NESE and S2SENE of Section 24, T6S, R92W please see lease boundary map previously submitted.

Total Acres in Described Lease: 60 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: 655 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 788 Feet

Building Unit: 788 Feet

High Occupancy Building Unit: 5280 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 919 Feet

Above Ground Utility: 258 Feet

Railroad: 5280 Feet

Property Line: 342 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: 07/17/2018

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: 302 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 655 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

Order 191-82 approved 100 acre drilling and spacing units with 10 acre density for the production of the Williams Fork and Iles Formation.

OBJECTIVE FORMATIONS

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
ILES	ILES	191-82	100	Sec 24 E2SE, S2SENE
WILLIAMS FORK	WMFK	191-82	100	Sec 24 E2SE, S2SENE

DRILLING PROGRAM

Proposed Total Measured Depth: 7593 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: OFFSITE Drilling Fluids Disposal Methods: Recycle/reuse

Cuttings Disposal: ONSITE Cuttings Disposal Method: Beneficial reuse

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	14	36	0	40	0	40	0
SURF	12+1/4	9+5/8	36	0	743	240	743	0
1ST	7+7/8	4+1/2	11.6	0	7593	780	7593	

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 191-82

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 well permit is being refiled due to expiration. The Kaufman 5 well pad has not been constructed. There are no changes to the previously approved APD for the proposed SHL, BHL, drilling plan, casing and cement program, and mineral lease information. The previously approved well location plat, directional, and surface use agreement remain the same. The distance to nearest well completed in the same formation / permitted or existing well penetrating objective formation was measured to the proposed Kaufman 43D-24-692 (05-045-21217).

No Wells within 1500' of this proposed wellbore, operated by other operators

Please note the drilling fluids disposal, cuttings disposal, and WMP have been updated per Vanguard's drilling and completion operations. Vanguard will not utilize a completion pit because the pad is in a setback location. A sundry notice with the revised BMPs and WMP; and removal of the completions pit has been submitted for the location (Doc # 401032536).

305.a Certification of Courtesy Notice attached as "other"

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

Location ID: 426854

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: Julie Webb

Title: Sr. Regulatory Analyst Date: 8/17/2018 Email: jwebb@progressivepcs.net

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: 10/18/2018

Expiration Date: 10/17/2020

API NUMBER
05 045 21215 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>
	If location is not built by 2A expiration 06/15/2020 Operator must Refile Form 2A for approval prior to location construction.
	Drilling/Completion Operations: The following COA will apply: COA 11 - The moisture content of water/bentonite based mud (WBM) generated drill cuttings managed onsite shall be kept as low as practicable to prevent accumulation of liquids greater than de minimis amounts. After drilling and completion operations have been completed, if any of the WBM drill cuttings will remain on the well pad location (cuttings management area, the cut portion of the pad, cuttings trench, dry cuttings drilling pit, or utilized in onsite interim reclamation activities), they must be sampled and meet the applicable standards of Table 910-1. No liners (if used) are allowed to be disposed of with the drill cuttings. Offsite disposal of cuttings to another oil and gas location shall not occur without prior approval of a Form 4 Sundry Notice (requesting a variance from Rule 907.e.(1).) specifying disposal location and waste characterization method. Commercial disposal of drill cuttings will require notification (no prior approval) to COGCC via a Form 4 Sundry Notice.
	<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 comply with the most current revision of the Mamm Creek 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). Operator shall submit the primary cement job Cement Bond Log (CBL) with either the Form 4 Sundry Notice - Request to Complete or the Form 5 Drilling Completion Report.</p> <p>4) Operator shall comply with the Notice to Operators Drilling Wells in the Buzzard, Mamm Creek, and Rulison fields, Garfield County and Mesa County – Procedures and Submittal Requirements for Compliance with COGCC Order Nos. 1-107, 139-56, 191-22, and 369-2 (July 8, 2010).</p> <p>5) Operator shall provide cement coverage from the production casing shoe (4+1/2" FIRST STRING) to a minimum of 500' 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 all Mesaverde Group and underlying formations, if penetrated, the Ohio Creek Formation, and the lower portion of the Wasatch Formation. Verify production casing cement coverage with a cement bond log. This requirement shall supersede the top of cement requirements in the Mamm Creek Field Notice to Operators.</p>

Best Management Practices

No	BMP/COA Type	Description
1	Traffic control	Rule 604.c.(2).D. Traffic Plan: Site specific traffic control plans were not required by the county or BLM. Install approved MUTCD traffic control/warning devices before work begins and through the duration of drilling and completion. Reduce visits to wellsites through remote monitoring (i.e. SCADA) and the use of multifunction contractors, where practicable. Pipelines are proposed and include a gas line and two water lines. Water line infrastructure will assist to reduce traffic.
2	Dust control	805.c. Dust: During construction and operation, operator will implement dust abatement measures, as needed, to prevent fugitive dust from vehicular traffic, equipment operations, or wind events.
3	Noise mitigation	Rule 604.c.(2).A. Noise: Mufflers on the rig will be oriented away from the nearest building unit to minimize engine noise. Plumb dump lines into tanks to muffle sound. Rubber cushions in lubricators are used to muffle sound for plunger lift. Vanguard will adhere to Rule 802 noise abatement.
4	Odor mitigation	805.b. Odors: Potential odors associated with the completions process and/or with long term production operations will be controlled/ mitigated.
5	Drilling/Completion Operations	One of the first wells drilled on the pad will be logged with 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 gamma-ray run on production casing (or on intermediate casing if production liner is run) into the surface casing. 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 will clearly state "No open-hole logs were run" and will clearly identify (by API#, well name & number) the well in which open-hole logs were run.

Total: 5 comment(s)

Applicable Policies and Notices to Operators

Mamm Creek Field Area Notice to Operators. http://cogcc.state.co.us/documents/reg/Policies/Mamm%20Creek%20Drilling.pdf
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
Bradenhead Pressure Reporting-Garfield County (Mamm Creek & Rulison Fields) Mesa County (Buzzard Field). http://cogcc.state.co.us/documents/reg/Policies/NTO_07082010.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
2108582	WASTE MANAGEMENT PLAN
2168328	EXCEPTION LOC REQUEST
401554674	FORM 2 SUBMITTED
401736847	OTHER

Total Attach: 4 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final review complete.	10/15/2018
Permit	Attached exception location request for spacing order requiring only one pad per qtr/qtr. Checked box on Exceptions tab noting spacing exception to order 191-82.	10/09/2018
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 570 feet. Offset Well Evaluation: Offset wells within 1500 feet of the planned wellbores on this pad meet standards. No mitigation required.	09/26/2018
Permit	Well Bore Diagram for Mamm Creek requirement has been submitted on sundry Doc 401761526. Requested an exception location letter to spacing order 191-82 which limits the number of pads per qtr/qtr to one. Added OGLA review task for waste management.	09/19/2018
Permit	Passed Completeness.	08/22/2018

Total: 5 comment(s)