

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 ATTACHED MINERAL LEASE MAP.

Total Acres in Described Lease: 22 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: 140 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 767 Feet

Building Unit: 767 Feet

High Occupancy Building Unit: 4966 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 608 Feet

Above Ground Utility: 653 Feet

Railroad: 3721 Feet

Property Line: 450 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: 08/23/2013

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: 350 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 140 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

This well is subject to order 1-229

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	523-2	320	SEC. 10 S/2

DRILLING PROGRAM

Proposed Total Measured Depth: 7930 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: 1120 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: OFFSITE Cuttings Disposal Method: Beneficial reuse

Other Disposal Description:

PLEASE SEE WASTE MANAGEMENT PLAN ATTACHED TO FORM 2A.

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	75	0	60	111	60	0
SURF	12+1/4	8+5/8	32	0	1000	212	1000	0
1ST	7+7/8	4+1/2	11.6	0	7930	563	7930	

☐ 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 Form 2 is being submitted as a Refile APD.

Valley Farms O Pad Form 2A (Loc ID 436004) was approved on 2/1/14. No changes are proposed to the Form 2A, therefore an amended form will not be submitted at this time. Pre-application Notice / Buffer Zone Notice was sent to building unit owners within 1000' of the location on 8/23/13.

Distance to nearest well completed in the same formation / permitted or existing well penetrating objective formation was measured to Ursa's permitted Valley Farms O 11A-15-06-92. Distance to nearest well completed in the same formation / permitted or existing well belonging to another operator was measured at 1120' to Carter & Carter's plugged D A MCPHERSON 1 (API #05-045-05099).

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

Location ID: 436004

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: CARI MASCIOLI

Title: REGULATORY TECH Date: 8/15/2017 Email: cmascioli@ursaresources.com

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: 3/15/2019

Expiration Date: 03/14/2021

API NUMBER

05 045 22328 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.

COA Type

Description

The COGCC retains its authority to require compliance with the operator provided Best Management Practices (BMPs) and retains its discretion to enforce the BMPs to ensure compliance with the Colorado Oil and Gas Act and COGCC Rules.

	<p>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), they must be sampled and meet the applicable standards of Table 910-1. After the drill cuttings have been amended (if necessary) and placed on the well pad, sampling frequency of the drill cuttings (to be determined by the operator) shall be representative of the material left on location. Any proposed offsite disposal or beneficial reuse of cuttings to another oil and gas location shall not occur until approval of a Form 4 Sundry Notice specifying disposal or beneficial reuse location and cuttings material sampling and characterization methods.</p>
	<p>If conductors are preset, operator shall comply with Notice to Operators: Procedures for Preset Conductors (dated September 1, 2016, revised October 6, 2016).</p>
	<p>This Permit to Drill is approved subject to all the BMP's and COA's on the most recently approved Form 2A and any subsequently approved Form 4 for the Oil and Gas Location (Location ID #436004). The most recently approved Form 2A and any subsequent Form 4's containing applicable COA's for this location shall be posted onsite during construction, drilling, and completions operations.</p>
	<p>Operator shall comply with Notice to Operators: Interim Reclamation Procedures for Delayed Operations (dated January 5, 2017).</p>
	<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> <p>6)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	<p>Planning: Due to the Location being in a Buffer Zone, the following BMPs will be implemented to address potential nuisance issues:</p> <ul style="list-style-type: none"> • Directional Drilling - Directional drilling will be implemented to avoid the need for additional well pads; reducing habitat loss and fragmentation, noise, and traffic concerns. • Noise - Operator will perform sound monitoring surveys during drilling and completion activities with data collection instruments placed between the Oil and Gas Location and the residential Buildings. Ursa will have a documented process for responding to sound levels that exceed COGCC sound limits. Every phase of operations shall be implemented so that the volume of sound inherently and recurrently generated does not exceed 70 dB(A) from 7:00 AM to 7:00 PM and 65 dB(A) from 7:00 PM to 7:00 AM as measured 350 feet from the edge of the pad. Additional noise monitoring above and beyond COGCC regulations may be conducted if warranted based on public input. Sound barriers may be placed around the generators and drilling equipment, the hydraulic stimulation trucks and equipment, smaller horse power trucks and pumps, and other completions / flowback equipment. • Dust - The pad and access road entrance (immediately adjacent to the well pad) will be graveled to reduce fugitive dust and maintained (through all phase of operations) to prevent sediment migration from the access road to nearby surface water or any drainages or ditches leading to surface water. In addition, operator will have water trucks onsite to reduce fugitive dust and coating of vegetation and deposition in water sources. Water and other dust suppressants are used as required, dependent upon the level of activity, moisture conditions, etc. throughout all phases of operations. Operator shall employ practices for control of fugitive dust caused by other operations, including, but not limited to the use of water and other dust suppressants dependent upon the level of activity and moisture conditions; speed restrictions; and regular road maintenance. Truckloads of dirt, sand, aggregate materials, drilling cuttings, and similar materials will be covered to reduce dust and PM emissions during transport. • Lighting - All lighting, except as demonstrated for safety reasons, shall be directed inward and downward and be shaded in order to prevent direct reflection on adjacent property and residences in the area. LED lights will be used when possible and practical. Workers will be advised when moving light plants to ensure that the light is focused directly on the work being done. The drill rig mast lighting will be downcast and/or shielded to reduce fugitive light outside the well pad. Safety considerations will take precedence. • Odors and Emissions - Odors are seldom related to longterm production. The greatest potential for odors to occur is during the drilling and completion phases of operations (generally a 3 to 4 month period). Operator has incorporated a number of standard operating practices into daily operations to help detect and manage odors which include on-site surveillance by both operator and contractors on a daily basis, filter blankets and controls, using additional tanks and filtering equipment to fully contain potential odors during drilling and completions, newer design screw-down thief hatches, electronic versus manual tank gauging, etc. Well completions will utilize flowback completion technologies and/or flares to reduce odors from plug drillout, and venting of salable and non-salable gas. Combustor controls will be used to mitigate odors from production tanks. • Waste Management - A closed-loop (pitless) drilling system will be used; No cuttings pit will be constructed; cuttings that meet levels in Table 910-1 will be beneficially reused offsite. • Work Hours - Completions will typically be conducted during daylight hours.
2 Drilling/Completion Operations	<p>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 shall clearly state "No open-hole logs were run" and shall clearly identify (by API#, well name & number) the well in which openhole logs were run.</p>

Total: 2 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

<u>Att Doc Num</u>	<u>Name</u>
401354866	FORM 2 SUBMITTED
401354895	WELL LOCATION PLAT
401369873	SURFACE AGRMT/SURETY
401369874	LEASE MAP
401369875	DEVIATED DRILLING PLAN
401369879	DIRECTIONAL DATA

Total Attach: 6 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	-Corrected RTC from SUA to lease. Lease is under the surface in the unit -Corrected minearals beneath loctaion will be developed by this well from no to yes -Added this well is subject to order 1-229 -All corrections were made with operator concurrence	01/22/2019
Permit	Form 4 Doc 401767685 has been submitted with WBD, meeting the Mamm Creek requirement.	09/26/2018
Permit	Added review task for OGLA.	11/21/2017
Permit	Preliminary review complete.	09/29/2017
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 240 feet. Offset Well Evaluation: Evaluated offset plugged and abandoned well D A McPherson 1 (API #05-045-05099) located 775' south of planned Valley Farms O 11A-15-06-92 and 1220' west of planned Valley Farms O 21C-15-06-92. Vertical wellbore drilled to 6147'. Top of fish ~3100'. Hole bridged at 730'. Plugged with 25 sacks from 565 to 465' and 7 sacks from 25' to surface. Does not meet standards for offset stimulation. Emailed operator. Mitigation not required for the other planned wellbores on the Valley O pad. COGCC engineering staff met with operator on 9/5/2017 and secured an agreement that mitigation of the D A McPherson 1 well is unnecessary during stimulation of the proposed wells on this pad. The hydraulic stimulation will not communicate with the D A McPherson 1 well based on the geomechanics of the reservoir.	09/05/2017
Permit	Returned to draft per operator's request.	08/23/2017

Total: 6 comment(s)