

**APPLICATION FOR PERMIT TO:**

**Drill**       Deepen       Re-enter       Recomplete and Operate

TYPE OF WELL    OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> COALBED <input type="checkbox"/> OTHER _____ ZONE TYPE       SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONES <input checked="" type="checkbox"/> COMMINGLE ZONES <input checked="" type="checkbox"/>	Refiling <input checked="" type="checkbox"/> Sidetrack <input type="checkbox"/>
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Date Received:  
05/16/2016

Well Name: Federal      Well Number: 21D-26-692

Name of Operator: VANGUARD OPERATING LLC      COGCC Operator Number: 10531

Address: 5847 SAN FELIPE #3000

City: HOUSTON      State: TX      Zip: 77057

Contact Name: Crissy Venturo      Phone: (720)352-7916      Fax: ( )

Email: cventuro@progressivepcs.net

**RECLAMATION FINANCIAL ASSURANCE**  
Plugging and Abandonment Bond Surety ID: 20140092

**WELL LOCATION INFORMATION**

QtrQtr: NENW    Sec: 26    Twp: 6S    Rng: 92W    Meridian: 6

Latitude: 39.502284      Longitude: -107.637729

Footage at Surface: <u>1135</u> Feet	FNL/FSL	FEL/FWL
<u>FNL</u> <u>1642</u> Feet	<u>FNL</u> <u>1642</u> Feet	<u>FWL</u>

Field Name: MAMM CREEK      Field Number: 52500

Ground Elevation: 6021      County: GARFIELD

GPS Data:  
Date of Measurement: 04/04/2011    PDOP Reading: 6.0    Instrument Operator's Name: James A. Kalmon

If well is  Directional     Horizontal (highly deviated)    **submit deviated drilling plan.**

Footage at Top of Prod Zone: <u>165</u> Feet	FNL/FSL	FEL/FWL	Bottom Hole: <u>165</u> Feet	FNL/FSL	FEL/FWL
<u>FNL</u> <u>1996</u> Feet	<u>FNL</u> <u>1996</u> Feet	<u>FWL</u>	<u>FNL</u> <u>1996</u> Feet	<u>FNL</u> <u>1996</u> Feet	<u>FWL</u>

Sec: 26    Twp: 6S    Rng: 92W      Sec: 26    Twp: 6S    Rng: 92W

**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.)

The NENW of Section 26, T6S, R92W; Additional portions of T6S, R92W please see attached lease boundary map with the updated Federal lease number.

Total Acres in Described Lease: 800 Described Mineral Lease is:  Fee  State  Federal  Indian

Federal or State Lease # COC077486

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 165 Feet

**CULTURAL DISTANCE INFORMATION**

Distance to nearest:

Building: 814 Feet  
 Building Unit: 814 Feet  
 High Occupancy Building Unit: 5280 Feet  
 Designated Outside Activity Area: 5280 Feet  
 Public Road: 5190 Feet  
 Above Ground Utility: 370 Feet  
 Railroad: 5280 Feet  
 Property Line: 177 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: 03/30/2016

**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: 278 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 165 Feet (Enter 5280 for distance greater than 1 mile.)

Federal or State Unit Name (if appl): \_\_\_\_\_ Unit Number: \_\_\_\_\_

**SPACING & FORMATIONS COMMENTS**

Order 191-8 and 191-10 approved 640 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	191-10	640	Sec 26: All
WILLIAMS FORK	WMFK	191-8	640	Sec 26: All

## DRILLING PROGRAM

Proposed Total Measured Depth: 7828 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: 2000 Feet  No well belonging to another operator within 1,500 feet

Will a closed-loop drilling system be used? Yes

Is H<sub>2</sub>S gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No (If Yes, attach an H<sub>2</sub>S 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:

Please see attached Waste Management Plan.

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		40	0
SURF	12+1/4	9+5/8	36	0	800	250	800	0
1ST	7+7/8	4+1/2	11.6	0	7828	810	7828	

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 well permit is being refiled due to expiration. The Federal NENW 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, and directional remain the same. The Federal lease number has been updated as well as the cultural distances to reflect the surveyor's confirmed measurements. The distance to nearest well completed in the same formation / permitted or existing well penetrating objective formation was measured to the producing Epperly 24A-23-692 (05-045-10463). The distance from the proposed wellbore to the nearest wellbore belonging to another operator was measured to the plugged and abandoned Frick 11-26 (05-045-06395). 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 # 401032504).

This application is in a Comprehensive Drilling Plan \_\_\_\_\_ CDP #: \_\_\_\_\_

Location ID: 425806

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: Crissy Venturo

Title: Regulatory Analyst Date: 5/16/2016 Email: cventuro@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: *Matthew Lee* Director of COGCC Date: 10/2/2016

Expiration Date: 10/01/2018

**API NUMBER**

05 045 21082 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>If conductors are preset, operator shall comply with Notice to Operators: Procedures for Preset Conductors (dated September 1, 2016).</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	Traffic control	<ul style="list-style-type: none"> <li>• 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 well-sites 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.</li> </ul>
2	Dust control	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
3	Noise mitigation	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
4	Odor mitigation	<ul style="list-style-type: none"> <li>• 805.b. Odors: Potential odors associated with the completions process and/or with long term production operations will be controlled/ mitigated.</li> </ul>
5	Drilling/Completion Operations	<ul style="list-style-type: none"> <li>• 317.p. Requirement to log well: 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 &amp; number) the well in which open-hole logs were run.</li> </ul>

Total: 5 comment(s)

## Applicable Policies and Notices to Operators

Policy
Mamm Creek Field Area Notice to Operators. <a href="http://cogcc.state.co.us/documents/reg/Policies/Mamm%20Creek%20Drilling.pdf">http://cogcc.state.co.us/documents/reg/Policies/Mamm%20Creek%20Drilling.pdf</a>
Piceance Rulison Field - Notice to Operators. <a href="http://cogcc.state.co.us/documents/reg/Policies/NoticeToOp-20060623-2.pdf">http://cogcc.state.co.us/documents/reg/Policies/NoticeToOp-20060623-2.pdf</a>
NW Colorado Notification Policy. <a href="http://cogcc.state.co.us/documents/reg/Policies/nw_notification_procedures.pdf">http://cogcc.state.co.us/documents/reg/Policies/nw_notification_procedures.pdf</a>
Bradenhead Pressure Reporting-Garfield County (Mamm Creek & Rulison Fields) Mesa County (Buzzard Field). <a href="http://cogcc.state.co.us/documents/reg/Policies/NTO_07082010.pdf">http://cogcc.state.co.us/documents/reg/Policies/NTO_07082010.pdf</a>
Notice Concerning Operating Requirements for Wildlife Protection. <a href="http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf">http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf</a>

## Attachment Check List

Att Doc Num	Name
401013074	FORM 2 SUBMITTED
401046211	30 DAY NOTICE LETTER
401046212	WASTE MANAGEMENT PLAN
401047852	MINERAL LEASE MAP

Total Attach: 4 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final review complete.	9/29/2016 11:47:09 AM
OGLA	Operator submitted Rule 604.c.(2). A. thru W. Mitigations Measures, Construction Layout Drawings, and Waste Management Plan to the Vanguard Operating LLC, Federal Pad (NENW-26-692), 21A-26-692, OGCC Location ID #425806 (via Form 4 Sundry Notice #401032504); have been reviewed and are sufficient for the location and the wells.	9/27/2016 1:27:25 PM
Permit	Initial review complete.	6/15/2016 11:16:07 AM
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 was used 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: Existing offset oil and gas wells within 1,500 feet of this wellbore meet standards. No mitigation required. Removed operator's proposed first string cement top. Operator's proposed first string cement top is not adequate to satisfy COGCC's new cement coverage requirements, effective April 18, 2016. Increase cement coverage accordingly, as specified in Condition of Approval #5. Checking with operator about distance to nearest well owned by another operator. Per operator: changed distance to wellbore owned by another operator to 2000'.	5/2/2016 9:52:00 AM
Permit	Passed completeness.	5/26/2016 1:46:28 PM
Permit	If location not built by 2A expiration 12/08/2017, operator must refile Form 2A for approval prior to location construction.	5/26/2016 1:29:22 PM

Total: 6 comment(s)