

**APPLICATION FOR PERMIT TO:**

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

TYPE OF WELL    OIL     GAS     COALBED     OTHER \_\_\_\_\_      Refilling

ZONE TYPE      SINGLE ZONE       MULTIPLE ZONES       COMMINGLE ZONES       Sidetrack

Date Received:  
08/31/2015

Well Name: Miller      Well Number: 13D-6-791

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

Address: 5847 SAN FELIPE #3000

City: HOUSTON      State: TX      Zip: 77057

Contact Name: Derek Krcil      Phone: (720)256-1385      Fax: ( )

Email: dkrcil@progressivepcs.net

**RECLAMATION FINANCIAL ASSURANCE**

Plugging and Abandonment Bond Surety ID: 20140092

**WELL LOCATION INFORMATION**

QtrQtr: Lot 4      Sec: 6      Twp: 7S      Rng: 91W      Meridian: 6

Latitude: 39.475304      Longitude: -107.604534

Footage at Surface:      549 feet      FNL/FSL      381 feet      FEL/FWL

Field Name: MAMM CREEK      Field Number: 52500

Ground Elevation: 6094      County: GARFIELD

GPS Data:

Date of Measurement: 07/08/2010      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:	FNL/FSL	FEL/FWL	Bottom Hole:	FNL/FSL	FEL/FWL
<u>459</u>	<u>FNL</u>	<u>648</u>	<u>459</u>	<u>FNL</u>	<u>648</u>
	<u>FNL</u>	<u>FWL</u>		<u>FNL</u>	<u>FWL</u>
Sec: <u>6</u>	Twp: <u>7S</u>	Rng: <u>91W</u>	Sec: <u>6</u>	Twp: <u>7S</u>	Rng: <u>91W</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.)

S2NE, S2NW, S2 of Sec 36, T6S, R92W. Lots 2-4, SENW of Section 31, T6S, R91W. Lots 4-5 of Sec 6, T7S, R91W. E2SE, SENE of Sec 35, T6S, R92W. Please see attached mineral lease map.

Total Acres in Described Lease: 857 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: 648 Feet

## CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 953 Feet  
Building Unit: 1280 Feet  
High Occupancy Building Unit: 5280 Feet  
Designated Outside Activity Area: 5280 Feet  
Public Road: 274 Feet  
Above Ground Utility: 415 Feet  
Railroad: 5280 Feet  
Property Line: 1127 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: 309 Feet

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

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

## SPACING & FORMATIONS COMMENTS

The following lands are unspaced for ILES 191-10: Lots 1, 2, 4, 5, SE1/4 SW1/4, SW1/4 SE1/4 and WMFK 191-8: Lots 1, 2, 4, 5, SE1/4 SW1/4, SW1/4 SE1/4. (No unit was created).

## 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		
WILLIAMS FORK	WMFK	191-8		

## DRILLING PROGRAM

Proposed Total Measured Depth: 6824 Feet

Distance from proposed wellbore to nearest existing or permitted wellbore belonging to another operator:

309 Feet (Including plugged wells)

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: ONSITE Drilling Fluids Disposal Methods: Evaporation

Cuttings Disposal: ONSITE Cuttings Disposal Method: Cuttings trench

Other Disposal Description:

Please see attached waste management plan

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	14	36	0	40		40	0
SURF	12+1/4	9+5/8	36	0	684	222	684	0
1ST	7+7/8	4+1/2	11.6	0	6824	780	6824	2380

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 well pad has been built. This is a refile APD. There will be no changes to the previously approved APD including proposed SHL, BHL, drilling plan, casing and cement program or mineral lease information. The uploaded well location plat and directional plan remain the same.

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

Location ID: 424213

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: Derek Krcil

Title: Regulatory Analyst Date: 8/31/2015 Email: dkrcil@progressivepcs.net

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: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

### API NUMBER

05 045 20851 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

COA Type	Description

## Best Management Practices

No	BMP/COA Type	Description
1	Community Outreach and Notification	• Proper notifications required by COGCC regulations or policy memos will be adhered to.
2	Pre-Construction	• Limit the amount of land disturbed during construction of pad, access road, and facilities.
3	Traffic control	• 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.

4	General Housekeeping	<ul style="list-style-type: none"> <li>• All employees are trained in spill response, good housekeeping, material management practices, and procedures for equipment and container washing annually. Trash would be contained in a trash cage and hauled away to an approved disposal after the completion of drilling operations. All facilities to be painted Shadow Gray (or appropriate/BLM recommended color) to blend into the natural vertical elements. Downcasting lights will be installed on permanent facilities.</li> </ul>
5	Wildlife	<ul style="list-style-type: none"> <li>• Reduce visits to well-sites through remote monitoring (i.e. SCADA) and the use of multifunction contractors, where practicable. Install exclusionary device to prevent birds and other wildlife access to equipment stacks, vents and openings.</li> <li>• Establish policies to protect wildlife (e.g no firearms, no dogs on location, no feeding of wildlife, etc.).</li> <li>• Promptly report spills that could affect wildlife to the Water Quality Control Division of CDPHE and CDOW.</li> <li>• Avoid location staging, refueling, and storage areas within 300 feet, of any reservoir, lake, wetland, or natural perennial or seasonal flowing stream or river.</li> </ul> <p><b>INFRASTRUCTURE LAYOUT WILDLIFE PROTECTION MEASURES</b></p> <ul style="list-style-type: none"> <li>• Implementing fugitive dust control measures.</li> <li>• Limit parking to disturbed areas as much as possible.</li> </ul> <p><b>DRILLING AND PRODUCTION OPERATION WILDLIFE PROTECTION MEASURES</b></p> <ul style="list-style-type: none"> <li>• Reduce visits to well-sites through remote monitoring (i.e. SCADA) and the use of multifunction contractors, where practicable. Exclusionary device to prevent birds and other wildlife access to equipment stacks, vents and openings.</li> <li>• Establish company guidelines to minimize wildlife mortality from vehicle collision on roads.</li> </ul>
6	Wildlife	<p><b>FLUID PIT/POND WILDLIFE PROTECTION MEASURES</b></p> <ul style="list-style-type: none"> <li>• Install and maintain adequate measures to exclude all types of wildlife (e.g., big game and birds) from all fluid pits with fencing, flagging and other appropriate exclusion measures. Vanguard currently installs 6' wildlife proof fences on all pits and freshwater ponds with free liquids.</li> </ul> <p><b>INVASIVE/NON-NATIVE VEGETATION CONTROL</b></p> <ul style="list-style-type: none"> <li>• Educate employees and contractors about noxious and invasive weed issues.</li> </ul> <p><b>RESTORATION, RECLAMATION AND ABANDONMENT</b></p> <ul style="list-style-type: none"> <li>• Avoid aggressive non-native grasses and shrubs in mule deer and elk habitat restorations.</li> <li>• Revegetate with seed mixtures that are of the surface owner's preference that are compatible with both livestock and wildlife or BLM approved seed mixes.</li> </ul>
7	Storm Water/Erosion Control	<ul style="list-style-type: none"> <li>• Limit the amount of land disturbed during construction of pad, access road, and facilities. The well pad and access road were designed to minimize erosion. Routine inspections and controls are to be implemented, as necessary. Conduct internal storm water inspections per applicable stormwater regulations. Any excessive precipitation accumulation within containment should be removed as appropriate and disposed of properly.</li> <li>• Utilize diking and other forms of secondary containment around tanks, drums, chemicals, liquids, pits, impoundments, or well pads.</li> <li>• Use drip pans, sumps, or liners where appropriate.</li> <li>• Limit the amount of land disturbed during construction of pad, access road, and facilities.</li> <li>• Employ spill response plan (SPCC) for all required facilities.</li> <li>• Properly dispose of any wastes fluids and other materials.</li> </ul> <p><b>MATERIAL HANDLING, ACTIVITIES, PRACTICES AND STORM WATER DIVERSION</b></p> <ul style="list-style-type: none"> <li>• Secondary containment of tanks, drums, and storage areas is mandatory to prohibit discharges to surface waters. A minimum of 110% capacity required of largest storage tank within a containment area.</li> <li>• Material handling, spill prevention procedures and practices will be followed to help prohibit discharges to surface waters.</li> <li>• Proper loading and transportation procedures to be followed for all materials to and from locations.</li> </ul>

8	Storm Water/Erosion Control	<p><b>EROSION CONTROL</b></p> <ul style="list-style-type: none"> <li>• Pad and access road to be designed to minimize erosion.</li> <li>• Pad and access road to implement appropriate erosion control devices where necessary to minimize erosion.</li> <li>• Routine inspections of sites and controls to be implemented with additions, repairs, and optimization to occur, as necessary, to minimize erosion.</li> </ul> <p><b>SELF INSPECTION, MAINTENANCE, AND HOUSEKEEPING</b></p> <ul style="list-style-type: none"> <li>• All employees are trained in spill response, good housekeeping, material management practices and procedures for equipment and container washing annually.</li> <li>• Conduct internal storm water inspections per applicable stormwater regulations.</li> <li>• Conduct routine informal inspections of all tanks and storage facilities at least weekly.</li> <li>• All containment areas are to be inspected weekly or following a heavy rain event.</li> <li>• Any excessive precipitation accumulation within containment should be removed as appropriate and disposed of properly.</li> <li>• All structural berms, dikes, and secondary containments will be inspected periodically to ensure they are operating correctly.</li> </ul> <p><b>SPILL RESPONSE</b></p> <ul style="list-style-type: none"> <li>• Spill response procedures as per the field SPCC Plan.</li> </ul> <p><b>VEHICLE &amp; LOCATION PROCEDURES</b></p> <ul style="list-style-type: none"> <li>• Vehicles entering location are to be free of chemical, oil, mud, weeds, trash and debris.</li> <li>• Location to be treated to eliminate weeds and bladed when necessary.</li> </ul> <p>CDPHE Stormwater Permit Number: COR-039752</p>
9	Material Handling and Spill Prevention	<ul style="list-style-type: none"> <li>• Employ a spill response plan (SPCC) for all facilities. Conduct routine informal inspections of all tanks and storage facilities at least weekly. Tank batteries would be placed within an engineered secondary containment consisting of corrugated steel containment rings and sized to provide containment for 150% of the largest single tank. Use drip pans, sumps, or liners where appropriate. Properly dispose of any wastes fluids and other materials. Operator must implement best management practices to contain any unintentional release of fluids along all portions of the temporary surface pipeline route where temporary pumps and other necessary equipment are located. Operator must routinely inspect the entire length of the temporary surface pipeline to ensure integrity. Operator shall conduct daily inspections of surface pipeline routes for leaks during active transfer of fluids. Inspections shall be conducted by viewing the length of the pipeline; operator will endeavor to minimize surface disturbance during pipeline monitoring. The operator shall maintain records of inspections, findings and repairs, if necessary, for the life of the pits. Operator will utilize, to the extent practical, all existing access and other public roads, and/or existing pipeline right-of-ways, when placing/routing the temporary surface pipelines. This will reduce surface disturbance and fragmentation of wildlife habitat in the area.</li> </ul>
10	Dust control	<ul style="list-style-type: none"> <li>• During construction and operation, operator shall implement dust abatement measures as needed to prevent fugitive dust from vehicular traffic, equipment operations, or wind events.</li> </ul>
11	Construction	<ul style="list-style-type: none"> <li>• All topsoil shall be stripped and segregated following removal of vegetation during construction of the well pad, access roads and pipelines. Roads shall be crowned, ditched, surfaced, drained with culverts and/or water dips, and constructed to BLM Gold Book standards. Initial gravel application shall be a minimum of 6 inches. Vanguard shall provide timely year-round road maintenance and cleanup on the access roads. A regular schedule for maintenance shall include, but not be limited to, blading, ditch and culvert cleaning, road surface replacement and dust abatement.</li> </ul>
12	Noise mitigation	<ul style="list-style-type: none"> <li>• Mufflers on the rig will be oriented north-east to minimize engine noise. Plumb dump lines into tanks to muffle sound. Rubber cushions in lubricators are used to muffle sound for plunger lift.</li> </ul>
13	Emissions mitigation	<ul style="list-style-type: none"> <li>• A combustor will be installed for control of associated condensate and produced water tank emissions with 95% control efficiency. Green completion practices to be utilized.</li> </ul>

14	Drilling/Completion Operations	<ul style="list-style-type: none"> <li>• Lighting will be positioned to downcast during drilling/completion activities. A closed loop drilling system would be employed. Drill cuttings from the wellbore will be directed into lined and bermed surface containments. Any free liquids accumulated in the containment would be removed as soon as practicable. If the well(s) is(are) to be hydraulically stimulated, flowback and stimulation fluids must be sent to tanks, separators, or other containment/filtering equipment before the fluids can be placed into any pipeline or storage vessel located on the well pad; or into tanker trucks for offsite disposal. The flowback and stimulation fluid tanks, separators, or other containment/filtering equipment must be placed on the well pad in an area constructed to be sufficiently impervious to contain any spilled or released material. Potential odors associated with the completions process and/or with long term production operations must be controlled/ mitigated.</li> </ul>
15	Drilling/Completion Operations	<p><b>TRENCHES/PITS/TEMPORARY FRAC TANKS</b></p> <ul style="list-style-type: none"> <li>• Unlined pits will not be constructed on fill material.</li> <li>• Drill cuttings from the wellbore will be directed into lined and bermed surface containments. Any free liquids accumulated in the containment would be removed as soon as practicable.</li> <li>• Pits utilized for completion operations will be permitted (if applicable) and lined, operated in accordance with COGCC regulations, specifically Rule 903 and Rule 904. All permitted pits (Form 15) will be closed per Rule 905 and non-permitted drilling pits would be closed in accordance with Rule 1003.</li> <li>• Pits used for completion will be fenced with appropriate wildlife mesh on the bottom portion. Appropriate netting will be installed within 30 days of the pit becoming inactive.</li> <li>• Flowback and stimulation fluids from the wells being completed will be sent to tanks and/or filters to allow the sand to settle out before the fluids are placed into the pit for reuse or disposal at a Vanguard SWD facility.</li> <li>• All flowback water will be confined to the lined completion pit or storage tanks for a period not to exceed ninety days and will be recycled for re-use, piped or trucked offsite to one of the approved disposal facilities below. Flowback sands stored on location will be remediated and buried on location or hauled to a state approved disposal facility. <ul style="list-style-type: none"> <li>o Circle B Land 33A-35-692SWD, API# 05-045-18493, UIC# 159277</li> <li>o GGU Rodreick #21B-31-691 SWD, API# 05-045-13803, UIC# 159176</li> <li>o Specialty #13A-28-692 SWD, API# 05-045-14054, UIC# 159212</li> <li>o Scott 41D-36-692 SWD, API# 05-045-11169, UIC# 159159</li> </ul> </li> <li>• Temporary frac tanks installed on location will have proper secondary containment according to SPCC regulations such as either putting a perimeter berm around location or around the frac tanks.</li> </ul>
16	Drilling/Completion Operations	<p>Rule 317.p - Logging Waiver: "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 &amp; number) the well in which open-hole logs were run."</p>
17	Interim Reclamation	<ul style="list-style-type: none"> <li>• Facilities were located to maximize interim reclamation success. A seed mix consistent with BLM standards will be utilized and contain no noxious, prohibited or restricted weed seeds. Pad shall be fenced to BLM standards to exclude livestock grazing for the first two growing seasons. Adhere to BLM annual monitoring plan and regulatory monitor and control noxious weeds. Interim reclamation is not expected to occur until after the timing limitations end for big game.</li> </ul>
18	Final Reclamation	<ul style="list-style-type: none"> <li>• Remove all equipment upon plugging and abandonment and conduct final reclamation activities so that seeding occurs in the optimal growing season. Reclamation is not expected to occur until after the timing limitations end for big game.</li> </ul>

Total: 18 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

<u>Att Doc Num</u>	<u>Name</u>
400818782	FORM 2 SUBMITTED
400876410	LEASE MAP
400876430	WASTE MANAGEMENT PLAN

Total Attach: 3 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>

Total: 0 comment(s)