

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.)

Township 4 South, Range 64 West, 6th PM
Section 16: All

Total Acres in Described Lease: 640 Described Mineral Lease is: Fee State Federal Indian

Federal or State Lease # 80/5587-S

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 0 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 2361 Feet
 Building Unit: 2670 Feet
 High Occupancy Building Unit: 5280 Feet
 Designated Outside Activity Area: 5280 Feet
 Public Road: 2237 Feet
 Above Ground Utility: 629 Feet
 Railroad: 5280 Feet
 Property Line: 617 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: 191 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 300 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

The BHL footage FWL of Section 16 depicted on the well location plat is less than the required 300' from unit boundary per Spacing Order 535-738. Operator will not be completing the well past 300' FWL of Section 16.

OBJECTIVE FORMATIONS

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
NIOBRARA	NBRR	535-738	960	4S64W:15-W/2,16-All

DRILLING PROGRAM

Proposed Total Measured Depth: 15057 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: 741 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? Yes

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: Commercial Disposal

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Commercial Disposal

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	26	16	43	0	100	50	100	0
SURF	13+1/2	9+5/8	36	0	2000	670	2000	0
1ST	8+3/4	5+1/2	20	0	15057	1715	15057	1900

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 BHL footage FWL of Section 16 depicted on the well location plat is less than the required 300' from unit boundary per Spacing Order. Operator will not be completing the well past 300' FWL of Section 16.

Nearest wellbore permitted or completed in the same formation is the Bison 4-64 15-16-1CHZ; determined using 2D measurement.

Nearest permitted or existing or permitted wellbore belonging to another operator is the Zukowski 17 1H API #05-005-07208; determined using 2D measurement.

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

Location ID: _____

Is this application being submitted with an Oil and Gas Location Assessment application? Yes

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: _____ Print Name: Ann Stephens

Title: Regulatory Manager Date: 8/2/2016 Email: regulatory@petro-fs.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: *Matthew Lee* Director of COGCC Date: 9/29/2016

Expiration Date: 09/28/2018

API NUMBER
05 005 07254 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>1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU for the first well activity with a rig on the pad and provide 48 hour spud notice via Form 42 for all subsequent wells drilled on the pad.</p> <p>2) Comply with Rule 317.j. and provide cement coverage from TD to a minimum of 200' above Niobrara. Verify coverage with cement bond log.</p>
	<p>1) Bradenhead test shall be performed within 60 days of rig release and prior to stimulation. Test results shall be submitted on Form 17 within 10 days of test.</p> <p>2) Bradenhead test shall be performed between 6 and 7 months after rig release and shall be submitted on Form 17 within 10 days of test.</p> <p>3) Bradenhead test shall be performed within 30 days of First Production as reported on Form 5A and shall be submitted on Form 17 within 10 days of test.</p>
	<p>Operator acknowledges the proximity of the listed non-operated wells. Operator assures that this offset list will be remediated per the DJ Basin Horizontal Offset Policy (option 4) and ensure all applicable documentation is submitted. Well is beyond the area expected to be affected during stimulation (reservoir has not previously been developed, well has a plug above the Niobrara)</p> <p>FRANK CAVANAUGH #1 (API # 005-05054);</p>
	<p>Operator acknowledges the proximity of the listed non-operated wells. Operator agrees to: provide mitigation option 4 (per the DJ Basin Horizontal Offset Policy) to mitigate the situation, ensure all applicable documentation is submitted based on the selected mitigation option chosen, and submit a Form 42 ("OFFSET MITIGATION COMPLETED") stating that appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of this well. Well is beyond the area expected to be affected during stimulation (reservoir has not previously been developed) and can be monitored during stimulation.</p> <p>DANIEL KISSLER #1-9 API# 005-06877; KISSLER, DAN #1-10 API # 005-06799; KISSLER DAN #2-10 API # 005-06864;</p>

Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Planning	<p>Emergency Response Plan: Operator will provide the County with an Emergency Response Plan (ERP) to address all potential emergencies that may be associated with an oil and gas facility. Operator shall also provide a copy of such plan to all emergency service providers that would respond to such emergencies. A "will-serve" letter must be obtained from the appropriate emergency provider(s).</p> <p>Fencing: A fencing plan will be determined with surface owner input.</p> <p>Painting of oil and gas facilities: except for such facilities that must be painted a certain color for safety reasons, operator agrees to paint all new (post-mou) production facilities with uniform, non-contrasting, non-reflective color tones and with colors matched to, but slightly darker than, surrounding landscapes.</p>

2	Traffic control	<p>Private Roads: the operator agrees to construct (unless already constructed) and maintain an access road designed to support an imposed load of 75,000 pounds that will accommodate emergency response vehicles such as, but not limited to, law enforcement, emergency command vehicles (cars/suvs), ambulances, hazardous materials response vehicles, water tenders, and fire apparatus during construction and operation of new tank batteries (post mou), new drilling activity and reworks or recompletions of existing wells, unless a local fire department or fire district agrees to a different or lesser standard or waived by the County. With respect to new roads to new tank batteries, the Operator agrees to construct access roads at least sixteen (16') feet wide with at least four (4") inch road base. Best efforts will be made to improve inadequate access to existing tank battery sites identified by the fire district or County, based on service calls and demonstrated problems of accessing the site. Operator and County agree that spot inspections of access roads may be done by the County and/or appropriate emergency response agency, at such County or agency's sole risk and expense, to insure that emergency access in accordance with this section is maintained.</p> <p>Public Roads: Operator agrees to apply for and obtain access permits for its oil and gas facilities from the Public Works and Development Department. Requirements for the access permit may include the following: a) access location providing for a safe entrance/exit and utilization of main roadways to minimize impact /conflict with residents on local roadways; b) haul route and traffic data; c) pre/post inspection of roadways used by the Operator; d) collateral or bond to insure that road damage caused by the Operator is repaired; e) dust control (material used for dust control must be pre-approved by the County); f) road maintenance agreement during drilling phase; and g) payment of all applicable filing fees.</p>
3	Material Handling and Spill Prevention	<p>Spill and release management: any spill or release that is reportable to the commission shall be simultaneously reported to the county.</p>
4	Construction	<p>Berm Construction: Tank berms will be constructed of steel rings with a synthetic or engineered liner and designed to contain 150% of the capacity of the largest tank. Secondary containment devices will be sufficiently impervious to contain any spilled or released material. Berms shall be inspected by Operator on a weekly basis for evidence of discharge. Berms shall be inspected within 48 hours of a precipitation event.</p> <p>Construction: Operator will provide notice to COGCC 48 hours prior to commencing construction of this Oil and Gas Location via Form 42.</p> <p>Erosion Control: When required by the County's Grading and Erosion/ Sedimentation ("GESC") Regulations, the Operator agrees to apply for and obtain a GESC permit through the Public Works and Development Department. The County will permit the Operator to submit a standard GESC plan applicable to all of the Operator's oil and gas facilities in cases where GESC collateral is required, and the County will also accept a blanket collateral in a form and amount acceptable to the County so that separate collateral will not be required for each oil and gas facility with a GESC permit. A general performance bond in a form and amount acceptable to the County will also be allowed to guarantee performance under sections 10 and 11 of this MOU.</p> <p>Floodplain: Any disturbance within a floodplain will be allowed if the Operator has obtained a Floodplain Development Permit from the County and has complied with all the County's legally adopted floodplain and engineering regulations. Pits will not be allowed in floodplains, as defined in the County's Stormwater Management Manual.</p>
5	Noise mitigation	<p>Noise: operator shall provide and post 24-hour, 7 days per week contact information to deal with all noise complaints arising from operator's oil and gas facilities.</p>

6	Emissions mitigation	Green Completions - Emission Control Systems: Test separators and associated flow lines and sand traps shall be installed on-site to accommodate green completions techniques pursuant to COGCC Rules where reservoir pressure, formation productivity, and wellbore conditions are likely to enable the well to be capable of naturally flowing hydrocarbon gas in flammable or greater concentrations at a stabilized rate in excess of five hundred (500) MCFD to the surface against an induced surface backpressure of five hundred (500) psig or sales line pressure, whichever is greater. In the absence of a viable gas sales line, the flowback gas shall be thermally oxidized in an emissions control device (ECD), which will be installed and kept in operable condition for least the first 90-days of production pursuant to CDPHE rules. This ECD shall have an adequate capacity for 1.5 times the largest flowback within a 10 mile radius, will be flanged to route gas to other or permanent oxidizing equipment and shall be provided with the equipment needed to maintain combustions where non-combustible gases are present. All salable quality gas shall be directed to the sales line as soon as practicable or shut in and conserved.
7	Odor mitigation	Odors and Dust: Oil & gas facilities and equipment shall be operated in such a manner that odors and dust do not constitute a nuisance or hazard to public welfare.
8	Drilling/Completion Operations	Alternative Logging Program - Multi-Well Pad: One of the first wells drilled on the pad will be logged with open-hole Resistivity Log and Gamma Ray Log from the kick-off point 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 horizontal portion of every well will be logged with a measured-while-drilling gamma-ray log. 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 open-hole logs were run.

Total: 8 comment(s)

Applicable Policies and Notices to Operators

Policy
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>
2473045	SURFACE AGRMT/SURETY
401085021	FORM 2 SUBMITTED
401085373	OffsetWellEvaluations Data
401085404	DIRECTIONAL DATA
401086902	DEVIATED DRILLING PLAN
401087726	WELL LOCATION PLAT
401117998	OffsetWellEvaluations Data

Total Attach: 7 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final Permitting review complete.	9/28/2016 3:53:45 PM
Permit	Permitting review complete.	9/2/2016 1:14:05 PM
Permit	Per Operator request: -- Added newly approved Spacing Order number and modified related comment; -- Added Operator comment on 2D measurement to nearest nonop well; -- Added Operator comment on 2D measurement to nearest well in same formation.	9/2/2016 1:10:40 PM

<p>OGLA</p>	<p>With Operator concurrence, removed the following from BMP#8 as this site is using a pitless system:</p> <p>Preferred Option: It is the intent of the County that operators utilize closed-loop or modified closed-loop systems for drilling and completion operations in order to minimize or eliminate the need for earthen pits; however, notwithstanding the foregoing, where appropriate, and subject to prior County approval, the County generally supports: 1) the use of unlined drilling pits when bentonite or a similar clay additive is used during the drilling process, and 2) the use of lined single- or multi-well water storage pits in order to minimize the transport of water and promote recycling, subject to the requirements set forth in this subsection. Permitted modified closed-loop systems include oil and gas wells where air or fresh water is used to drill through the surface casing interval, defined as fifty (50) feet below the depth of the deepest aquifer, and a closed loop system is used for the remainder of the drilling and/or completion or recompletion procedures. Multi-well pits are defined as lined, engineered pits, constructed over an engineered base, with construction or liner specifications meeting or exceeding Commission pit lining rules, that will serve the functions of drilling, completion, and/or flowback pits for more than one well.</p> <p>Additional Pits that Require County Review and Approval: Skimming, settling, percolation, evaporation, and any type of netted pits are generally discouraged by the County; however such pits may be approved on a case-by-case basis through the Use by Special Review ("USR") process. A copy of the Pit Plan submitted to the Commission will be provided to the County at the same time as the plans are submitted to the Commission. Construction of these pits will be preceded by collection of "baseline" soil samples from the center of the planned pit at 6 and 18 inches depth. Soil samples will be analyzed for pH, Sodium Adsorption Ratio (SAR), and Electrical Conductivity (EC). The Operator shall stake and photograph from the center of the planned pit (toward north, south, east, and west directions) for inclusion in the County's copy of the Pit Plan. Upon closure of these pits, pH, SAR, EC, BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes), and TEPH (total extractable petroleum hydrocarbons) analyses may be required if there is evidence of leaks or spills in the immediate area of the pits.</p> <p>Pits That Do Not Require County Approval: Flare, Emergency, Plugging, and Workover pits will not require county review or approval prior to construction (unless within one quarter (1/4) mile of a residence as set forth below); however, the County will be copied on the notification(s) sent to the Commission and any pit plans, remediation plans, or analytical results submitted to the Commission.</p> <p>Pit Setbacks: All pit construction within 1/4 mile of a residence or water well is generally discouraged by the County and may have additional County requirements, such as fencing. Such pits will be reviewed on a case-by-case basis by the County.</p>	<p>9/1/2016 2:16:19 PM</p>
<p>OGLA</p>	<p>With Operator concurrence, removed the following BMPs as these are surface location BMPs:</p> <p>Lighting: All permanent lighting of oil and gas well sites shall be directed downward and internally. Temporary lighting shall conform to the Commission's Rules and Regulations.</p> <p>Weed Control and Management: Operator will be responsible for noxious weed control on any well pad, facility, or disturbed area, from the drilling or installation phase to the closure of the well or facility.</p> <p>Within 90 days subsequent to the time of plugging and abandonment of the entire site, superfluous debris and equipment shall be removed from the site. Operator shall restore the surface of the land affected by such terminated operations as near as possible to the previous state that existed prior to operations.</p>	<p>9/1/2016 2:07:57 PM</p>
<p>Permit</p>	<p>Attached revised SUA and deleted old SUA per operator request.</p>	<p>8/26/2016 4:58:07 PM</p>
<p>Permit</p>	<p>Passed completeness.</p>	<p>8/10/2016 11:58:38 AM</p>
<p>Total: 7 comment(s)</p>		