

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.)

All of Sec. 36, T5N, R68W

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

Federal or State Lease # 2130

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

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 334 Feet

Building Unit: 519 Feet

High Occupancy Building Unit: 4485 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 237 Feet

Above Ground Utility: 204 Feet

Railroad: 5280 Feet

Property Line: 240 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: 06/26/2014

SPACING and UNIT INFORMATION

Distance from Completed Portion of Wellbore to Nearest Wellbore Permitted or Completed in the same formation: 330 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 460 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

Distance from Completion portion of wellbore to nearest wellbore permitted or completed in the same formation is Wind 10.
NIOBRARA: Proposed Spacing Unit is described as the N2N2 of Sec. 1, T4N, R68W, NENE of Sec. 2, T4N, R68W, and S2S2 of Sec. 36.

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		360	GWA

DRILLING PROGRAM

Proposed Total Measured Depth: 11672 Feet

Distance to nearest permitted or existing wellbore penetrating objective formation: 165 Feet (Including plugged wells)

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 318A

DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Methods: Commercial Disposal

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Other

Other Disposal Description:

Cuttings will be disposed of by land spreading.

Beneficial reuse or land application plan submitted? No

Reuse Facility ID: or Document Number:

CASING PROGRAM

<u>Casing Type</u>	<u>Size of Hole</u>	<u>Size of Casing</u>	<u>Wt/Ft</u>	<u>Csg/Liner Top</u>	<u>Setting Depth</u>	<u>Sacks Cmt</u>	<u>Cmt Btm</u>	<u>Cmt Top</u>
CONDUCTOR	26+0/0	16+1/4	42	0	80	100	80	0
SURF	13+1/2	9+5/8	36	0	850	500	850	0
1ST	8+3/4	7+0/0	26	0	7308	850	7308	0
1ST LINER	6+1/8	4+1/2	13.5	7208	11672			

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 Operator proposes to drill a well in Section 31, Township 5 North, Range 67 West, in Weld County, Colorado, as follows:

SHL: 1548' FSL 240' FWL - falls outside a legal GWA Drilling Window
 Top of Production: 165' FSL 460' FEL
 BHL: 182' FSL 460' FWL - falls outside a legal GWA Drilling Window

Operator intends to drill the well to the Niobrara formation at 11,672' MD and 6,790' TVD.

Letter to the Director for COGCC Rule 318A.a. Exception Location Request, attached as Exception Loc Request.

Letter to Director for COGCC Rule 318A.e. Proposed Spacing Unit, attached as Proposed Spacing Unit.

This application is in a Comprehensive Drilling Plan _____ 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: Jeff Annable

Title: Regulatory Technician Date: 8/18/2014 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: 9/22/2014

Expiration Date: 09/21/2016

API NUMBER
05 123 40261 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>
	Open hole resistivity and gamma logs shall be run to describe the stratigraphy of the entire well bore and to adequately verify the setting depth of surface casing and aquifer coverage. On a multi-well pad, these open hole logs are only required on one of the first wells drilled on the pad and the Drilling Completion Report - Form 5 for every well on the pad shall identify which well was logged.
	1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU. 2) Comply with Rule 317.i and provide cement coverage from end of 7" casing to a minimum of 200' above Niobrara. Verify coverage with cement bond log. 3) Run and submit Directional Survey from TD to base of surface casing. The operator shall comply with Rule 321, and it shall be the operator's responsibility to ensure that the wellbore complies with setback requirements in commission orders or rules prior to producing the well.
	Operator acknowledges the proximity of the listed well: Operator agrees to: provide mitigation option 1 or 2 (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") for the remediated wells, referencing the API number of the proposed horizontal well(s) stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of this well. WIND 1 (API NO 123-10595)

Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Planning	Multi-well Pads are located in a manner which allows for resource extraction while maintaining the highest distances possible from the offsetting residential areas and complies with the wishes of the surface owner. A meeting with the surface owner will determine the fencing plan. Tanks will be designed, constructed and maintained in accordance with NFPA Code 30. The tanks are visually inspected once a day for issues, and recorded inspections are conducted once a month.

2	Pre-Construction	<p>Anti-Collision: Prior to drilling operations, Operator will perform an anti-collision scan of existing offset wells that have the potential of being within close proximity of the proposed wells. The anti-collision scan may include definitive MWD or gyro surveys of the offset wells with included error of uncertainty per survey instrument, and compared against the proposed well path with its respective error of uncertainty. If current surveys do not exist for the offset wells, operators may have gyro surveys conducted to verify bottom hole location. The proposed well may only be drilled if the anti-collision review results indicate that the risk of collision is sufficiently low as defined by the anti-collision plan, with separation factors greater than 1.5, or if the risk of collision has been mitigated through other means including shutting in wells, plugging wells, increased drilling fluid in the event of lost returns or as is appropriate for the specific situation. In the event of an increased risk of collision, that risk will be mitigated to prevent harm to people, the environment or property. For the proposed well, upon conclusion of drilling operations, an as-constructed directional survey will be submitted to the COGCC with the Form 5.</p> <p>Identification of plugged and abandoned wells will be identified pursuant to 319.a.(5)</p>
3	Traffic control	<p>Access Roads: The access road will be constructed to accommodate local emergency vehicles. This road will be maintained for access at all times. Traffic will be routed to minimize local interruption.</p>
4	General Housekeeping	<p>Visual Impacts: All long term facility structures will be painted a color that enables the facilities to blend in with the natural background color of the landscape, as seen from a viewing distance and location typically used by the public. Maintain appearance with garbage clean-up; a trash bin will be located on site to accumulate waste by the personnel drilling the wells. Site will have unused equipment, trash and junk removed immediately.</p> <p>Operator shall keep the Surface Use Area as well as any roads or other areas used by Operator safe and in good order, including control of noxious weeds litter and debris.</p>
5	Material Handling and Spill Prevention	<p>Leak Detention Plan: Pumper will visit the location daily and visually inspect all tanks and fittings for leaks. Additionally, monthly documented SPCCP inspections are conducted pursuant to 40 CFR 112.</p> <p>Control of fire hazards: All material that is considered a fire hazard shall be a minimum of 25' from the wellhead tanks or separators. Electrical equipment shall comply with API IRP 500 and will comply with the current national electrical code.</p> <p>Operator shall comply with state and federal laws, rules and regulations governing the presence of any petroleum products, toxic or hazardous chemicals or wastes on the Subject lands.</p>
6	Dust control	<p>Fugitive dust will be controlled by speed restrictions on all neighboring roads, regular road maintenance and repair, and avoiding construction activity during high wind days. If technologically and economically feasible, additional management practices may also be required to minimize fugitive dust as well as to control silica dust while handling sand during frac'ing operations.</p>

7	Construction	<p>Berm Construction- Tanks berms shall be constructed of steel rings with a synthetic or engineered liner and designed to contain 150% of the capacity of the largest tank. All berms will be visually checked periodically to ensure proper working condition.</p> <p>The flow lines referred to in this paragraph are not to exceed 3 inches in diameter and shall be located within the Surface Use Area. Except as otherwise agreed to by owner, in writing, all such flowlines shall be used only for oil or gas produced from wells located within the Surface Use Area. Locations must be approved by Owner.</p> <p>Operator shall construct stock-tight fences around any dangerous area, including any pits where Operator drills wells.</p> <p>Operator will construct an all-weather road in accordance with the specification and location that the surface owner has agreed upon. The road shall be properly maintained. The road shall be controlled by a metal, hinged gate in addition to a cattle guard or culverts if applicable or needed. Signage will be used to prevent access to the roads from the public.</p> <p>All power transmission lines built by Operator will be buried below plow depth and or constructed so as to cause the least possible interference with Owner's existing or future residential, agricultural, ranching or development use or operations.</p> <p>Operator shall, at its expense, construct permanent fencing around all Wells, tanks, and other surface facilities. All fencing to be constructed shall be aesthetically pleasing and as approved by Owner which may include either a wood privacy fence or other acceptable material. Maintenance around Operator's surface facilities shall be the responsibility of Operator, and Owner shall not be responsible for damage to such fences or Operator's surface facilities in the event livestock gain access to these areas. Operator shall reasonably repair and/or replace any and all damage done to any fences or gates or any other improvements of owner, which result from Operator's operations of the Subject Lands. All fences shall be repaired, locked, and close in a manner consistent with surrounding fences reasonable and customary residential, farming, and ranching practices.</p> <p>Containment berms shall be constructed of steel rings with a synthetic or engineered liner and designed to prevent leakage and resist degradation from erosion or routine operation. Tertiary containment, such as an earthen berm, will be installed as required for Production Facilities within 500 feet. All berms will be visually checked periodically to ensure proper working condition.</p>
8	Noise mitigation	<p>The drill site will be powered by electricity, mitigating the majority of noise from drilling operations. Sound walls and/or hay bales will be used to surround the well site during drilling operations.</p>
9	Emissions mitigation	<p>Green Completions - Emission Control System: Test separators and associated flow lines and sand traps shall be installed on-site to accommodate green completions techniques pursuant to COGCC Rules. In the anticipated 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.</p>
10	Odor mitigation	<p>Extraction will regulate odors in accordance with COGCC Rule 805. The production facilities will have VOC Combustors with emission control devices to comply with the Department of Public Health and Environment, Air Quality Control Commission.</p>

11	Drilling/Completion Operations	<p>A closed –loop system will be used for drilling operations.</p> <p>Blowout Prevention Equipment (“BOPE”): A double ram and annular preventer will be used during drilling. Stabbing valves shall be installed in the event of reverse circulation and shall be prior tested with low and high pressure fluid.</p> <p>Lighting: Light sources during all phases of operations will be directed downwards and away from occupied structures where possible. Once the drilling and completion rigs leave the site, there will be no permanently installed lighting on site.</p> <p>Bradenhead Monitoring: Operator acknowledges and will comply with COGCC Policy for Bradenhead Monitoring during Hydraulic Fracturing Treatments in the Greater Wattenberg Area dated May 29, 2012.</p>
12	Interim Reclamation	Operator shall be responsible for segregating the topsoil, backfilling, repacking, reseeding, and recontouring the surface of any disturbed area so as not to interfere with Owner’s operations and shall reclaim such area to be returned to pre-existing conditions as best as possible with control of all noxious weeds.
13	Final Reclamation	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. The 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.

Total: 13 comment(s)

Applicable Policies and Notices to Operators

Notice Concerning Operating Requirements for Wildlife Protection.

Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
400642164	FORM 2 SUBMITTED
400664329	WELL LOCATION PLAT
400664331	SURFACE AGRMT/SURETY
400664336	EXCEPTION LOC REQUEST
400664338	EXCEPTION LOC WAIVERS
400664361	PROPOSED SPACING UNIT
400666119	OffsetWellEvaluations Data
400666126	DIRECTIONAL DATA
400666128	DEVIATED DRILLING PLAN
400666130	DEVIATED DRILLING PLAN
400667165	OffsetWellEvaluations Data

Total Attach: 11 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final review complete.	9/15/2014 3:41:23 PM
Engineer	Offset Wells Evaluated.	8/20/2014 8:10:49 AM
Permit	Passed Completeness	8/19/2014 11:44:32 AM

Total: 3 comment(s)