

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 6 North, Range 66 West, 6th PM
Section 20: W2SE4

The minerals beneath this location are being produced since the parcel that this pad is located encompasses most of the NESE QTR/QTR of Sec 20 which is being produced by this wellbore.

Total Acres in Described Lease: 80 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: 0 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 659 Feet
Building Unit: 659 Feet
High Occupancy Building Unit: 5280 Feet
Designated Outside Activity Area: 5280 Feet
Public Road: 201 Feet
Above Ground Utility: 236 Feet
Railroad: 4421 Feet
Property Line: 213 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: 11/04/2015

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: 75 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 470 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

Nearest wellbore permitted or completed in the same formation is the Swanson 34-20 API #05-123-12235 (Common source NB-CD well).

NBRR: Proposed Spacing Unit is described as:
T6N,R66W:
Sec 19 & 20-S2S2

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		320	GWA

DRILLING PROGRAM

Proposed Total Measured Depth: 17667 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: 96 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 318A

DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Methods: Land application

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Beneficial reuse

Other Disposal Description:

Hester Farms Land Application Site Location ID # 442545 will be used for offsite disposal.

Beneficial reuse or land application plan submitted? Yes

Reuse Facility ID: 442545 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	42	0	80	400	80	0
SURF	13+1/2	9+5/8	36	0	1500	1040	1500	0
1ST	8+1/2	5+1/2	20	0	17667	2776	17667	0

☐ 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	<p>Letter to the Director for COGCC Rule 318A.a. Exception Location Request, attached as Exception Loc Request.</p> <p>Waiver for COGCC Rule 318A.a. GWA window waiver, attached as Exception Loc Waiver.</p> <p>Letter to Director for COGCC Rule 318A.e. Proposed Spacing Unit, attached as Proposed Spacing Unit.</p> <p>Nearest permitted or existing or permitted wellbore belonging to another operator is the Thayer 19-34 API #05-123-222384.</p> <p>The treated intervals of the Pope 1, Emerson Farms 14-20, Goetzal 20-34, are greater than 150' (3D measurement) from the completed portion of the proposed wellbore. No 317.s. consent is required.</p> <p>The treated interval of the Swanson 34-20 is less than 150' from the completed portion of the proposed wellbore. Since this well is operated by the applicant, then no 317.s. consent is required.</p> <p>The treated interval of the Thayer 19-34 is less than 150' from the completed portion of the proposed wellbore. 317.s. consent signed by Noble Energy, Inc. is attached as Stimulation Setback Consent.</p>
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This application is in a Comprehensive Drilling Plan _____ CDP #: _____

Location ID: 442545

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 Analyst Date: 7/21/2016 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:  Director of COGCC Date: 9/28/2016

Expiration Date: 09/27/2018

API NUMBER

05 123 43653 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>
	This Permit to Drill is approved subject to all the BMPs and COAs on the most recently approved Form 2A and any subsequently approved Form 4 for the Oil and Gas Location (Location ID #447748). The most recently approved Form 2A and any subsequent Form 4s containing applicable COAs for this location shall be posted onsite during construction, drilling, and completions operations.
	Operator acknowledges the proximity of the listed well(s). Operator agrees to provide mitigation Option 1 or 2 (per the DJ Basin Horizontal Offset Policy, ensure all applicable documentation is submitted based on the selected mitigation option chosen, and submit Form 42(s) "OFFSET MITIGATION COMPLETED" for the remediated well(s), referencing the API Number of the proposed horizontal wells stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of the proposed wells. Pope 1 (API #123-11373)
	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 for each subsequent well drilled on the pad. 2) Comply with Rule 317.j and provide cement coverage from TD to a minimum of 200' above the Niobrara. Verify coverage with cement bond log. 3) Operator has indicated that no oil based drilling fluids are to be used on this location.
	Bradenhead tests shall be performed on all wells on this pad on the following schedule: 1) Within 60 days of rig release and prior to stimulation (wells already stimulated excepted). 2) Between 6 and 7 months after rig release or prior to stimulation. 3) Within 30 days of First Production as reported on Form 5A (wells already producing shall be tested within 30 days). Test results shall be submitted on Form 17 within 10 days of test.
	Operator will perform an anti-collision evaluation of all active (producing, shut in, or temporarily abandoned) offset wellbores that have the potential of being within 150 feet of a proposed well prior to drilling operations for the proposed well. Notice shall be given to all offset operators prior to drilling.

Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Planning	Multi-well Pads are selected in a manner which allows for resource extraction while maintaining the highest and equidistant measurements from offsetting residential areas while also honoring the wishes of the surface owner. Bayswater utilizes flood plain information, COGCC setbacks, development strategies, economics, mechanical and well bore integrity, safety, traffic, geology and operations life cycles among other items when planning horizontal sites. Bayswater plans extended reach laterals when possible to minimize the number of disturbance areas and the number of multi-well sites. The use of existing pad sites, access roads and the proximity to pipelines all play important roles in site selection. Additionally, Bayswater looks at the torque and drag on drilling operations to see what the limitations are on site selection compared to landing points of the laterals. Bayswater will continue to be in close communication with Surface Owner(s) with respect to land use consideration, construction and drilling rig move in date. A meeting with the surface owner will determine the fencing and sound wall plan. A meeting with the land owner will help determine any changes to fencing or culverts.
2	Community Outreach and Notification	Operator will also provide a toll-free hotline to all Building Unit Owners in the area if they have any complaints.

3	Traffic control	Access Roads: Bayswater plans to utilize an existing farm field entrance. The access can be improved upon to accommodate drilling and completions operations trucks as well as local emergency vehicles. Bayswater has implemented traffic signs at our entrances and exits from pads to suggest traffic patterns and also for speed control. Traffic from this pad will be directed north.
4	General Housekeeping	<p>Visual Impacts: Equipment observable from any public highway, regardless of construction date, shall be painted with uniform, non-contrasting, non-reflective color tones (similar to the Munsell Soil Color Coding System), and with colors matched to, but slightly darker than, the surrounding landscape.</p> <p>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. 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	Storm Water/Erosion Control	Use water bars, and other measures to prevent erosion and non-source pollution. Implement and maintain BMPs to control storm water runoff in a manner that minimizes erosion, transport of sediment offsite, and site degradation. Co-locate gas and water gathering lines whenever feasible, and mitigate any erosion problems that arise due to the construction of any pipeline(s).
6	Material Handling and Spill Prevention	<p>Leak Detention Plan: Pumper will visit the location daily and visually inspect all wellheads and fittings for leaks. Additionally, annual 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. 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>
7	Dust control	Operator shall employ practices for control of fugitive dust caused by their operations. Such practices shall include but are not limited to the use of speed restrictions, regular road maintenance, restriction of construction activity during high- wind days, and silica dust controls when handling sand used in hydraulic fracturing operations. Bayswater additionally has implemented the use of traffic signs when leaving the location to remind drivers of specific routes to utilize. Additional management practices such as road surfacing, wind breaks and barriers, or automation of wells to reduce truck traffic may also be required if technologically feasible and economically reasonable to minimize fugitive dust emissions.
8	Construction	Guy line anchors: All guy line anchors shall be brightly marked pursuant to Rule 604.c. (2)Q.
9	Construction	<p>Operator will post a copy of the approved Form 2A and associated Form 4s on location.</p> <p>Operator will survey the wells after construction to ensure COGCC setbacks have been maintained.</p>

10	Noise mitigation	<p>Operator will provide engineered noise abatement sound walls to comply with COGCC requirements. Sound walls will be installed for the duration of drilling and completion activities per third party sound modeling studies.</p> <p>Baseline studies will be conducted prior to commencement of construction and dirt work, which includes both A and C scale measurements. A sound model will be developed with the drilling rig and completion operations noise signatures. Bayswater has recently acquired a new rig signature for the Frontier # 8 rig with hospital grade mufflers. This signature information is available upon request. Various height sound walls will be engineered and installed where required and necessary. Temporary lbeams will be installed for walls 20' and higher. Sound walls themselves, a combination of STC-32 and STC-25 Acoustical Barrier Blankets, will be implemented. Both drilling and completion operations will be conducted within these sound walls. 10'-16' portable walls will be used to dampen gen-sets, if necessary, pursuant to sound model results. Additionally, sound blankets may be utilized in and around the rig floor to dampen noise from the draw works. Operator is investigating the possibility of powering the drill site by electricity.</p>
11	Emissions mitigation	<p>Green Completions - Emission Control System: Test separators and associated flow lines and sand traps shall be installed to accommodate green completions techniques pursuant to COGCC Rules. Operator is working with midstream operators in the area. Operator will connect to a gas sales line prior to flowback and immediately direct salable quality gas down line. The flowback gas shall be thermally oxidized in an emissions control device (ECD), which will be installed and kept in operable condition for at 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 combustion where non-combustible gases are present.</p>
12	Odor mitigation	<p>Equipment shall be operated in such a manner that odors and dust do not constitute a nuisance or hazard to public welfare.</p> <p>Oil and gas operations shall be in compliance with the Department of Public Health and Environment, Air Quality Control Commission, Regulation No. 2 Odor Emission, 5 C.C.R. 1001-4, Regulation No. 3 (5 C.C.R. 1001-5), and Regulation No. 7 Section XVII.B.1 (a-c) and Section XII.</p>
13	Drilling/Completion Operations	<p>Identification of plugged and abandoned wells will be identified pursuant to 319.a.(5)</p>
14	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: Site lighting shall be directed downward and inward and shielded so as to avoid glare on public roads and Building Units within one thousand (1000) feet 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>
15	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 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.</p>

16	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 weeds.
17	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: 17 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
Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area. http://cogcc.state.co.us/documents/reg/Policies/PolicyGwaBradenheadMonitoringFinal.pdf

Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
401048308	FORM 2 SUBMITTED
401048375	WELL LOCATION PLAT
401068218	OffsetWellEvaluations Data
401068229	DIRECTIONAL DATA
401068231	DEVIATED DRILLING PLAN
401068232	SURFACE AGRMT/SURETY
401068233	EXCEPTION LOC WAIVERS
401068234	EXCEPTION LOC REQUEST
401068237	PROPOSED SPACING UNIT
401082058	STIMULATION SETBACK CONSENT

Total Attach: 10 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Added Construction BMP, Disposal Description & Reuse Facility ID# 442545. Changed/updated Green Completions BMP per operator. Permitting Review Complete.	9/27/2016 11:25:38 AM
Permit	Final Review Completed.	8/30/2016 3:29:50 PM
Permit	Permitting Review Complete.	8/30/2016 9:46:54 AM
Permit	Open Hole Logging BMP submitted by operator.	8/30/2016 9:46:50 AM
Engineer	Hall 1 (API #123-11379) >1500' from the proposed lateral.	8/25/2016 1:37:38 PM
Permit	Passed completeness.	7/25/2016 5:10:35 PM

Total: 6 comment(s)