

FORM  
2

Rev  
08/13

## State of Colorado

### Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

400938471

### 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:

01/13/2016

Well Name: Shadow

Well Number: A26-676

Name of Operator: NOBLE ENERGY INC

COGCC Operator Number: 100322

Address: 1625 BROADWAY STE 2200

City: DENVER State: CO Zip: 80202

Contact Name: Justin Garrett

Phone: (303)228 4449

Fax: (303)228 4286

Email: justin.garrett@nblenergy.com

### RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20030009

### WELL LOCATION INFORMATION

QtrQtr: NWNE Sec: 30 Twp: 6N Rng: 63W Meridian: 6

Latitude: 40.462400

Longitude: -104.478760

Footage at Surface: 860 feet FNL/FSL FNL 2379 feet FEL/FWL FEL

Field Name: WATTENBERG

Field Number: 90750

Ground Elevation: 4652

County: WELD

GPS Data:

Date of Measurement: 08/04/2015 PDOP Reading: 1.8 Instrument Operator's Name: Chase Miller

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

Footage at Top of Prod Zone: FNL/FSL FNL/FWL Bottom Hole: FNL/FSL FEL/FWL  
955 FNL 2177 FWL 955 FNL 2097 FEL  
Sec: 30 Twp: 6N Rng: 63W Sec: 26 Twp: 6N Rng: 64W

### 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.)

T6N-R63W Sec 20: W/2NW/4, Sec 29: All, Sec 30: W/2NE/4

Total Acres in Described Lease: 800 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: 631 Feet  
Building Unit: 785 Feet  
High Occupancy Building Unit: 5280 Feet  
Designated Outside Activity Area: 5280 Feet  
Public Road: 856 Feet  
Above Ground Utility: 830 Feet  
Railroad: 5280 Feet  
Property Line: 263 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: 11/02/2015

## 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: 176 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 556 Feet (Enter 5280 for distance greater than 1 mile.)

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

## SPACING & FORMATIONS COMMENTS

Spacing Unit: T6N-R64W Sec 25: N/2, Sec 26: NE/4, T6N-R63W Sec 30: NW/4, NW/4NE/4

## 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		680	GWA

## DRILLING PROGRAM

Proposed Total Measured Depth: 16584 Feet

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

1141 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 318A

## DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Methods: Recycle/reuse

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Beneficial reuse

Other Disposal Description:

Beneficial reuse or land application plan submitted? Yes

Reuse Facility ID: \_\_\_\_\_ or Document Number: 2614238

## 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	0	0	80	6	80	0
SURF	13+3/4	9+5/8	36	0	850	339	850	0
1ST	8+3/4	7	26	0	7025	583	7025	
1ST LINER	6+1/8	4+1/2	11.6	6875	16584			

☐ 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

Well is part of a four-well pad consisting of the proposed Shadow A26-672 (Doc #400938470), Shadow A26-676 (Doc #400938471), Shadow A26-685 (Doc #400938472), & Shadow A26-690 (Doc #400938473). The production facility will be at the proposed Shadow A26-668 Multi (Doc #400938469). Nearest well is the Larson A25-01 (API: 123-14701). Nearest non-op is the J&L Farms 31-30 (API: 123-21807). Noble Energy shall isolate the Upper Pierre Aquifer from the Fox Hills Aquifer with surface casing and cement and utilize intermediate casing and cement to ensure isolation from below. Attached SUA memorandum is for informational purposes.

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: Justin Garrett

Title: Regulatory Analyst Date: 1/13/2016 Email: RegulatoryNotification@nblene

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: 3/11/2016

Expiration Date: 03/10/2018

API NUMBER

05 123 42888 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**

	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.
	1) Bradenhead test shall be performed within 30 days of rig release and prior to stimulation. Test results shall be submitted on Form 17 within 10 days of test. 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. 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.
	Operator acknowledges the proximity of the listed non operated 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 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 the proposed wells.  J&L Farms 32-30 (API #123-21801) J&L Farms 31-30 (API #123-21807) MCINTOSH 34-23 (API #123-14506) MCINTOSH 44-23 (API #123-21662)
	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.  Wolfe 2-30G (API #123-13407) Larson A25-01 (API #123-14701) Larson A 25-2 (API #123-14702) Larson A 25-8 (API #123-14720) Larson A 25-5 (API #123-16794) DCD Farms 1-26 (API #123-11513) DCD Farms 2-26 (API #123-11514) Sidwell 26-1G4 (API #123-17833)

## **Best Management Practices**

No	BMP/COA Type	Description
1	General Housekeeping	Housekeeping will consist of neat and orderly storage of materials and fluids. Wastes will be temporarily stored in sealed containers and regularly collected and disposed of at offsite, suitable facilities. If spills occur prompt cleanup is required to minimize any commingling of waste materials with stormwater runoff. Routine maintenance will be limited to fueling and lubrication of equipment. Drip pans will be used during routine fueling and maintenance to contain spills or leaks. Any waste product from maintenance will be containerized and transported offsite for disposal or recycling. There will be no major equipment overhauls conducted onsite. Equipment will be transported offsite for major overhauls. Cleanup of trash and discarded materials will be conducted at the end of each work day. Cleanup will consist of patrolling the roadway, access areas, and other work areas to pickup trash, scrap debris, other discarded materials, and any contaminated soil. These materials will be disposed of properly.
2	Storm Water/Erosion Control	Stormwater management plans (SWMP) are in place to address construction, drilling and operations associated with Oil & Gas development throughout the state of Colorado in accordance with Colorado Department of Public Health and Environment (CDPHE) General Permit No. COR- 038637. BMP's will be constructed around the perimeter of the site prior to, or at the beginning of construction. BMP's used will vary according to the location, and will remain in place and maintained until the pad reaches final reclamation.
3	Material Handling and Spill Prevention	Spill Prevention Control and Countermeasures (SPCC) plans are in place to address any possible spill associated with Oil & Gas operations throughout the state of Colorado in accordance with CFR 112.
4	Drilling/Completion Operations	<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 well. This anti-collision scan will include definitive MWD or gyro surveys of the offset wells with included error of uncertainty per survey instrument, and compared against the proposed wellpath with its respective error of uncertainty. If current surveys do not exist for the offset wells, Operator may have gyro surveys conducted to verify bottomhole location. The proposed well will only be drilled if the anti-collision scan results indicate that there is not a risk for collision, or harm to people or the environment. For the proposed well, upon conclusion of drilling operations, an as-constructed gyro survey will be submitted to COGCC with the Form 5.</p> <p>During and Post stimulation: Noble Energy will comply with the COGCC Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area dated 5/29/12</p>
5	Drilling/Completion Operations	<p>When Using and Existing Well's Log as an Exception: One of the first wells drilled on the pad will be logged with cased-hole pulsed neutron log with gamma ray log from TD to 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 shall clearly state "No open-hole logs were run" and shall reference the Rule 317.p Exception granted for the well.</p>
6	Drilling/Completion Operations	If a skid is performed for the subject well, then the only required BOPE tests are for the BOPE connection bonnet seal breaks, as long as a full BOPE test was performed at the beginning of the pad, and as long as all necessary BOPE tests are completed at least every 30 days during the pad operations. If a skid is performed for the subject well, then the only required BOPE tests are for the BOPE connection bonnet seal breaks, as long as a full BOPE test was performed at the beginning of the pad, and as long as all necessary BOPE tests are completed at least every 30 days during the pad operations.

7	Noise mitigation	<p>604.c.(2)A Noise</p> <p>Temporary operations – Baseline survey completed for northern (NE Section 30) and southern pads (SE Section Corner of 30), engineered sound walls will be used along the edge of the pad positioned between the operations and the residence of concern. The use of equipment specific sound walls might be required around the rig generators and completion engines in the event of sound impacts during operations. Permanent facility - Additional permanent location/equipment sound mitigation will be determined following sound surveys (if necessary) performed after facility startup. Noise mitigation recommended between 500-1,000 of occupied structure, required if less than 500 feet of occupied structure.</p>
8	Drilling/Completion Operations	<p>604.c.(2)B Closed Loop Drilling</p> <p>Closed loop drilling systems are required within the Buffer Zone Setback. Pits are not allowed on Oil and Gas Locations within the Buffer Zone Setback, except fresh water storage pits, reserve pits to drill surface casing, and emergency pits as defined in the 100-Series Rules. Fresh water pits within the Exception Zone shall require prior approval of a Form 15 pit permit. In the Buffer Zone, fresh water pits shall be reported within 30-days of pit construction. Fresh water storage pits within the Buffer Zone Setback shall be conspicuously posted with signage identifying the pit name, the operator's name and contact information, and stating that no fluids other than fresh water are permitted in the pit. Produced water, recycled E&amp;P waste, or flowback fluids are not allowed in fresh water storage pits. Fresh water storage pits within the Buffer Zone Setback shall include emergency escape provisions for inadvertent human access.</p>
9	Planning	<p>604.c.(2)D Traffic Plan</p> <p>Possible no left turns on CR 64 due to traffic and safety concerns with farm operations. Temporary operations - Dust suppression (water trucks) will be used on the access roads and pads during construction, drilling, and completion activities. Unpaved surrounding county roads to be used will be stabilized with chemical treatment for dust mitigation. Magnesium Chloride will be used within a 1,000 feet before or after an occupied residence on CR 64 and 66.</p>
10	Planning	<p>604.c.(2)E Multiwell Pads</p> <p>Concurrence with this rule has been met.</p>
11	Drilling/Completion Operations	<p>604.c.(2)H BOPE</p> <p>Blowout prevention equipment for drilling operations in a Designated Setback Location shall consist of (at a minimum): o Rig with Kelly. Double ram with blind ram and pipe ram; annular preventer or a rotating head. o Rig without Kelly. Double ram with blind ram and pipe ram. Mineral Management certification or Director approved training for blowout prevention shall be required for at least one (1) person at the well site during drilling operations.</p>
12	Planning	<p>604.c.(2)I BOPE</p> <p>Upon initial rig-up and at least once every thirty (30) days during drilling operations thereafter, pressure testing of the casing string and each component of the blowout prevention equipment including flange connections shall be performed to seventy percent (70%) of working pressure or seventy percent (70%) of the internal yield of casing, whichever is less. Pressure testing shall be conducted and the documented results shall be retained by the operator for inspection by the Director for a period of one (1) year. Activation of the pipe rams for function testing shall be conducted on a daily basis when practicable.</p>
13	Planning	<p>604.c.(2)J BOPE</p> <p>Adequate blowout prevention equipment shall be used on all well servicing operations. Backup stabbing valves shall be required on well servicing operations during reverse circulation. Valves shall be pressure tested before each well servicing operation using both low-pressure air and high-pressure fluid.</p>

14	Planning	604.c.(2)K Pit Level indicators Material Handling and Spill Prevention: Due to using a closed loop system pits will not be used.
15	Planning	604.c.(2)L Drill stem tests Closed chamber drill stem tests shall be allowed. All other drill stem tests shall require approval by the Director.
16	Drilling/Completion Operations	604.c.(2)O Loadlines All loadlines will be bullplugged or capped.
17	Drilling/Completion Operations	604.c.(2)Q Guy Line Anchors All guy line anchors left buried for future use shall be identified by a marker of bright color not less than four (4) feet in height and not greater than one (1) foot east of the guy line anchor.
18	Planning	604.c.(2)U Identification of P&A wells The operator shall identify the location of the wellbore with a permanent monument as specified in Rule 319.a.(5). The operator shall also inscribe or imbed the well number and date of plugging upon the permanent monument. Will analyze all existing wells for Well Bore Integrity within 1,500 feet of planned well bores. Casing will be set at deepest water well zone within 1 mile of well bore.
19	Planning	604.c.(2)V Development from existing well pads Where possible, operators shall provide for the development of multiple reservoirs by drilling on existing pads or by multiple completions or commingling in existing wellbores (see Rule 322). If any operator asserts it is not possible to comply with, or requests relief from, this requirement, the matter shall be set for hearing by the Commission and relief granted as appropriate.
20	Planning	604.c.(2)W Site-specific measures Drill rig lights will be positioned facing down and light plants will be pointed away from occupied residences. Following temporary operations NEI will work with the residence to address any concerns they may have regarding the permanent facility. A sound wall will be installed on the northern (NE Section 30) and southern (SE corner section 30) most pads to mitigate visual and noise impacts to occupied structures.

Total: 20 comment(s)

### **Applicable Policies and Notices to Operators**

Policy
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>
Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area. <a href="http://cogcc.state.co.us/documents/reg/Policies/PolicyGwaBradenheadMonitoringFinal.pdf">http://cogcc.state.co.us/documents/reg/Policies/PolicyGwaBradenheadMonitoringFinal.pdf</a>

### **Attachment Check List**



<u>Att Doc Num</u>	<u>Name</u>
1696646	OPEN HOLE LOGGING EXCEPTION
400938471	FORM 2 SUBMITTED
400967029	OffsetWellEvaluations Data
400967037	DIRECTIONAL DATA
400967039	DEVIATED DRILLING PLAN
400967040	WELL LOCATION PLAT
400967041	SURFACE AGRMT/SURETY
400967042	EXCEPTION LOC REQUEST
400967044	PROPOSED SPACING UNIT
400967046	EXCEPTION LOC WAIVERS
400967871	OTHER

Total Attach: 11 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final Review Completed.	3/3/2016 2:15:41 PM
Permit	Added 14 missing Buffer Zone BMP's. Attached corrected Exception to Open Hole Logging Rule 317.p. Permitting Review Complete.	3/3/2016 2:15:40 PM
Permit	ON HOLD: missing Buffer Zone BMP's. requesting corrected Exception to Open Hole Logging Rule 317.p.	3/2/2016 10:19:57 AM
Permit	Operator requested Exception to Open Hole Logging Rule 317.p. See attached.	3/2/2016 10:19:56 AM
Permit	Passed completeness.	1/14/2016 12:49:36 PM

Total: 5 comment(s)