

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:

400944750

APPLICATION FOR PERMIT TO:

☒ Drill
 ☐ Deepen
 ☐ Re-enter
 ☐ Recomplete and Operate

Date Received:

12/10/2015

TYPE OF WELL OIL ☒ GAS ☐ COALBED ☐ OTHER _____Refiling ☐ZONE TYPE SINGLE ZONE ☒ MULTIPLE ZONES ☐ COMMINGLE ZONES ☐Sidetrack ☐

Well Name: Chesnut

Well Number: 21X-434

Name of Operator: PDC ENERGY INC

COGCC Operator Number: 69175

Address: 1775 SHERMAN STREET - STE 3000

City: DENVER State: CO Zip: 80203

Contact Name: Kelsi Welch

Phone: (303)831-3974

Fax: ()

Email: kelsi.welch@pdce.com

RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20090078

WELL LOCATION INFORMATION

QtrQtr: SESE Sec: 21 Twp: 5N Rng: 64W Meridian: 6

Latitude: 40.379430

Longitude: -104.546670

Footage at Surface: 711 feet FNL/FSL FSL 381 feet FEL/FWL FEL

Field Name: WATTENBERG

Field Number: 90750

Ground Elevation: 4641

County: WELD

GPS Data:

Date of Measurement: 11/06/2014 PDOP Reading: 2.1 Instrument Operator's Name: Jeff Dillingham

If well is ☐ Directional ☒ Horizontal (highly deviated) submit deviated drilling plan.
 Footage at Top of Prod Zone: FNL/FSL FSL 1041 FEL 500 FNL 1000 FEL
 Sec: 21 Twp: 5N Rng: 64W Sec: 21 Twp: 5N Rng: 64W

LOCATION SURFACE & MINERALS & RIGHT TO CONSTRUCT

Surface Ownership: ☒ Fee ☐ State ☐ Federal ☐ IndianThe 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.)

Township 5 North, Range 64 West, 6th P.M.

Section 21: Southeast quarter (SE/4), excepting therefrom that certain 5.00 acre tract in the northeast quarter of the southeast quarter (NE/4SE/4) as more fully described in Warranty Deed recorded in Book 740 at Page 432 of the official records of Weld County, State of Colorado; containing 155.00 acres more or less.

Total Acres in Described Lease: 155 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: 456 Feet

Building Unit: 458 Feet

High Occupancy Building Unit: 3085 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 365 Feet

Above Ground Utility: 392 Feet

Railroad: 2037 Feet

Property Line: 381 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: 02/25/2015

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: 185 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 500 Feet (Enter 5280 for distance greater than 1 mile.)

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

SPACING & FORMATIONS COMMENTS

Spacing Unit: E2 of Section 21 in T5N R64W

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: 11331 Feet

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

324 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: Land application

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Beneficial reuse

Other Disposal Description:

Drill cuttings will be land applied at PDC spread fields with COGCC Facility ID 429629, 430649, 431183, 434889, or 436033.

Beneficial reuse or land application plan submitted? Yes

Reuse Facility ID: 429629 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
SURF	12+1/4	9+5/8	36	0	875	830	875	0
1ST	8+3/4	7	26	0	7265	650	7265	0
1ST LINER	6+1/8	4+1/2	13.5	6132	11331			

☒ 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 7" casing string will be cemented to surface. CBL will only be run in the vertical section of the wellbore. Distance to nearest well Chesnut 28R-323, measured to via the Anti-Collision Report in the Deviated Drilling plan.

The Chesnut 21X-434 will have a treated interval less than 150' from the treated interval of the Chesnut 28R-243. The Chesnut 28R-323 is owned by PDC Energy, Inc. so no stimulation setback consent is needed.

Pre-application notice certification attached as other.

This application is in a Comprehensive Drilling Plan _____ CDP #: _____

Location ID: 444671

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: Kelsi Welch

Title: Regulatory Analyst Date: 12/10/2015 Email: kelsi.welch@pdce.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: 3/2/2016

Expiration Date: 03/01/2018

API NUMBER

05 123 42860 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) 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.
	1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU (Spud Notice), for the first well/activity on the pad and provide 48 hour spud notice for all subsequent wells drilled on the pad. 2) Comply with Rule 317.j and provide cement coverage from the end of 7" casing to a minimum of 200' above Niobrara. Verify coverage with cement bond log.

Best Management Practices

No BMP/COA Type

Description

1	Planning	604.c.(2).W. Site Specific Measures: Lights should be turned downward and away from building units within the 1,000 foot buffer area. Dust mitigation will be provided as necessary on lease access roads.
2	Planning	804. Visual Impact: Production facilities, regardless of construction date, which are observable from any public highway will 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.
3	Planning	604c.(2).R. Tank Specifications: Condensate storage tanks will be designed, constructed and maintained in accordance with National Fire Protection Association (NFPA) Code 30 (2008 version). PDC will maintain written records to verify proper design, construction and maintenance. All records will be available for inspection by the Director.
4	Planning	604c.(2).U. Identification of Plugged and Abandoned Wells: Pursuant to rule 319.a. (5)., once the well has been plugged and abandoned, PDC will identify the location of the wellbore with a permanent monument that will detail the well name and date of plugging.
5	Planning	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.

6	Planning	Operator will comply with COGCC Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area dated May 29, 2012. The Colorado Oil and Gas Conservation Commission (COGCC) has established this Policy Regarding Bradenhead Monitoring During Hydraulic Fracturing Treatments ("Treatment") in the Greater Wattenberg Area ("GWA") pursuant to COGCC 207.a. ("Policy"). This Policy applies to oil and gas operations in the GWA as defined by the COGCC Rules of Practice and Procedure.
7	Traffic control	604c.(2).D. Traffic Plan: If required by the local government, a traffic plan will be coordinated with the local jurisdiction prior to commencement of operations.
8	General Housekeeping	604c.(2).M. Fencing Requirements: The completed wellsites will be surrounded with a fence and gate. PDC personnel will monitor the wellsites regularly upon completion of the wells. Authorized representatives and/or PDC personnel shall be on-site during drilling and completion operations.
9	General Housekeeping	604c.(2).N. Control of Fire Hazards: PDC will ensure that any material that might be deemed a fire hazard will be will remain no less than twenty-five (25) feet from the wellhead(s), tanks and separator(s). PDC installs automation equipment for tank level and pressure monitoring inside the bermed area that complies with API RP 500 classifications and with the current national electrical code as adopted by the State of Colorado.
10	General Housekeeping	604c.(2).P. Removal of Surface Trash: A commercial size trash bin for removing debris will be located on site. This bin will be for use by all parties affiliated with the operation.
11	General Housekeeping	604c.(2).Q. Guy Line Anchors: Rig guy wires are anchored to the rig's base beam that the rig stands on, temporary and permanent anchors will not be set on this location.
12	General Housekeeping	604c.(2).T. Well Site Cleared: The wellsite will be cleared of all non-essential equipment within ninety (90) days after all wells associated with the pad have been plugged and abandoned.
13	Material Handling and Spill Prevention	604c.(2).G. Berm Construction: Containment berms shall be constructed of steel rings with a geosynthetic liner, designed and installed to prevent leakage and resist degradation from erosion or routine operation. All berms will be visually checked periodically to ensure proper working condition. Secondary containment devices shall be sufficiently impervious to contain any spilled or released material. Due to a downgradient surface water body within 500', tertiary containment (such as an earthen berm or the like), will be installed around Production Facilities.
14	Dust control	805.b(1)-(c) Odors and Dust: Oil and gas facilities and equipment will operate in a manner that odors and dust do not constitute a nuisance or hazard to public welfare. Odors: Oil and gas operations will 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. Dust; PDC will employ practices for control of fugitive dust caused by operations include but 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. When necessary, PDC coordinates dust mitigation with the county on gravel roads, places road base where allowed by surface owner around tanks and wellheads to minimize dust, and will water the roads and locations when dry. In addition, automation is used on all new wells to minimize truck traffic.
15	Construction	"604c.(2).S. Access Roads: PDC will utilize a lease access road off of CR 55 (gravel) for drilling operations and maintenance equipment. The lease access road will be properly constructed and maintained to accommodate for local emergency vehicle access. Dust will be mitigated as necessary on lease access road. "

16	Construction	604c.(2).V. Development From Existing Well Pads: An existing pad was not available to utilize to develop these wells.
17	Construction	604c.(2).O. Loadlines: All loadlines shall be bullplugged or capped.
18	Noise mitigation	604c.(2).A. Noise: WELL PAD: PDC has conducted baseline noise surveys for all drilling rigs that are being contracted and has also conducted a baseline noise survey for hydraulic fracture stimulation operations on a representative horizontal well. These baseline surveys are utilized for site specific noise modeling to determine if any mitigation measures are warranted. A review was conducted to identify potential receptors within 1000 feet of the proposed pad site. There are 5 building units of concern located 437 feet south-east, 630 feet south-east, 732 feet south-east, 922 feet north, and 945 feet north. Light and sound mitigation will be installed to the south-east of the proposed location. Methods of noise mitigation shall include but not be limited to hay bales, noise walls, or customized semi-trailers. PRODUCTION FACILITIES: It is not anticipated that noise mitigation will be necessary at the proposed tank battery location. After construction is completed, equipment installed and production begins, noise levels will be assessed to determine if mitigation measures will be required to be compliant with Rule 802.
19	Emissions mitigation	604c.(2).C. Green Completions: Flowlines, 48" HLPs, sand traps all capable of supporting green completions as described in rule 805 shall be installed at any Oil and Gas location at which commercial quantities of gas and or oil are reasonable expected to be produced based on existing wells. All green flow back equipment will be able to handle more than 1.5 times the amount of any know volumes in the surrounding field. First sign of salable gas will be put into production equipment and turned down line.
20	Drilling/Completion Operations	604c.(2).I. BOPE Testing for Drilling Operations: PDC's contractors will supply a double ram BOPE (Blinds and pipes). BOPE is always function tested and all seals and ram block rubbers are inspected. After installation of the BOPE, PDCE conducts a pressure test on the BOPE at a low pressure of (200-400 psi) and a high pressure test with a third party tester, all tests are digitally recorded and any failed equipment or seals are replaced and re-tested.
21	Drilling/Completion Operations	604c.(2).J. BOPE for Well Servicing Operations: All valves will also be tested to maximum rating by a third party prior to being delivered to location. Whenever snubbing operations are being used the snubbing stack will be pressure tested at the same time the BOPE is being tested which consist of a single pipe ram and a annular bag.
22	Drilling/Completion Operations	604c.(2).K. Pit Level Indicators: PDC uses an Electronic Drilling Recorder (EDR) with pit level monitor(s) and alarm(s) for production rigs. Basic level gages are used on steel pits utilized for the surface rig.
23	Drilling/Completion Operations	604c.(2).L. Drill Stem Tests: PDC does not conduct drill stem tests, but will seek prior approval from the director if a drill stem test will be preformed.
24	Drilling/Completion Operations	One of the first wells drilled on the pad will be logged with Cased hole Pulsed Neutron Log with 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 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 in that well and have those logs attached. The Form 5 for each well shall clearly state "No open-hole logs were run" and shall reference the Rule 317.p Exception granted for the well.

Total: 24 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>
400944750	FORM 2 SUBMITTED
400944766	OffsetWellEvaluations Data
400944779	WELL LOCATION PLAT
400944780	PROPOSED SPACING UNIT
400944781	DEVIATED DRILLING PLAN
400944783	DIRECTIONAL DATA
400944784	30 DAY NOTICE LETTER
400944785	EXCEPTION LOC WAIVERS
400944978	OTHER
400944979	OPEN HOLE LOGGING EXCEPTION
400944980	EXCEPTION LOC REQUEST
400961455	DIRECTIONAL DATA

Total Attach: 12 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Corrected distance to nearest completed portion of wellbore from 66' to the Chestnut 5 at 185' as per operator. Final review complete.	2/29/2016 3:03:36 PM
Engineer	1) Revised distance from completed portion of proposed wellbore to nearest completed portion of offset wellbore permitted or completed in the same formation from 66' to 195', on the Spacing & Formation tab. 2) Revised distance from completed portion of proposed wellbore to nearest completed portion of offset wellbore belonging to another operator from 50' to 324', on the Drilling & Waste Plans tab. 3) Removed reference to the Chesnut 2 well being closer than 150' to the treated interval of this well on the Submit tab. These revisions were verified with the operator.	2/25/2016 10:53:53 AM
Engineer	Offset Wells Evaluated	1/7/2016 1:13:20 PM
Permit	Passed completeness.	12/30/2015 8:06:19 AM
Permit	Returned to draft. Directional data TMD does not correspond to rest of data. (11331 vs 11306)	12/22/2015 10:06:29 AM
Permit	Returned to draft. Directional data TMD does not correspond to rest of data. (11331 vs 11306)	12/18/2015 8:19:32 AM

Total: 6 comment(s)