

APPLICATION FOR PERMIT TO:

Drill

 Deepen

 Re-enter

 Recomplete and Operate

| | |
|---|------------------------------------|
| TYPE OF WELL OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> COALBED <input type="checkbox"/> OTHER _____ | Refiling <input type="checkbox"/> |
| ZONE TYPE SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONES <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/> | Sidetrack <input type="checkbox"/> |

Date Received:
 04/30/2014

| | |
|--|-------------------------------------|
| Well Name: <u>Ledford</u> | Well Number: <u>22T-321</u> |
| Name of Operator: <u>PDC ENERGY INC</u> | COGCC Operator Number: <u>69175</u> |
| Address: <u>1775 SHERMAN STREET - STE 3000</u> | |
| City: <u>DENVER</u> | State: <u>CO</u> |
| Zip: <u>80203</u> | |
| Contact Name: <u>Julie Webb</u> | Phone: <u>(303)381-3933</u> |
| Email: <u>julie.webb@pdce.com</u> | Fax: () |

RECLAMATION FINANCIAL ASSURANCE
 Plugging and Abandonment Bond Surety ID: 20090078

WELL LOCATION INFORMATION

QtrQtr: SESE Sec: 22 Twp: 5N Rng: 64W Meridian: 6
 Latitude: 40.378330 Longitude: -104.527550

| | | | | |
|---------------------|-----------------|---------|-----------------|---------|
| Footage at Surface: | <u>254</u> feet | FNL/FSL | <u>327</u> feet | FEL/FWL |
| | FSL | | FEL | |

Field Name: WATTENBERG Field Number: 90750
 Ground Elevation: 4598 County: WELD

GPS Data:
 Date of Measurement: 12/13/2013 PDOP Reading: 2.1 Instrument Operator's Name: Brian Rottinghaus

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

| | | | | | |
|------------------------------|----------------|-----------------|----------------|----------------|-----------------|
| Footage at Top of Prod Zone: | FNL/FSL | FEL/FWL | Bottom Hole: | FNL/FSL | FEL/FWL |
| <u>822</u> | FSL | <u>1076</u> | <u>500</u> | FNL | <u>1065</u> |
| | FEL | | | FEL | |
| Sec: <u>22</u> | Twp: <u>5N</u> | Rng: <u>64W</u> | Sec: <u>22</u> | Twp: <u>5N</u> | Rng: <u>64W</u> |

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: Surface Use Agreement

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.)

T5N, T64W, Section 22: E/2SE/4 lying South of the Union Pacific Railroad Company Right-of-Way. Mineral Lease Map Attached.

Total Acres in Described Lease: 70 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: 520 Feet
 Building Unit: 520 Feet
 High Occupancy Building Unit: 5280 Feet
 Designated Outside Activity Area: 5280 Feet
 Public Road: 246 Feet
 Above Ground Utility: 222 Feet
 Railroad: 2110 Feet
 Property Line: 254 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: 02/20/2014

SPACING and UNIT INFORMATION

Distance from Completed Portion of Wellbore to Nearest Wellbore Permitted or Completed in the same formation: 210 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

T5N, R64W Sec. 22:E2

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: 11119 Feet

Distance to nearest permitted or existing wellbore penetrating objective formation: 210 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: Recycle/reuse

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 425112, 429629, 430649, 431183, or 434889.

Beneficial reuse or land application plan submitted? Yes

Reuse Facility ID: 425112 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 | 7176 | 650 | 7176 | 500 |
| 1ST LINER | 6+1/8 | 4+1/2 | 13.5 | 5968 | 11119 | | | |

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 at least 200' above Niobrara, around 500' from surface. CBL will only be run in the vertical section of the wellbore. Distance to nearest well measured to the P&H 22CD via the Anti-Collision Report in the Deviated Drilling plan. PDC is developing under a Joint Operating Agreement for the minerals below the SHL there for the SUA is attached.

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: Julie Webb

Title: Regulatory Analyst Date: 4/30/2014 Email: julie.webb@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: *Matthew Lee* Director of COGCC Date: 6/14/2014
 Expiration Date: 06/13/2016

| |
|-------------------|
| API NUMBER |
| 05 123 39616 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> |
|-----------------|--|
| | Operator acknowledges the proximity of the listed non operated well. 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 a Form 42 "OFFSET MITIGATION COMPLETED" for the remediated well, 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. UPRC 23-13A (API #123-07226) |
| | 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) Comply with Rule 321. Run and submit Directional Survey from TD to base of surface casing. Ensure that the wellbore complies with setback requirements in commission orders or rules prior to producing the well. |
| | Operator shall comply with Buffer Zone Move-In, Rig-Up Notice Policy dated 12-16-2013. |

Best Management Practices

| No | BMP/COA Type | Description |
|----|--|---|
| 1 | Planning | 604c.(2).E. Multiwell Pads: This 2A application is for a 4-well pad. No suitable existing locations are in the area. Other locations were reviewed, location was chosen to keep facility out of the existing pivot. |
| 2 | Planning | 604c.(2).V. Development From Existing Well Pads: An existing pad was not available to utilize to develop these wells. |
| 3 | Planning | 604.c.(2).W. Site Specific Measures: Dust abatement will be applied and properly maintained on CR 54 to minimize dust. Lights should be turned downward and away from building units within the 1,000 foot buffer area. |
| 4 | Planning | 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. |
| 5 | Planning | 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. |
| 6 | Planning | 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. |
| 7 | 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. |
| 8 | 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. |
| 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).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. |
| 12 | Material Handling and Spill Prevention | 604c.(2).F. Leak Detection Plan: See attached. |

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|----|--------------------------------|--|
| 13 | Construction | 604c.(2).G. Berm Construction: A geosynthetic liner will be laid under the tanks on this location and a metal containment will be constructed. Operator must implement site-specific best management practices in accordance with good engineering practices, including, but not limited to, construction of a berm or diversion dike, site grading, or other comparable measures, sufficient to protect the down gradient water sources located as follows from the nearest well head : barrow ditch 240 feet and 268 feet south |
| 14 | Construction | 604c.(2).S. Access Roads: PDC will utilize the lease access road from WCR 54 (paved) for drilling operations and maintenance equipment. The road will be properly constructed and maintained to accommodate for local emergency vehicle access. |
| 15 | Construction | 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. |
| 16 | Construction | 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. |
| 17 | Construction | 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. |
| 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. A review was conducted to identify potential receptors within 1000 feet of the proposed Ledford 22Y-HZ Pad site. There are six building units of concern. The six building units are located as follows: South-east of the proposed pad at a distance of approximately 520 feet, 616 feet, 762 feet and 813 feet, and South-west of the proposed pad at a distance of approximately 643 feet and 644 feet. As a result, sound mitigation will be installed directly south and east of the proposed pad located in the NENE Section 22 – T5N – R64W prior to drilling and completion operations. 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 | 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. |
| 21 | Drilling/Completion Operations | 604c.(2).O. Loadlines: All loadlines shall be bullplugged or capped. |

| | | |
|----|--------------------------------|---|
| 22 | Drilling/Completion Operations | 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. |
|----|--------------------------------|---|

Total: 22 comment(s)

Applicable Policies and Notices to Operators

Notice Concerning Operating Requirements for Wildlife Protection.

Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area.

Attachment Check List

| <u>Att Doc Num</u> | <u>Name</u> |
|---------------------------|-----------------------------|
| 2157685 | OPEN HOLE LOGGING EXCEPTION |
| 400562280 | FORM 2 SUBMITTED |
| 400570521 | DEVIATED DRILLING PLAN |
| 400570523 | WELL LOCATION PLAT |
| 400570525 | DIRECTIONAL DATA |
| 400582889 | OffsetWellEvaluations Data |
| 400582962 | 30 DAY NOTICE LETTER |
| 400582963 | EXCEPTION LOC REQUEST |
| 400582964 | EXCEPTION LOC WAIVERS |
| 400582969 | PROPOSED SPACING UNIT |
| 400586454 | OTHER |
| 400591124 | OTHER |
| 400594203 | MINERAL LEASE MAP |
| 400598701 | SURFACE AGRMT/SURETY |

Total Attach: 14 Files

General Comments

| <u>User Group</u> | <u>Comment</u> | <u>Comment Date</u> |
|--------------------------|---|----------------------------|
| Permit | No LGD or public comments. Final Review--passed. | 6/9/2014 12:55:28 PM |
| Permit | Revised Open Hole Logging Exception Letter submitted by oper. | 5/14/2014 9:47:48 AM |
| Permit | Req'd oper. submit revised 317.o exception ltr. | 5/12/2014 11:20:43 AM |
| Permit | This form has passed completeness. | 5/2/2014 2:32:13 PM |

Total: 4 comment(s)