

**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 _____<br>ZONE TYPE       SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONES <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/> | Refiling <input type="checkbox"/><br>Sidetrack <input type="checkbox"/> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|

Date Received:  
03/09/2018

Well Name: Elkhead      Well Number: 6N

Name of Operator: PDC ENERGY INC      COGCC Operator Number: 69175

Address: 1775 SHERMAN STREET - STE 3000

City: DENVER      State: CO      Zip: 80203

Contact Name: Ally Ota      Phone: (303)860-5800      Fax: (303)860-5838

Email: alexandria.ota@pdce.com

**RECLAMATION FINANCIAL ASSURANCE**  
Plugging and Abandonment Bond Surety ID: 20160047

**WELL LOCATION INFORMATION**

QtrQtr: SWNE      Sec: 6      Twp: 3N      Rng: 65W      Meridian: 6

Latitude: 40.255250      Longitude: -104.704560

|                                      |                                 |                      |
|--------------------------------------|---------------------------------|----------------------|
| Footage at Surface: <u>2344</u> Feet | FNL/FSL<br>FNL <u>2200</u> Feet | FEL/FWL<br>FEL _____ |
|--------------------------------------|---------------------------------|----------------------|

Field Name: WATTENBERG      Field Number: 90750

Ground Elevation: 4968      County: WELD

GPS Data:  
Date of Measurement: 01/30/2018    PDOP Reading: 2.1    Instrument Operator's Name: Robert Wall

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>2530</u> FNL <u>770</u> FEL               | <u>150</u> FNL <u>770</u> FEL                 |                      |         |
| Sec: <u>6</u> Twp: <u>3N</u> Rng: <u>65W</u> | Sec: <u>31</u> Twp: <u>4N</u> Rng: <u>65W</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.)

3N-65W: Sec. 6: Lot 5 (SWNW), SENW, S2NE

Total Acres in Described Lease: 160 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: 739 Feet  
 Building Unit: 739 Feet  
 High Occupancy Building Unit: 5280 Feet  
 Designated Outside Activity Area: 5280 Feet  
 Public Road: 2192 Feet  
 Above Ground Utility: 870 Feet  
 Railroad: 5280 Feet  
 Property Line: 305 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: 02/07/2018

**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: 257 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 150 Feet (Enter 5280 for distance greater than 1 mile.)

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

**SPACING & FORMATIONS COMMENTS**

\_\_\_\_\_

**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           | 407-2365                | 1920                          | S.31, 6-7:All                        |

## DRILLING PROGRAM

Proposed Total Measured Depth: 15618 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: 97 Feet  No well belonging to another operator within 1,500 feet

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: 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 449950 or 448329.

Beneficial reuse or land application plan submitted? Yes

Reuse Facility ID: 449950 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             | 1600          | 920       | 1600    | 0       |
| 1ST         | 8+1/2        | 5+1/2          | 20    | 0             | 15618         | 2035      | 15618   |         |

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

**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 PDC requests an exception to rule 317.p.: PDC will run a cased hole log.

The distance to the completed portion of the nearest well on the "Spacing and Formations" tab was measured to the Elkhead 7N via COGCC GIS mapping, 2D plain view.

the distance to the nearest wellbore belonging to another operator on the "Drilling & Waste Plans" tab was measured to the Ludwig 6-6 via COGCC GIS mapping, 2D plain view.

The subject well will have a treated interval less than 150' from the treated interval of the Ludwig 6-6, and HSR-Hersh 9-6 owned by Kerr McGee, as well as the CPC-Land 31-2, Rural Land 41-31, and UPRC 31-16G owned by Noble . PDC will not stimulate within 150' of these wells, unless a stimulation consent has been obtained.

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: Ally Ota

Title: Regulatory Tech Date: 3/9/2018 Email: alexandria.ota@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: [Signature] Director of COGCC Date: 11/5/2018

Expiration Date: 11/04/2020

|                   |
|-------------------|
| <b>API NUMBER</b> |
| 05 123 48480 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | COA: 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. 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|          | <p>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.</p> <p>2) Comply with Rule 317.j and provide cement coverage from the end of production casing to a minimum of 200' above Niobrara and from 200' below the Sussex to 200' above the Sussex. Verify coverage with cement bond log.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|          | <p>Operator acknowledges the proximity of the following non-operated listed wells:<br/> 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.</p> <p>HSR-May 5-5A (API No 123-17303)<br/> Ludwig 2-6 (API No 123-14932)<br/> HSR-J T 10-6 (API No 123-14998)<br/> Knaub 2-6 (API No 123-15202)<br/> Ludwig Gas Unit 5-6 (API No 123-15232)<br/> Ludwig 6-6 (API No 123-15399)<br/> Knaub 3-6 (API No 123-15400)<br/> Rural Land 32-31 2 (API No 123-09691)<br/> HSR-Siamas 6-31 (API No 123-15167)<br/> HSR-Cutler 14-31 (API No 123-15168)<br/> HSR-Tudor 11-31A (API No 123-15216)<br/> Land 31-13 (API No 123-16009)<br/> UPRC 31-15G (API No 123-16019)<br/> Mel Smookler Gas Unit 1 (API No 123-08267)<br/> Hambert R G 32-5 (API 123-13445)<br/> Marshall 32-12G (API No 123-16438)</p> |
|          | <p>Bradenhead tests shall be performed and reported according to the following schedule and Form 17 submitted within 10 days of each test:</p> <ol style="list-style-type: none"> <li>1) Within 60 days of rig release and prior to stimulation or</li> <li>2) If a delayed completion, 6 months after rig release and prior to stimulation.</li> <li>3) Within 30 days after first production, as reported on Form 5A.</li> </ol> <p>If a Bradenhead test reports a surface casing pressure greater than 200 psig, stimulation is not allowed until the Engineering Supervisor has been consulted.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|          | <p>Operator will submit signed Rule 317.s Stimulation Setback Consents via Sundry Notice, Form 4 prior to stimulation of this well.</p> <p>In the Form 5A comments, operator will (1) certify that this well has no treated interval within 150' of the treated interval of another operator's well for which a signed Stimulation Setback Consent was not obtained, (2) provide the following information for all other operator's offset wells without consent that have a treated interval within 150' of this as-drilled wellbore: well name and API number, depth of the perforation in this well nearest to the treated interval of the offset well, and the distance between the wells at that depth, and (3) address the wells listed below as either (a) obtained consent or (b) treated interval more than 150' away from this as-drilled wellbore.</p> <p>Rural Land 41-31 (API No 123-09552)<br/> CPC Land 31-2 (API No 123-13015)<br/> UPRC 31-16G (API 123-16016)<br/> Ludwig 6-6 (API No 123-15399)<br/> HSR-Hersh 9-6 (API No 123-14996)</p>                                                                                                                                                                                    |

## Best Management Practices

| <b>No</b> | <b>BMP/COA Type</b>            | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1         | 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. |
| 2         | 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.                                                                                                                                                                                                                                                                                                                                |
| 3         | 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 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 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: 3 comment(s)

### Applicable Policies and Notices to Operators

Notice Concerning Operating Requirements for Wildlife Protection.

[http://cogcc.state.co.us/documents/reg/Policies/Wildlife\\_Notice.pdf](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

| <b>Att Doc Num</b> | <b>Name</b>                 |
|--------------------|-----------------------------|
| 2238658            | SURFACE AGRMT/SURETY        |
| 2473232            | OPEN HOLE LOGGING EXCEPTION |
| 401563322          | FORM 2 SUBMITTED            |
| 401563448          | WELL LOCATION PLAT          |
| 401563450          | DEVIATED DRILLING PLAN      |
| 401563452          | DIRECTIONAL DATA            |
| 401563502          | EXCEPTION LOC REQUEST       |
| 401563504          | EXCEPTION LOC WAIVERS       |
| 401569906          | OffsetWellEvaluations Data  |
| 401825674          | OFFSET WELL EVALUATION      |

Total Attach: 10 Files

### General Comments

| <u>User Group</u> | <u>Comment</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u>Comment Date</u> |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Permit            | Informed Operator of public comment on the Form 2. Permitting and Engineering reviewed potential conflicts with other oil and gas, injection, or water wells in the area during the technical review.                                                                                                                                                                                                                                                                                                                                                                                                                        | 10/30/2018          |
| Permit            | Final permitting review Complete. Send to Final Approval.<br>The following changes were made with Operator concurrence:<br>- attached corrected OPEN HOLE LOGGING EXCEPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10/29/2018          |
| Permit            | The following changes were made with Operator concurrence:<br>- checked the box for Rotating Head                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 06/21/2018          |
| Engineer          | Offset Wells Evaluated.<br><br>Operator has indicated oil-based drilling fluids will not be used.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 06/19/2018          |
| Permit            | Initial permitting review complete and task passed.<br>The following changes were made with Operator concurrence:<br>- attached corrected SUA<br>- the distance to the completed portion of the nearest well on the "Spacing and Formations" tab was measured in 2D.                                                                                                                                                                                                                                                                                                                                                         | 05/18/2018          |
| Permit            | Contacted Operator for the following corrections:<br>- "Submit" tab: how was the distance to the completed portion of the nearest well on the "Spacing and Formations" tab measured? 2D or 3D?                                                                                                                                                                                                                                                                                                                                                                                                                               | 05/09/2018          |
| Permit            | The following changes were made with Operator concurrence:<br>- corrected distance to the completed portion of the nearest well in the same formation from "97" to "257".<br>- deleted spacing comment "DSU approved 2/12/2018 . T4N-R65W Section 31: All; T3N-R65W Section 6: All, Section 7: All "<br>- added approved Spacing Order Number "407-2365"<br>- added Unit Configuration "S.31, 6-7:All".<br>- corrected "distance to the completed portion of the nearest well" comment from "Ludwig 6-6" to "Elkhead 7N" to reflect correction made on the "Spacing & Formations" tab.<br>- checked box for "Exception Zone" | 05/09/2018          |
| Permit            | Passed Completeness.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 03/19/2018          |

Total: 8 comment(s)