

FORM
2
Rev
05/22

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:
403320923
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02/17/2023

APPLICATION FOR PERMIT TO

Drill Deepen Re-enter Recomplete and Operate Amend
TYPE OF WELL OIL GAS COALBED OTHER: _____ Refile
ZONE TYPE SINGLE ZONE MULTIPLE ZONES COMMINGLE ZONES Sidetrack

Well Name: Hen Well Number: 12NHS
Name of Operator: PDC ENERGY INC COGCC Operator Number: 69175
Address: 1099 18TH STREET SUITE 1500
City: DENVER State: CO Zip: 80202
Contact Name: Ally Ota Phone: (303)860-5800 Fax: ()
Email: regulatory@pdce.com

FINANCIAL ASSURANCE FOR PLUGGING, ABANDONMENT, AND RECLAMATION

COGCC Financial Assurance
 The Operator has provided or will provide Financial Assurance to the COGCC for this Well.
Surety ID Number (if applicable): 20160047

Federal Financial Assurance
 In checking this box, the Operator certifies that it has provided or will provide at least this amount of Financial Assurance to the federal government for this Well. (Per Rule702.a.)
Amount of Federal Financial Assurance \$ _____

WELL LOCATION INFORMATION

Surface Location
QtrQtr: SWNE Sec: 8 Twp: 4N Rng: 64W Meridian: 6
Footage at Surface: 2249 Feet 2043 Feet
Latitude: 40.327960 Longitude: -104.572340
GPS Data: GPS Quality Value: 1.5 Type of GPS Quality Value: PDOP Date of Measurement: 10/14/2020
Ground Elevation: 4779
Field Name: WATTENBERG Field Number: 90750
Well Plan: is Directional Horizontal (highly deviated) Vertical
If Well plan is Directional or Horizontal attach Deviated Drilling Plan and Directional Data.

Subsurface Locations
Top of Productive Zone (TPZ)
Sec: 8 Twp: 4N Rng: 64W Footage at TPZ: 2517 2440
Measured Depth of TPZ: 7315 True Vertical Depth of TPZ: 6943

Base of Productive Zone (BPZ)

Sec: 8 Twp: 4N Rng: 64W Footage at BPZ: 1319 FSL 2440 FEL
Measured Depth of BPZ: 23255 True Vertical Depth of BPZ: 6813 FNL/FSL FEL/FWL

Bottom Hole Location (BHL)

Sec: 8 Twp: 4N Rng: 64W Footage at BHL: 1319 FSL 2440 FEL
FNL/FSL FEL/FWL

LOCAL GOVERNMENT PERMITTING INFORMATION

County: WELD Municipality: N/A

Is the Surface Location of this Well in an area designated as one of State interest and subject to the requirements of § 24-65.1-108 C.R.S.? Yes

Per § 34-60-106(1)(f)(I)(A) C.R.S., the following questions pertain to the Relevant Local Government approval of the siting of the proposed Oil and Gas Location.

SB 19-181 provides that when "applying for a permit to drill," operators must include proof that they sought a local government siting permit and the disposition of that permit application, or that the local government does not have siting regulations. § 34-60-106(1)(f)(I)(A) C.R.S.

Does the Relevant Local Government regulate the siting of Oil and Gas Locations, with respect to this Location? [X] Yes [] No

[X] If yes, in checking this box, I hereby certify that an application has been filed with the local government with jurisdiction to approve the siting of the proposed oil and gas location.

The disposition of the application filed with the Relevant Local Government is: Approved Date of Final Disposition: 03/17/2022

Comments: 1041WOGLA21-0007 CDP is approved

SURFACE AND MINERAL OWNERSHIP AT WELL'S OIL & GAS LOCATION

Surface Owner of the land at this Well's Oil and Gas Location: [X] Fee [] State [] Federal [] Indian

Mineral Owner beneath this Well's Oil and Gas Location: [X] Fee [] State [] Federal [] Indian

Surface Owner Protection Bond (if applicable): Surety ID Number (if applicable):

MINERALS DEVELOPED BY WELL

The ownership of all the minerals that will be developed by this Well is (check all that apply):

- [X] Fee
[X] State
[] Federal
[] Indian
[] N/A

LEASE INFORMATION

Using standard QtrQtr, Section, Township, Range format describe one entire mineral lease as follows:

* If this Well is within a unit, describe a lease that will be developed by the Well.
* If this Well is not subject to a unit, describe the lease that will be produced by the Well.
(Attach a Lease Map or Lease Description or Lease if necessary.)

T4N-R64W Section 8: NE1/4

Total Acres in Described Lease: 160 Described Mineral Lease is: [X] Fee [] State [] Federal [] Indian

Federal or State Lease #

SAFETY SETBACK INFORMATION

Distance from Well to nearest:

Building: 981 Feet
 Building Unit: 1348 Feet
 Public Road: 2032 Feet
 Above Ground Utility: 1482 Feet
 Railroad: 5280 Feet
 Property Line: 390 Feet

INSTRUCTIONS:

- Specify all distances per Rule 308.b.(1).
- 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 – as defined in 100 Series Rules.

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	407-3328	3770	S.4: S2S2S2, S.5: S2S2SE, S.7: SESESE, S.8: E2, S2S2SW, S.9: All, S.16: All, S.17: All, S.18: E2E2E2, S.20: All, S.21: All

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

SUBSURFACE MINERAL SETBACKS

Enter 5280 for distance greater than 1 mile.

Is this Well within a unit? Yes

If YES:

Enter the minimum distance from the Completed Zone of this Well to the Unit Boundary: 200 Feet

Enter the minimum distance from the Completed Zone of this Well to the Completed Zone of an offset Well within the same unit permitted or completed in the same formation: 181 Feet

If NO:

Enter the minimum distance from the Completed Zone of this Well to the Lease Line of the described lease: _____ Feet

Enter the minimum distance from the Completed Zone of this Well to the Completed Zone of an offset Well producing from the same lease and permitted or completed in the same formation: _____ Feet

Exception Location

If this Well requires the approval of a Rule 401.c Exception Location, enter the Rule or spacing order number and attach the Exception Location Request and Waivers. _____

SPACING & FORMATIONS COMMENTS

DRILLING PROGRAMProposed Total Measured Depth: 23255 Feet TVD at Proposed Total Measured Depth 6813 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: 22 Feet No well belonging to another operator within 1,500 feetWill a closed-loop drilling system be used? YesIs 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 Plan unless a plan was already submitted with the Form 2A per Rule 304.c.(10).Will there be hydraulic fracture treatment at a depth less than 2,000 feet in this well? NoWill salt sections be encountered during drilling? NoWill salt based (>15,000 ppm Cl) drilling fluids be used? NoWill oil based drilling fluids be used? YesBOP Equipment Type: Annular Preventor Double Ram Rotating Head NoneBeneficial reuse or land application plan submitted? No

Reuse Facility ID: _____ or Document Number: _____

CASING PROGRAM

<u>Casing Type</u>	<u>Size of Hole</u>	<u>Size of Casing</u>	<u>Grade</u>	<u>Wt/Ft</u>	<u>Csg/Liner Top</u>	<u>Setting Depth</u>	<u>Sacks Cmt</u>	<u>Cmt Btm</u>	<u>Cmt Top</u>
SURF	13+1/2	9+5/8	J-55	36	0	1600	920	1600	0
1ST	8+1/2	5+1/2	P-110	20	0	23255	2035	23255	2400

 Conductor Casing is NOT planned**POTENTIAL FLOW AND CONFINING FORMATIONS**

<u>Zone Type</u>	<u>Formation /Hazard</u>	<u>Top M.D.</u>	<u>Top T.V.D.</u>	<u>Bottom M.D.</u>	<u>Bottom T.V.D.</u>	<u>TDS (mg/L)</u>	<u>Data Source</u>	<u>Comment</u>
Groundwater	Fox Hills Sandstone	490	490	878	878	1001-10000	Other	COGCC UPWQ Study
Confining Layer	Pierre Shale	928	928	975	975			
Groundwater	UPIR/Pawnee Aquifer	975	975	1490	1490	1001-10000	Other	COGCC UPWQ Study
Confining Layer	Pierre Shale	1490	1490	3680	3680			
Hydrocarbon	Parkman	3680	3680	3980	3980			
Confining Layer	Pierre Shale	3980	3980	4095	4095			
Hydrocarbon	Sussex	4095	4095	4498	4498			
Confining Layer	Pierre Shale	4498	4498	4930	4930			
Hydrocarbon	Shannon	4930	4930	5002	5002			
Confining Layer	Pierre Shale	5002	5002	6806	6663			
Subsurface Hazard	Sharon Springs Shale	6806	6663	6832	6684			
Hydrocarbon	Niobrara	6881	6722	23255	6813			

OPERATOR COMMENTS AND SUBMITTAL

Comments

This APD is being refiled to amend the orientation of this wellbore. The well will now be a horseshoe shaped lateral as shown on the attached directional plan and well location plat. The well will briefly exit the spacing unit at 2254' FSL & 200' FEL of Section 9, before reentering at 1578' FSL & 200' FEL of Section 9. PDC will not stimulate the wellbore between these two footages

The distance to the completed portion of the nearest well on the "Spacing and Formations" tab was measured to the Hen 15N (05-123-51797). The distance to the nearest wellbore belonging to another operator on the "Drilling Plan" tab was measured to the Northrup C 08-75HN (05-123-34263). Both distances were measured via the anti-collision report attached in the deviated drilling plan.

This well is within 150' of the below wells owned by Noble. PDC does not plan to stimulate within 150' of these wells, therefore, no Stimulation Setback Consent is attached.

Alter C 9-23 (05-123-27323), 85', TA
Alter C 9-25 (05-123-21325), 122', PR

This application is in a Comprehensive Area Plan No CAP #: _____
Oil and Gas Development Plan Name Kenosha OGDID#: 481580
Location ID: 482393

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 Analyst Date: 2/17/2023 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, applicable orders, and SB 19-181 and is hereby approved.

COGCC Approved:  _____ Director of COGCC Date: 4/14/2023

Expiration Date: 04/13/2026

API NUMBER

05 123 51791 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
Drilling/Completion Operations	Operator will log two (2) wells during the first rig occupation with open-hole resistivity log with gamma-ray log from the kick-off point into the surface casing for the two stratigraphically deepest wells on each side of the pad.
Interim Reclamation	Operator shall comply with Notice to Operators: Interim Reclamation Procedures for Delayed Operations (dated January 5, 2017).

Drilling/Completion Operations	<p>Operator acknowledges the proximity of the listed wells. Operator agrees to: provide mitigation option 1 or 2 (per the Offset Well Evaluation and Hydraulic Fracturing Operator Guidance Document) 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") stating that appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of this well.</p> <p>Noble Energy Inc. 123-10565 State A *41-16 Noble Energy Inc. 123-12441 CPC-Harless *17-1</p> <p>Operator acknowledges the proximity of the listed wells. Operator agrees to: provide mitigation option 4 (per the Offset Well Evaluation and Hydraulic Fracturing Operator Guidance Document). Operator will submit a Form 42 ("OTHER – AS SPECIFIED BY PERMIT CONDITION") stating that appropriate mitigation will be completed, during the hydraulic stimulation of this well. This Form 42 shall be filed 48 hours prior to stimulation. Surface and production casing pressures of this offset well list will be actively monitored during stimulation of this well. Records shall be retained and provided to COGCC engineering upon request. If there is indication of communication between the stimulation treatment and an offset well, treatment will be stopped and COGCC Engineering notified.</p> <p>PDC ENERGY INC 123-44052 Popham *1C PDC ENERGY INC 123-45747 Harold *6X-202 PDC ENERGY INC 123-45749 Harold *6X-302 PDC ENERGY INC 123-45752 Harold *6Y-312 PDC ENERGY INC 123-45756 Harold *6X-232 PDC ENERGY INC 123-45757 Harold *6Y-202 PDC ENERGY INC 123-45878 Jagged *1N PDC ENERGY INC 123-45879 Jagged *2N PDC ENERGY INC 123-45881 Jagged *5N PDC ENERGY INC 123-45882 Jagged *10N PDC ENERGY INC 123-45883 Jagged *4N PDC ENERGY INC 123-45884 Jagged *8N PDC ENERGY INC 123-45885 Jagged *7N PDC ENERGY INC 123-45886 Jagged *9N PDC ENERGY INC 123-45887 Jagged *6N PDC ENERGY INC 123-45892 Challenger *9N PDC ENERGY INC 123-45895 Challenger *5N PDC ENERGY INC 123-45897 Challenger *7N PDC ENERGY INC 123-48736 Jagged *12N PDC ENERGY INC 123-48737 Jagged *11N</p>
Drilling/Completion Operations	<p>Per COGCC Order 1-232, Bradenhead tests shall be performed according to the following schedule and Form 17 submitted within 10 days of each test:</p> <ol style="list-style-type: none"> 1) Within 60 days of rig release, prior to stimulation. If any pressure greater than 200 psi is observed or if there is continuous flow, Operator must contact COGCC engineering for approval prior to stimulation. 2) If a delayed completion, a second test is required between 6-9 months after rig release and must be conducted prior to stimulation. If any pressure greater than 200 psi is observed or if there is continuous flow, Operator must contact COGCC engineering for approval prior to stimulation. 3) A post-production test within 60 days after first sales, as reported on the Form 10, Certificate of Clearance.
Drilling/Completion Operations	<ol style="list-style-type: none"> 1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU (spud notice) for the first well activity with a rig on the pad and provide 48 hour spud notice via Form 42 for all subsequent wells drilled on the pad. 2) Comply with Rule 408.j. and provide cement coverage from TD to a minimum of 500' above Niobrara and from 500' below Sussex to 500' above Sussex. Verify coverage with a cement bond log. 3) Oil-based drilling fluid is to be used only after all fresh water aquifers are covered.
5 COAs	

Best Management Practices

No	BMP/COA Type	Description
1	Drilling/Completion Operations	Operator will perform an anti-collision evaluation of all active (producing, shut in, or temporarily abandoned) offset wellbores that have the potential of being within 150 feet of a proposed well prior to drilling operations for the proposed well. Notice shall be given to all offset operators prior to drilling.
2	Drilling/Completion Operations	OPEN HOLE LOGGING EXCEPTION: One of the first wells drilled on the pad will be logged with cased-hole neutron log with gamma ray log from the kick-off point into the surface casing. All wells on the pad will have a cement bond log with gamma-ray run on production casing (or on intermediate casing if production liner is run) into the surface casing. The horizontal portion of every well will be logged with a measured-while-drilling gamma-ray log. The Form 5, Completion Report, for each well on the pad will list all logs run in that well and have those logs attached. The Form 5 for each well shall state "Open Hole Logging Exception - No open-hole logs were run" and shall clearly identify the type of log and the well (by API #) in which open-hole logs were run.

Total: 2 comment(s)

Attachment List

Att Doc Num	Name
1517546	DEVIATED DRILLING PLAN
403320923	FORM 2 SUBMITTED
403321812	OffsetWellEvaluations Data
403322083	OPEN HOLE LOGGING EXCEPTION
403322085	DEVIATED DRILLING PLAN
403322089	DIRECTIONAL DATA
403324644	WELL LOCATION PLAT
403373691	OFFSET WELL EVALUATION

Total Attach: 8 Files

General Comments

User Group	Comment	Comment Date
Permit	Final Review Completed.	04/12/2023
Permit	Permitting review complete.	04/11/2023
Permit	TPZ discrepancy between well location tab and well plat - emailed operator for clarification. Per operator concurrence corrected well location tab TPZ measurement to match well plat.	04/11/2023
Permit	Open: Emailed the SLB to notify them of this pending application. Close: SLB has no concerns with this application.	03/27/2023
Permit	Per Operator concurrence attached full Deviated Drilling Plan.	03/27/2023
OGLA	The Commission approved OGDG #481580 on June 8, 2022 for the Oil and Gas Location related to this Form 2. See Sundry doc #403324615 in Location #482393 file for additional information. OGLA task passed.	02/22/2023

Total: 6 comment(s)