

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:
403295945
Date Received:
02/07/2023

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: SU 0680 Well Number: 1-4H5
Name of Operator: FULCRUM ENERGY OPERATING LLC COGCC Operator Number: 10805
Address: 240 SAINT PAUL STREET SUITE 502
City: DENVER State: CO Zip: 80206
Contact Name: Heidi Kaczor Phone: (303)981 5409 Fax: ()
Email: Heidi.Kaczor@fulcrumeo.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): 20220114

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: NENW Sec: 9 Twp: 6N Rng: 80W Meridian: 6
Footage at Surface: 642 Feet FNL/FSL 1630 Feet FEL/FWL FWL
Latitude: 40.509954 Longitude: -106.384654
GPS Data: GPS Quality Value: 1.3 Type of GPS Quality Value: PDOP Date of Measurement: 09/29/2022
Ground Elevation: 8267
Field Name: NORTH PARK HORIZONTAL Field Number: 60120
NIOBRARA
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: 4 Twp: 6N Rng: 80W Footage at TPZ: 63 FSL 375 FWL
Measured Depth of TPZ: 7830 True Vertical Depth of TPZ: 7306 FNL/FSL FEL/FWL

Base of Productive Zone (BPZ)

Sec: 5 Twp: 6N Rng: 80W Footage at BPZ: 100 FNL 273 FEL
Measured Depth of BPZ: 13081 True Vertical Depth of BPZ: 7306 FNL/FSL FEL/FWL

Bottom Hole Location (BHL)

Sec: 5 Twp: 6N Rng: 80W Footage at BHL: 100 FNL 273 FEL
FNL/FSL FEL/FWL

LOCAL GOVERNMENT PERMITTING INFORMATION

County: JACKSON 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.? No

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? Yes No

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: Date of Final Disposition: 05/23/2019

Comments: Jackson County does not regulate oil & gas per letter 5/23/19.

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

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

Mineral Owner beneath this Well's Oil and Gas Location: 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):

- Fee
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.)

Township 6 North, Range 80 West, 6th P.M.
 Section 4: S2NW4, SW4
 section 5: Lots 2, 3, SENW, E2SW4
 Section 6: Lots 2 & 3
 Section 8: SESE
 Section 9: NW4, N2SW4, SESW
 Section 17: NW4, W2NE4, NENE

Township 7 North, Range 80 West, 6th P.M.
 Section 29: S2SW4
 Section 31: NENE, S2NE4, N2SE4, SWSE
 Section 32: NW4, N2SW4, NESE, S2SE4

Total Acres in Described Lease: 1804 Described Mineral Lease is: Fee State Federal Indian
 Federal or State Lease # _____

SAFETY SETBACK INFORMATION

Distance from Well to nearest:

Building: 4136 Feet
 Building Unit: 4136 Feet
 Public Road: 489 Feet
 Above Ground Utility: 280 Feet
 Railroad: 5280 Feet
 Property Line: 1036 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	531-66	28087	

Federal or State Unit Name (if appl): Surprise Unit

Unit Number: COC075017X

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: 100 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: 303 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

Unit also contains Federal Minerals: COC079846

DRILLING PROGRAM

Proposed Total Measured Depth: 13081 Feet TVD at Proposed Total Measured Depth 7306 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: 1005 Feet No well belonging to another operator within 1,500 feet

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 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? No

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? Yes

BOP Equipment Type: Annular Preventor Double Ram Rotating Head None

Beneficial reuse or land application plan submitted? _____

Reuse Facility ID: _____ or Document Number: _____

CASING PROGRAM

Casing Type	Size of Hole	Size of Casing	Grade	Wt/Ft	Csg/Liner Top	Setting Depth	Sacks Cmt	Cmt Btm	Cmt Top
CONDUCTOR	26	16	J55	75	0	120	120	120	0
SURF	13+1/2	9+5/8	L80	40	0	4500	2014	4500	0
1ST	8+1/2	5+1/2	P110	20	0	13081	1591	13081	3500

Conductor Casing is NOT planned

POTENTIAL FLOW AND CONFINING FORMATIONS

Zone Type	Formation /Hazard	Top M.D.	Top T.V.D.	Bottom M.D.	Bottom T.V.D.	TDS (mg/L)	Data Source	Comment
Groundwater	Coalmont Sand	0	0	2085	2065	0-500	USGS	Site Name: SB00608003ABD1 TD@640' TDS@466
Confining Layer	Coalmont Shale	2085	2065	4165	4105			
Confining Layer	Upper Pierre	4165	4105	4937	4865			
Hydrocarbon	Sussex	4937	4865	5340	5260			
Confining Layer	Pierre	5340	5260	5440	5360			
Hydrocarbon	Shannon	5440	5360	5507	5425			
Confining Layer	Pierre	5507	5425	7016	6900			
Hydrocarbon	Niobrara	7016	6900	13081	7306			Bottom TVD is bottom of the well and not bottom of the formation; The formation is not planned to be exited.

OPERATOR COMMENTS AND SUBMITTAL

Comments

PFZ Comment: The upper shallow section of the North Park is not well defined. We used the depth and lithology components to define two separate sections; one being sand (as North Park FM) which is most likely a possible source of groundwater and the second being a shale (as Coalmont FM) which should not be a source of groundwater. The shale should not be a source of groundwater and has not been found to be a source of groundwater in the USGS dataset.

This Form 2 is part of a plan to submit permits to fill 7 of the remaining 13 well slots of the 16-well location. The SU 0680 3-9H16 (API: 05-123-06551), SU 0680 6-4H (API: 05-123-06552), SU 0680 12-9H16 (API: 05-123-06611) are existing producing wells. The location has been constructed. There have been no new buildings constructed and no changes to the surrounding land use.

Nearest well in unit per 2-D calculation is the proposed SU 0680 2-4H @ 366.
Nearest outside-operated well per anti-collision is the Rich 21 (API: 05-057-05012) DA Status @ 1005'.

This application is in a Comprehensive Area Plan No CAP #: _____

Oil and Gas Development Plan Name _____ OGDID #: _____

Location ID: 445005

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: _____ Print Name: Justin Garrett

Title: Sr. Regulatory Analyst Date: 2/7/2023 Email: regulatory@ascentgeomatics.c

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: 6/5/2023

Expiration Date: 06/04/2026

API NUMBER

05 057 06630 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>
Construction	If conductors are preset, operator shall comply with Notice to Operators: Procedures for Preset Conductors (dated September 1, 2016).
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 assures that this offset will be remediated per the Offset Well Evaluation and Hydraulic Fracturing Operator Guidance Document (option 4). 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. A Bradenhead test will be performed on the offset wells listed below within 30 days prior to the beginning of stimulation of this well. Surface and production casing pressures of this offset well list will be actively monitored during stimulation of all wells on this pad. Operator will assure that the offset well's bradenhead is open and actively monitored during the entire stimulation treatment of this pad– a person will monitor for any evidence of fluid. If there is indication of communication between the stimulation treatment and an offset well, treatment will be stopped and COGCC Engineering notified.</p> <p>SURPRISE UNIT 2-08H (API 05-057-06526) SU 0680 *3-9H16 (API 05-057-06551) SU 0680 *6-4H (API 05-057-06552) SU 0680 *12-9H16 (API 05-057-06611)</p>
Drilling/Completion Operations	<p>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 2 business days prior to MIRU (spud notice) for the first well activity with a rig on the pad and provide 2 business day spud notice via Form 42 for all subsequent wells drilled on the pad. 2) The Coalmont Formation is considered a potential freshwater resource in the North Park Basin (CGS Ground Water Atlas of Colorado, 2003). Operator shall provide cement coverage from the production casing shoe (5 1/2" First String) to a minimum of 200' above the surface casing shoe to provide full isolation of the Coalmont Formation. Verify production casing cement coverage with a cement bond log. 3) The first 3 wells drilled on this pad, or any additional well in which the surface casing cement does not circulate to surface, will be logged from the shoe to the surface to verify cement coverage. Contact COGCC Area Engineer before proceeding if there is any indication of incomplete cement coverage.
6 COAs	

Best Management Practices

No	BMP/COA Type	Description
1	Drilling/Completion Operations	Alternative Logging Program: One of the first wells drilled on the pad will be logged with open-hole resistivity 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 and have those logs attached. The Form 5 for a well without open-hole logs shall state "Alternative Logging Program - 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.
2	Drilling/Completion Operations	Blowout Prevention Equipment ("BOPE"): A double ram annular preventer will be used during drilling.

Total: 2 comment(s)

Attachment List

Att Doc Num	Name
403295945	FORM 2 SUBMITTED
403312783	OffsetWellEvaluations Data
403312790	WELL LOCATION PLAT
403312793	DEVIATED DRILLING PLAN
403312795	DIRECTIONAL DATA
403422667	OFFSET WELL EVALUATION

Total Attach: 6 Files

General Comments

User Group	Comment	Comment Date
Permit	Final Review Completed.	06/01/2023
Permit	-Unchecked state minerals to be developed. -Corrected spacing order to 531-66 which includes the expanded lands in the surprise unit	04/12/2023
Engineer	<ul style="list-style-type: none"> •Surface Casing Check complete Offset water well check: COGCC evaluated offset water wells within one mile of this proposed well's surface hole location. This information was used in addition to locally available geophysical logs and hydrogeologic information to evaluate the adequacy of the operator's proposed surface casing setting depth. The deepest water well within two miles is 251 feet. •Offset well review complete 408.t - No wells 408.u - No wells •Engineering review complete 	03/29/2023
OGLA	This Location (ID #445005) and its associated Form 2A materials were fully reviewed during the OGLA review of this APD in accordance with current Rules. This APD complies with all COGCC Rules and is adequately protective of public health, safety, welfare, the environment, and wildlife resources.	02/09/2023

Total: 4 comment(s)