

Base of Productive Zone (BPZ)
 Sec: 16 Twp: 1S Rng: 66W Footage at BPZ: 1091 FNL 2185 FEL
 Measured Depth of BPZ: 22441 True Vertical Depth of BPZ: 7579 FNL/FSL FEL/FWL

Bottom Hole Location (BHL)
 Sec: 16 Twp: 1S Rng: 66W Footage at BHL: 1091 FNL 2185 FEL
 FNL/FSL FEL/FWL

LOCAL GOVERNMENT PERMITTING INFORMATION

County: ADAMS 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: In Process Date of Final Disposition: 03/20/2019

Comments: Pending

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 1 South Range 66 West
Sec 14: SW4

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

Federal or State Lease # _____

SAFETY SETBACK INFORMATION

Distance from Well to nearest:

Building: 2789 Feet
 Building Unit: 2868 Feet
 Public Road: 1369 Feet
 Above Ground Utility: 1442 Feet
 Railroad: 5280 Feet
 Property Line: 367 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.)
CODELL	CODL	407-3386	2640	T1S R66W SEC 13: W2W2, SEC 14: ALL, SEC 15: ALL, SEC 16: E2, SEC 21: NE4, SEC 22: N2, SEC 23: N2, SEC 24: W2NW4

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: 460 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: 319 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 PROGRAM

Proposed Total Measured Depth: 22441 Feet

TVD at Proposed Total Measured Depth 7579 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: 53 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	24	16	N/A	42	0	80	100	80	0
SURF	12+1/4	9+5/8	J-55	36	0	2500	669	2500	0
1ST	8+1/2	5+1/2	P-110	20	0	22441	2906	22441	2500

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	Alluvium	24	24	69	69	1001-10000	USGS	USGS Site Name SC00106612DCC
Groundwater	Arapahoe	69	69	1041	1024	501-1000	Groundwater Atlas	USGS HA-647 (Robson & Romero, 1981)
Groundwater	Laramie-Fox Hills	1041	1024	1332	1294	0-500	Groundwater Atlas	USGS HA-650 (Robson et al, 1981)
Confining Layer	Pierre Formation	1332	1294	1849	1749			
Groundwater	Upper Pierre	1849	1749	2303	2144	501-1000	Electric Log Calculation	Pete Rock 1 (05-001-08469 -0000)
Confining Layer	Base of Upper Pierre	2303	2144	3889	3524			
Hydrocarbon	Parkman Sandstone	3889	3524	3970	3594			Not productive in this area
Confining Layer	Pierre Formation	3970	3594	5326	4774			
Hydrocarbon	Sussex Sandstone	5326	4774	5579	4994			Not productive in this area
Confining Layer	Pierre Formation	5579	4994	6292	5614			
Hydrocarbon	Shannon Sandstone	6292	5614	6384	5694			Not productive in this area
Confining Layer	Pierre Formation	6384	5694	7959	7064			
Subsurface Hazard	Sharon Springs	7959	7064	8062	7154			Sloughing Shale
Hydrocarbon	Niobrara	8062	7154	8674	7554			
Hydrocarbon	Fort Hays Limestone	8674	7554	8851	7579			
Hydrocarbon	Codell Sandstone	8851	7579	22441	7579			

OPERATOR COMMENTS AND SUBMITTAL

Comments

The distance to the completed portion of the nearest well in the same unit on the "Spacing & Formations" tab is measured to the proposed Warbler 13W-27-13. This distance was measured in 2-dimensional space.

The distance to the nearest well belonging to another operator on the "Drilling Plan" tab was measured to the Heckendorf #1 (API #05-001-06670). A Stimulation Setback Consent is not required because the well is plugged and abandoned.

Attached as OTHER, is the anti-collision analysis which factors in three dimensional measurements as well as gyro surveys performed on some of the offset wellbores. All measurements to offset wellbores were derived from this analysis.

This application is in a Comprehensive Area Plan _____ CAP #: _____
 Oil and Gas Development Plan Name Warbler OGDG OGDG ID#: 481783
 Location ID: 483031

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

Signed: _____

Print Name: Jeff Annable

Title: Lead, Regulatory

Date: 10/20/2022

Email: jannable@civiresources.com

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: _____

Expiration Date: _____

API NUMBER

05

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

0 COA	
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Best Management Practices

No BMP/COA Type

Description

1	Drilling/Completion Operations	One of the first wells drilled on the pad during the first rig occupation will be logged with open-hole resistivity log with gamma-ray log from the kick-off point into the surface casing for one of the stratigraphically deepest wells on the pad. 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 will state "Alternative Logging Program - No open-hole logs were run" and will clearly identify the type of log and the well (by API#) in which open-hole logs were run.
2	Drilling/Completion Operations	Anti-collision: 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.

Total: 2 comment(s)

Attachment List

Att Doc Num

Name

403181544	OffsetWellEvaluations Data
403201034	WELL LOCATION PLAT
403201037	DEVIATED DRILLING PLAN
403201038	DIRECTIONAL DATA

403202094

OTHER

Total Attach: 5 Files

General Comments

User Group

Comment

Comment Date

Stamp Upon Approval

Total: 0 comment(s)



Public Comments

No public comments were received on this application during the comment period.

