

Base of Productive Zone (BPZ)

Sec: 34 Twp: 4S Rng: 65W Footage at BPZ: 1730 FSL 330 FWL
Measured Depth of BPZ: 18638 True Vertical Depth of BPZ: 8030 FNL/FSL FEL/FWL

Bottom Hole Location (BHL)

Sec: 34 Twp: 4S Rng: 65W Footage at BHL: 1730 FSL 330 FWL
FNL/FSL FEL/FWL

LOCAL GOVERNMENT PERMITTING INFORMATION

County: ARAPAHOE 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? [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: 01/20/2023

Comments: Arapahoe County Case No. AA22-009 (Amendment to AE18-007)

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

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

Mineral Owner beneath this Well's Oil and Gas Location: [] Fee [X] 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
[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.)

See attached lease map

Total Acres in Described Lease: 21037 Described Mineral Lease is: [] Fee [X] State [] Federal [] Indian

Federal or State Lease # 1960.12

SAFETY SETBACK INFORMATION

Distance from Well to nearest:

Building: 2477 Feet
Building Unit: 3155 Feet
Public Road: 2151 Feet
Above Ground Utility: 614 Feet
Railroad: 5280 Feet
Property Line: 613 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	535-1455	1280	T4S R65W SEC 34: ALL, SEC 35: 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: 150 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: 660 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: 18638 Feet

TVD at Proposed Total Measured Depth 8030 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: _____ 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	A53B	36.95	0	80	105	80	0
SURF	13+1/2	9+5/8	J-55	36	0	3423	1393	3423	0
1ST	8+1/2	5+1/2	P-110	20	0	18638	2929	18638	3423

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	Denver	24	24	895	894	0-500	Groundwater Atlas	USGS HA-646 (Robson & Romero, 1981)
Groundwater	Arapahoe	895	894	1613	1594	0-500	Groundwater Atlas	USGS HA-647 (Robson & Romero, 1981)
Groundwater	Laramie	1613	1594	1922	1894	0-500	Groundwater Atlas	USGS HA-650 (Robson et al, 1981)
Groundwater	Fox Hills	1922	1894	2169	2134	0-500	Groundwater Atlas	USGS HA-650 (Robson et al, 1981)
Confining Layer	Pierre Formation	2169	2134	2746	2694			
Groundwater	Upper Pierre	2746	2694	3364	3294	501-1000	Electric Log Calculation	Sun-State #1 (05-005-06575)
Confining Layer	Base of Upper Pierre	3364	3294	4322	4224			
Hydrocarbon	Parkman Sandstone	4322	4224	4497	4394			Not productive in this area
Confining Layer	Pierre Formation	4497	4394	5620	5484			
Hydrocarbon	Sussex Sandstone	5620	5484	5739	5599			Not productive in this area
Confining Layer	Pierre Formation	5739	5599	6506	6344			
Hydrocarbon	Shannon Sandstone	6506	6344	6635	6469			Not productive in this area
Confining Layer	Pierre Formation	6635	6469	7969	7754			
Subsurface Hazard	Sharon Springs	7969	7754	8083	7844			Sloughing shales
Hydrocarbon	Niobrara	8083	7844	18638	8030			

OPERATOR COMMENTS AND SUBMITTAL

Comments

The distance to the completed portion of the nearest well in the same unit on the "Spacing & Formation" tab is measured to the proposed State Bierstadt 4-65 35-34 3AH. This distance was measured in 2-dimensional space.

There are no existing or proposed wellbores belonging to another operator, including plugged wells within 1500' of this proposed wellbore.

This application is in a Comprehensive Area Plan _____ CAP #: _____

Oil and Gas Development Plan Name State Bierstadt/State Pikes OGDP ID#: 485256

Location ID: 467266

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: Manager, Regulatory Date: 12/28/2023 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.

<u>COA Type</u>	<u>Description</u>
0 COA	

Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
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

<u>Att Doc Num</u>	<u>Name</u>
403575980	DIRECTIONAL DATA
403575985	WELL LOCATION PLAT
403575987	DEVIATED DRILLING PLAN
403586907	LEASE MAP
403638161	OffsetWellEvaluations Data

Total Attach: 5 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)

