

Base of Productive Zone (BPZ)

Sec: 6 Twp: 2S Rng: 97W Footage at BPZ: 691 FSL 1785 FWL
Measured Depth of BPZ: 12615 True Vertical Depth of BPZ: 12206 FNL/FSL FEL/FWL

Bottom Hole Location (BHL)

Sec: 6 Twp: 2S Rng: 97W Footage at BHL: 691 FSL 1785 FWL
FNL/FSL FEL/FWL

LOCAL GOVERNMENT PERMITTING INFORMATION

County: RIO BLANCO 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: 07/07/2023

Comments:

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 [X] Federal [] Indian

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

Please see lease map

Total Acres in Described Lease: 626 Described Mineral Lease is: [] Fee [] State [X] Federal [] Indian

Federal or State Lease # COC62046

SAFETY SETBACK INFORMATION

Distance from Well to nearest:

Building: 5280 Feet
Building Unit: 5280 Feet
Public Road: 232 Feet
Above Ground Utility: 728 Feet
Railroad: 5280 Feet
Property Line: 1160 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.)
WILLIAMS FORK	WMFK	1-229		

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: 691 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: 361 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: 12615 Feet

TVD at Proposed Total Measured Depth 12206 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? No

BOP Equipment Type: Annular Preventor Double Ram Rotating Head None

Beneficial reuse or land application plan submitted? No

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	30	20	X65	78.67	0	80	230	80	0
SURF	17+1/2	13+3/8	J55	54.5	0	1256	410	1256	0
1ST	12+1/4	9+5/8	J55	38.6	0	3133	158	3133	2103
2ND	8+3/4	4+1/2	P110	11.6	0	12615	992	12615	7076

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	UINTA	30	30	704	700	501-1000	Produced Water Sample	
Groundwater	GREEN RIVER	704	700	857	850	501-1000	Produced Water Sample	
Subsurface Hazard	A GROOVE	857	850	1066	1050			
Subsurface Hazard	B GROOVE	1066	1050	1383	1350			
Subsurface Hazard	DISSOLUTION SURFACE	1383	1350	2338	2250			POSSIBLE LOSS ZONE
Confining Layer	GARDEN GULCH	2338	2250	2518	2420			
Confining Layer	ORANGE MARKER	2518	2420	2603	2500			
Confining Layer	UPPER WASATCH	2603	2500	5371	5110			
Hydrocarbon	TOP OF G SAND	5371	5110	5647	5370			POSSIBLE LOSS ZONE
Hydrocarbon	FORT UNION	5647	5370	6484	6160			
Confining Layer	LOWER WASATCH	6484	6160	7276	6906			
Hydrocarbon	OHIO CREEK	7276	6906	8029	7626			POSSIBLE LOSS ZONE
Hydrocarbon	UPPER MESAVERDE	8029	7626	8835	8426			
Hydrocarbon	TOP GAS	8835	8426	10405	9996			
Hydrocarbon	CAMEO COALS	10405	9996	11135	10726			
Hydrocarbon	ROLLINS	11135	10726	11285	10876			
Hydrocarbon	COZZETTE	11285	10876	11610	11201			
Hydrocarbon	CORCORAN	11610	11201	11870	11461			
Hydrocarbon	UPPER SEGO	11870	11461	12115	11706			
Hydrocarbon	LOWER SEGO	12115	11706	12615	12206			

OPERATOR COMMENTS AND SUBMITTAL

Comments: Nearest offset well producing from the same lease and permitted or completed in the same formation: Federal RGU 424-6-297 (Doc #403561208).
 OGDG application (Docket# 221200375) was approved on 08/23/2023, Form 2A (Doc# 402525732) approved on 09/11/2023.

This application is in a Comprehensive Area Plan _____ No _____ CAP #: _____
 Oil and Gas Development Plan Name Ryan Gulch Phase 3 OGDP ID#: 484436
 Location ID: 335640

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

Signed: _____ Print Name: Melissa Luke

Title: Regulatory Specialist Date: 12/20/2023 Email: mluke@terraep.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: 3/29/2024

Expiration Date: 08/22/2026

API NUMBER
05 103 12670 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>
Drilling/Completion Operations	1) Operator shall comply with the most current revision of the Northwest Colorado Notification Policy. See attached notice. 2) Operator shall provide cement coverage from the production casing shoe (4+1/2" SECOND STRING) to a minimum of 200' above all Mesa Verde Group (and Ohio Creek Formation, if present) oil, gas, and water-bearing sandstone and coalbed formations. Verify production casing cement coverage with cement bond log.
Planning	Pursuant to Rule 702.b.(2), the approval of this Application for Permit to Drill constitutes a "change in circumstance" to the approved Financial Assurance Plan. The Operator must file a revised Form 3, Financial Assurance Plan, within 10 days of this approval.
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) additional wells during the second rig occupation with open-hole resistivity log with gamma-ray log from the kick-off point into the surface casing for the stratigraphically deepest wells for a total of three wells logged.
Interim Reclamation	Operator shall comply with Notice to Operators: Interim Reclamation Procedures for Delayed Operations (dated January 5, 2017).
5 COAs	

Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Drilling/Completion Operations	Alternative Logging Program: One of the first wells drilled on this pad will be logged with an open-hole resistivity log with gamma-ray, from TD into the surface casing. All wells on the pad will have a cement bond log (CBL) with gamma-ray run on production casing (or on intermediate casing if production liner is run) into the surface casing. 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.

Total: 1 comment(s)

Attachment List

<u>Att Doc Num</u>	<u>Name</u>
403561175	FORM 2 SUBMITTED
403623656	OffsetWellEvaluations Data
403623660	DIRECTIONAL DATA
403623662	WELL LOCATION PLAT
403623663	DEVIATED DRILLING PLAN
403631370	LEASE MAP
403722985	OffsetWellEvaluations Data
403736182	OFFSET WELL EVALUATION

Total Attach: 8 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final Review Completed.	03/22/2024
Engineer	<p>Offset water well check: There are no permitted domestic water wells within one mile of this proposed surface hole location.</p> <p>Offset Well Evaluation: Existing offset oil and gas wells within 1,500 feet of this wellbore meet standards. No mitigation required.</p> <p>Emailed Operator for updated offset well review to include wells not listed: Updated offset well review uploaded as attachment</p> <p>Selected No for drop down menus for "Amend, Refile and Sidetrack"</p> <p>Changed casing setting depth from TVD to MD per attached documents and value reported as cement bottom</p>	03/18/2024
Permit	<p>Added "Total acres described in lease" per operator</p> <p>Added Federal Financial Assurance amount per operator</p> <p>Passed Permitting review.</p>	01/09/2024
OGLA	The Commission approved OGDG #484436 on August 23, 2023 for the Oil and Gas Location related to this Form 2. OGLA task passed.	12/20/2023

Total: 4 comment(s)