

Base of Productive Zone (BPZ)

Sec: 27 Twp: 6S Rng: 97W Footage at BPZ: 1053 FNL 800 FWL
Measured Depth of BPZ: 9253 True Vertical Depth of BPZ: 8732 FNL/FSL FEL/FWL

Bottom Hole Location (BHL)

Sec: 27 Twp: 6S Rng: 97W Footage at BHL: 1053 FNL 800 FWL
FNL/FSL FEL/FWL

LOCAL GOVERNMENT PERMITTING INFORMATION

County: GARFIELD 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:

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 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.)

Lease Description - T6S R97W Sec. 27: ALL (640 Acres)
Please see attached lease map

Total Acres in Described Lease: 640 Described Mineral Lease is: Fee State Federal Indian

Federal or State Lease # _____

SAFETY SETBACK INFORMATION

Distance from Well to nearest:

Building: 5280 Feet
Building Unit: 5280 Feet
Public Road: 5280 Feet
Above Ground Utility: 5280 Feet
Railroad: 5280 Feet
Property Line: 2070 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? No

If YES:

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

If NO:

Enter the minimum distance from the Completed Zone of this Well to the Lease Line of the described lease: 800 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: 301 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: 9253 Feet TVD at Proposed Total Measured Depth 8732 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 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? NoBOP 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>
CONDUCTOR	30	20	X65	78.67	0	80	200	80	0
SURF	13+1/2	9+5/8	J55	36.0	0	1971	467	1971	0
1ST	8+3/4	4+1/2	P110	11.6	0	9253	796	9253	4550

 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	GRRV MGNY	855	841	1302	1248	501-1000	Produced Water Sample	
Hydrocarbon	ANVIL POINTS	1302	1248	1750	1654			
Confining Layer	GARDEN GULCH	1750	1654	2197	2059			
Hydrocarbon	DOUGLAS CREEK	2197	2059	2620	2442			
Subsurface Hazard	ORANGE MARKER	2620	2442	2942	2734			
Confining Layer	WASATCH	2942	2734	4750	4372			
Hydrocarbon	G SAND	4750	4372	4971	4572			
Hydrocarbon	FORT UNION	4971	4572	5523	5072			
Hydrocarbon	L WASATCH	5523	5072	6340	5832			
Confining Layer	OHIO CREEK	6340	5832	6801	6282			
Hydrocarbon	U MESAVERDE	6801	6282	7378	6857			
Hydrocarbon	KMV GAS	7378	6857	8498	7977			
Hydrocarbon	CAMEO	8498	7977	9053	8532			
Hydrocarbon	ROLLINS	9053	8532	9253	8732			

OPERATOR COMMENTS AND SUBMITTAL

Comments

Nearest offset well producing from the same lease and permitted or completed in the same formation: Kelton WGV 12-27-697 (Doc# 403510732).

OGDP application (Docket# 220900247) was approved on 08/23/2023. Form 2A (Doc# 403135970) approved on 09/11/2023.

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

Oil and Gas Development Plan Name Arco Deep 1-27 OGDP ID#: 483885

Location ID: 322539

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: 9/21/2023 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: 10/31/2023

Expiration Date: 08/22/2026

API NUMBER

05 045 24587 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	<p>1.Operator shall comply with the most current revision of the Northwest Notification Policy.</p> <p>2.Operator shall comply with the most current revision of the Garfield County Rulison Field Notice to Operators, with the following exception: All field notice requirements specified in that Notice to Operators are superseded by the requirements of the most current revision of the Northwest Colorado Notification Policy (see Condition of Approval #1).</p> <p>3.Comply with all provisions of the June 12, 2008 Notice to Operators Drilling Wells within 3/4 Mile of the Rim of the Roan Plateau in Garfield County - Pit Design, Construction and Monitoring Requirements.</p> <p>4.The nearby hillside(s) must be monitored for any daylighting drilling fluids throughout the drilling of the surface casing interval. COGCC engineering staff must be notified as soon as practicable if daylighting is observed.</p> <p>5.Operator shall provide cement coverage from the production casing shoe (4+1/2" FIRST STRING) to a minimum of 200' above all Mesaverde Group (and Ohio Creek Formation, if present) oil, gas, and water-bearing sandstone and coalbed formations. Verify production casing cement coverage with a cement bond log.</p>
Construction	If conductors are preset, operator shall comply with Notice to Operators: Procedures for Preset Conductors (dated September 1, 2016).
Interim Reclamation	Operator shall comply with Notice to Operators: Interim Reclamation Procedures for Delayed Operations (dated January 5, 2017).
Drilling/Completion Operations	Operator will log two (2) wells 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
4 COAs	

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 this pad will be logged with an open-hole resistivity log with gamma-ray, from TD into the 9 5/8" casing shoe. 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

Att Doc Num	Name
403511371	FORM 2 SUBMITTED
403511373	DIRECTIONAL DATA
403511374	WELL LOCATION PLAT
403511375	DEVIATED DRILLING PLAN
403515697	LEASE MAP
403573677	OffsetWellEvaluations Data
403579088	OFFSET WELL EVALUATION

Total Attach: 7 Files

General Comments

User Group	Comment	Comment Date
Permit	Final Review Completed.	10/30/2023
Engineer	<p>Offset Well Evaluation: Existing offset oil and gas wells within 1,500 feet of this wellbore meet standards. No mitigation required. The one offset well has been temporarily abandoned and pressure tested DOC 403513021 & 403523493 for drilling operations</p> <p>Offset water well check: There are no permitted water wells within one mile of this proposed surface hole location. In the offset well review the operator reports the depth of a observation/monitoring well issued under permit 271289</p> <p>Changed setting depth in casing table from TVD to MD</p> <p>Added 0 psi bradenhead pressure for offset well details</p>	10/26/2023
Permit	Passed Permitting review.	10/18/2023
OGLA	The Commission approved OGDG #483885 on August 23, 2023 for the Oil and Gas Location related to this Form 2. OGLA task passed.	09/21/2023
OGLA	Corrected distance to nearest property line.	09/21/2023

Total: 5 comment(s)