

FORM

2

Rev
05/22

State of Colorado

Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203

Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

403548723

Date Received:

11/17/2024

APPLICATION FOR PERMIT TO

☒ Drill
 ☐ Deepen
 ☐ Re-enter
 ☐ Recomplete and Operate
Amend ☐
 TYPE OF WELL OIL ☒ GAS ☐ COALBED ☐ OTHER: _____
Refill ☐
 ZONE TYPE SINGLE ZONE ☒ MULTIPLE ZONES ☐ COMMINGLE ZONES ☐
Sidetrack ☐

Well Name: Buckhorn

Well Number: 1

Name of Operator: ST CROIX OPERATING INC

ECMC Operator Number: 81490

Address: P O BOX 13799

City: DENVER State: CO Zip: 80201

Contact Name: Paul Melnychenko

Phone: (303)489-9298

Fax: ()

Email: paul@stcroixexp.com

FINANCIAL ASSURANCE FOR PLUGGING, ABANDONMENT, AND RECLAMATION

ECMC Financial Assurance

☒ The Operator has provided or will provide Financial Assurance to the ECMC for this Well.

Surety ID Number (if applicable): 20000108

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: NWNE Sec: 8 Twp: 3S Rng: 52W Meridian: 6

Footage at Surface: 700 Feet FNL/FSL 2199 Feet FEL/FWL

Latitude: 39.812130 Longitude: -103.227060

GPS Data: GPS Quality Value: 2.2 Type of GPS Quality Value: PDOP

Date of Measurement: 01/18/2022

Ground Elevation: 4824

Field Name: WILDCAT Field Number: 99999

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: _____ Twp: _____ Rng: _____ Footage at TPZ: _____

Measured Depth of TPZ: _____ True Vertical Depth of TPZ: _____ FNL/FSL FEL/FWL

Base of Productive Zone (BPZ)

Sec: _____ Twp: _____ Rng: _____ Footage at BPZ: _____

Measured Depth of BPZ: _____ True Vertical Depth of BPZ: _____ FNL/FSL _____ FEL/FWL _____

Bottom Hole Location (BHL)

Sec: _____ Twp: _____ Rng: _____ Footage at BHL: _____

FNL/FSL _____ FEL/FWL _____

LOCAL GOVERNMENT PERMITTING INFORMATIONCounty: WASHINGTON 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.)

N/2 Section 8 T3S R52W

Total Acres in Described Lease: 320 Described Mineral Lease is: ☒ Fee ☐ State ☐ Federal ☐ Indian

Federal or State Lease # _____

SAFETY SETBACK
INFORMATION

Distance from Well to nearest:

Building: 2464 Feet
Building Unit: 2595 Feet
Public Road: 675 Feet
Above Ground Utility: 721 Feet
Railroad: 5280 Feet
Property Line: 700 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.)
J SAND	JSND	581-4	320	N/2 S8 T3S R52W

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: 700 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: 5280 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: 4750 Feet

TVD at Proposed Total Measured Depth 4750 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: 1358 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
SURF	12+1/4	8+5/8	J-55	24	0	475	350	475	0
1ST	7+7/8	5+1/2	J-55	15.5	0	4750	240	4750	2979

☒ 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	Ogallala	0	0	160	160	0-500	Groundwater Atlas	TDS and groundwater sampling are from groundwater samples on ECMC site.
Confining Layer	Pierre	160	160	3479	3479			
Hydrocarbon	Niobrara	3479	3479	3900	3900			
Confining Layer	Fort Hays	3900	3900	3950	3950			
Confining Layer	Carlile	3950	3950	4325	4325			
Confining Layer	Greenhorn	4075	4075	4125	4125			
Confining Layer	Graneros Shale	4125	4125	4325	4325			
Hydrocarbon	D Sand	4325	4325	4375	4375			
Confining Layer	Huntsman Shale	4375	4375	4425	4425			
Hydrocarbon	J Sand	4425	4425	4750	4750			

OPERATOR COMMENTS AND SUBMITTAL

Comments Closest non-operated well including PA is the CHRIST JOHNSON #1, API #: 121-05696, Plains Ex, PA.

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

Oil and Gas Development Plan Name Buckhorn OGDID #: 487393

Location ID: 488082

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


Signed: _____

Print Name: Jessica DonahueTitle: Compliance SpecialistDate: 11/17/2024Email: jdonahue@ardorenvironmental.

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 ECMC Rules, applicable orders, and SB 19-181 and is hereby approved.

ECMC Approved: _____



Director of ECMC

Date: 12/24/2024Expiration Date: 10/15/2027**API NUMBER**

05 121 11106 00

CONDITIONS OF APPROVAL, IF ANY LIST

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**

Drilling/Completion Operations	1) Submit Form 42(MIRU) electronically to ECMC two business days prior to MIRU and a Form 42(SP) two business days prior to spud. 2) If production casing is set provide cement coverage from TD to at least 500' above the Niobrara. Run and submit CBL to verify cemented intervals. 3) An annular BOP is required. 4) ECMC approval required prior to any hydraulic fracturing of this well. 5) If well is a dry hole set plugs at the following depths: set 60 sks cement at J-Sand top, 40 sks cement +/-50' above Niobrara, 40 sks cement across any DST w/ oil/gas show, 40 sks cement at +/-1500', 50 sks cement from 50' below surface casing shoe to 50' above surface casing shoe, 15 sks cement from 50' to surface, cut off casing 4' below GL, weld on plate, place 5 sks cement in rat hole & 5 sks cement in mouse hole.
Drilling/Completion Operations	Bradenhead tests shall be performed according to the following schedule and Form 17 submitted within 10 days of each test: 1) Within 60 days of rig release, prior to production. 2) A test within 60 days after first production, as reported on the Form 10, Certificate of Clearance.
2 COAs	

Best Management Practices**No BMP/COA Type****Description**

1 Drilling/Completion Operations	Open-hole resistivity log with gamma-ray log will be run from TD into the surface casing. A cement bond log with gamma-ray will be run on production casing, or on intermediate casing if a production liner is run. The Form 5, Completion Report, will list all logs run and have those logs attached.
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Total: 1 comment(s)

ATTACHMENT LIST

<u>Att Doc Num</u>	<u>Name</u>
403548723	FORM 2 SUBMITTED
403997362	OffsetWellEvaluations Data
403997363	WELL LOCATION PLAT
404040017	OFFSET WELL EVALUATION

Total Attach: 4 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final Review Completed.	12/24/2024
Engineer	Groundwater: High Plains Deepest water well: 168'(2 mi, 15 records) Log: 121-07579 3/5/65 GR=4824' High Plains base 260' • Surface Casing Check complete • Offset well review complete 408.t - No wells 408.u - No wells • Engineering review complete	12/20/2024
OGLA	The Commission approved OGDG #487393 on October 16, 2024 for the Oil and Gas Location related to this Form 2. OGLA task passed.	11/21/2024
Engineer	Req a confining layer for the Nio. 12/12/24 Pierre added.	11/20/2024

Total: 4 comment(s)