

**State of Colorado
Oil and Gas Conservation Commission**

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FOR OGCC USE ONLY

Document Number:

401125575

Date Received:

UNDERGROUND INJECTION FORMATION PERMIT APPLICATION

Per Rule 325, this form shall be submitted with all required attachments.

A Form 31 – Intent shall be submitted and approved prior to completing an injection zone.

A Form 31 – Subsequent shall be submitted following collection of water samples and injectivity test (if performed) and must be approved prior to injection in any new injection facility.

NOTE: Per Rule 324B, an aquifer exemption is required for any injection formation with water quality less than 10,000 mg/L total dissolved solids (TDS). Contact the Commission for further requirements if the TDS as determined by water analysis for the injection zone is less than 10,000 mg/L.

Form 31 Type Intent Subsequent UIC Facility ID UIC Facility ID Required for Subsequent Form 31

UIC FACILITY INFORMATION

Facility Name and Number: Savage 8A-794-SWD County: GARFIELD
 Facility Location: NWNE / 8 / 7S / 94W / 6 Field Name and Number: RULISON 75400
 Facility Type: Enhanced Recovery Disposal Simultaneous Disposal
 Single or Multiple Well Facility? Single Multiple

Proposed Injection Program (Required):

Caerus proposes to inject Class II waste fluid into the Ohio Creek Formation at approximately 5,124' MD with perforations at depths of 5540 feet to 5542 feet. Caerus will perforate and swab test the proposed interval to collect formation fluid samples to show the Ohio Creek interval in this part of field has TDS values >10,000ppm. A step rate test will then be performed to determine the fracture gradient and a maximum allowable injection pressure. The permeability listed on the enclosed Form 31 is an educated estimate based on other UIC wells in the area. The Ohio Creek Formation comprises conglomerates, sandstones and shales. Due to the depth of the injection zones, no underground sources of drinking water will be affected by this operation. No isolated water samples for the Ohio Creek Formation are available in this area but the TDS of these formations is estimated to be above 10,000 ppm TDS. Since the Savage 8A-794-SWD is located on a multi-well pad, a resistivity log will be run on one of the producing wellbores, with data gathered through the Ohio Creek section. Caerus plans to evaluate the data gathered from that log for use in the analysis of the proposed UIC well. The injection skid for the Puckett SWD E1 797 will be placed on the pad location. Fluid will be delivered to the well by pipeline and water truck. The Surface Facility Diagram shows the proposed surface facility outlining all pipelines, tanks and associated facilities. Caerus plans to pipe produced water from the following offset Caerus well pads to the proposed UIC well: 5L, 8D, 17F, 17M, 20F. An estimated total of 70 currently producing wells may potentially use this facility for disposal after the completion of the Savage 8A pad. Future development could bring that well count to over 100 wellbores, which would all be gathered via the existing pipeline and any additional pipelines for future pads. The UIC well would eliminate the need to truck current produced water to other existing Caerus operated UIC facilities, minimizing the truck traffic in the Rulison area.

OPERATOR INFORMATION

| | |
|--|---|
| OGCC Operator Number: <u>10456</u> | Contact Name and Telephone: |
| Name of Operator: <u>CAERUS PICEANCE LLC</u> | Name: <u>Reed Haddock</u> |
| Address: <u>1001 17TH STREET #1600</u> | Phone: <u>(720) 880-6369</u> Fax: <u>(303) 565-4606</u> |
| City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u> | Email: <u>rhaddock@caerusoilandgas.com</u> |

INJECTED FLUID TYPE

All injected fluids must be Exempt E&P waste per RCRA Subpart C.

(Check all that apply.)

- Produced Water Natural Gas CO2 Drilling Fluids
 Exempt Gas Plant Waste Used Workover Fluids Flowback Fluids

Other Fluids (describe):

Commercial Disposal Facility Yes No

Commercial UIC Bond Surety ID: _____

Commercial Facility Description: Describe the physical region of the facility, the details of the operations, and the type of fluids to be injected.

PROPOSED INJECTION FORMATIONS

FORMATION (Name): OHIO CREEK Porosity: 12 %
Formation TDS: 15000 mg/L Frac Gradient: 0.74 psi/ft Permeability: 0 mD
Proposed Stimulation Program: Acid Frac Treatment None

ANTICIPATED FACILITY OPERATIONS CONDITIONS

Under normal operating conditions, estimated TOTAL fluid injection rates and pressures for this facility:

FOR WATER: Daily Injection Rate Range From 1000 to 8000 bbls/day
Surface Injection Pressure Range From 1500 to 2500 psi
FOR GAS: Daily Injection Rate Range From _____ to _____ mcf/day
Surface Injection Pressure Range From _____ to _____ psi

Estimated Initial Injection Date: 5/1/2017

AREA OF REVIEW OIL and GAS WELL EVALUATION SUMMARY

Review all existing wells within 1/2 mile for injection formation isolation.

Area Review Date: 2/4/2016

Total number of Oil & Gas Wells within Area of Review:

ABANDONED WELLS (All wells that have been plugged: PA and DA status))

| | |
|-----------------------------|---|
| Total within Area of Review | 1 |
| Number To Be Re-Plugged | 0 |

ACTIVE WELLS (All wells that have not been plugged: AC, DG, DM, IJ, PR, SU, SI, TA, WO, XX, UN status)

| | |
|--------------------------------|----|
| Total within Area of Review | 24 |
| Number Requiring Casing Repair | 0 |
| Number To Be Plugged | 0 |

Operator's Area of Review Contact Email: nnaeve@caerusoilandgas.com

No Wells within 2,640'

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

Print Name: Reed Haddock Signed: _____

Title: Sr. Regulatory Specialist Date: _____

COGCC Approved: _____ Date: _____

Form 31 - Intent Expiration Date: _____

Per Rule 325.o, a 90 day extension of the Expiration Date may be requested via a Sundry Notice, Form 4 submitted prior to Form 31- Intent expiration

Order Number: _____ UIC FACILITY ID: 159992

CONDITIONS OF APPROVAL, IF ANY:

COA Type **Description**

| COA Type | Description |
|----------|-------------|
| | |

Attachment Check List

| Att Doc Num | Name |
|--------------------|--|
| 401125576 | NOTICE TO SURFACE & MINERAL OWNERS |
| 401125577 | MAP OF WATER WELLS ¼-MILE |
| 401125579 | MAP OF O&G WELLS IN AREA OF REVIEW |
| 401125686 | LIST OF MINERAL OWNERS ¼-MILE |
| 401125689 | MAP OF MINERAL OWNERS ¼-MILE |
| 401227990 | ANALYSIS OF INJECTION WATER |
| 401232692 | WELLBORE DIAGRAM-CURRENT |
| 401232693 | STEP RATE/INJECTIVITY TEST DOCUMENTATION |

Total Attach: 8 Files

General Comments

| User Group | Comment | Comment Date |
|-------------------|----------------|---------------------|
| | | Stamp Upon Approval |

Total: 0 comment(s)