

FORM

31

Rev 04/15

# State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



FOR OGCC USE ONLY

Document Number:

401624692

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 0

UIC Facility ID Required for Subsequent Form 31

### UIC FACILITY INFORMATION

Facility Name and Number: Cascade Creek

604-12-13  
SWD

County: GARFIELD

Facility Location: Lot 16 / 4 / 6S / 97W / 6

Field Name and Number:

GRAND VALLEY

31290

Facility Type: ☐ Enhanced Recovery☒ Disposal☐ Simultaneous Disposal

Single or Multiple Well Facility?

☒ Single☐ Multiple

Proposed Injection Program (Required):

PROCEDURE: Abandon Williams Fork and Cameo Perforations 1. Set BP @ 7100. 2. Place 50 linear feet Class G cement on CIBP. 3. Pressure test and chart 5-1/2" casing to 1500 psi for 15 minutes to verify well integrity. Cement Squeeze to Isolate Ohio Creek from Fort Union. 4. Perforate 4 x 1/2" holes @ 6180. 5. Set drillable cement retainer @ 6150 +/- .6. Squeeze 1.0 or more bbls class G cement through perforations. 7. Drill out retainer and cement. 8. Run CBL to verify cement. Prepare Well for Ohio Creek and Upper Williams Fork Injection Testing. 9. Perforate the following intervals: a. 6700-6702 – Williams Fork b. 6548-6550 – Ohio Creek c. 6494-6496 – Ohio Creek d. 6408-6410 – Ohio Creek e. 6344-6346 – Ohio Creek f. 6288-6290 – Ohio Creek 10. Set packer @ 6250 +/- with memory pressure gauge in tubing tail. 11. Pressure test and chart 5-1/2" casing to 1500 psi for 15 minutes to verify well integrity. Collect Proposed Injection Zone Water Samples for Analysis. 12. Swab well to collect 3 x 1 gallon samples of Ohio Creek formation water. (Recover 2 x the volume to the top perforation before collecting samples. Volume to top perforation = 25 bbls, so recover 50 bbls.) 13. Send water samples to lab for analysis. Pump Step Rate Test. 14. Install memory pressure gauges on tubing and casing. 15. Pump Step Rate Test as follows:

Step	Number	Step Time (minutes)	Duration (hours)	Time Cumulative (minutes)	Time Cumulative (hours)	Pump Rate (BPM)	Step Volume (BBLS)	Volume Cumulative (BBLS)
1	60	1.00	0.02	60	1.00	120	2.00	2.00
2	24	0.40	0.04	24	0.40	42	0.70	2.70
3	60	1.00	0.02	60	1.00	180	3.00	5.70
4	24	0.40	0.04	24	0.40	66	1.10	6.80
5	60	1.00	0.02	60	1.00	120	2.00	8.80
6	24	0.40	0.04	24	0.40	150	2.50	11.30
7	60	1.00	0.02	60	1.00	420	7.00	18.30
8	24	0.40	0.04	24	0.40	268	4.50	22.80
9	60	1.00	0.02	60	1.00	480	8.00	30.80
10	24	0.40	0.04	24	0.40	150	2.50	33.30
11	60	1.00	0.02	60	1.00	180	3.00	36.30
12	24	0.40	0.04	24	0.40	600	10.00	46.30
13	60	1.00	0.02	60	1.00	240	4.00	50.30
14	24	0.40	0.04	24	0.40	996	11.00	61.30
15	60	1.00	0.02	60	1.00	660	11.00	72.30
16	24	0.40	0.04	24	0.40	1296	12.00	84.30
17	60	1.00	0.02	60	1.00	720	12.00	96.30
18	24	0.40	0.04	24	0.40	360	6.00	102.30
19	60	1.00	0.02	60	1.00	1656	13.00	115.30
20	24	0.40	0.04	24	0.40	60	1.00	116.30
21	60	1.00	0.02	60	1.00	780	13.00	129.30
22	24	0.40	0.04	24	0.40	420	7.00	136.30
23	60	1.00	0.02	60	1.00	2076	14.00	150.30
24	2220	37.00	0.00	0	0.00	2076	TOTAL	2220 37 2220 37 2076

After pumping, shut in well upstream of the tubing pressure gauge. Continue collecting data for at least 1 full day even if surface tubing gauge indicates no pressure. 16. Recover all pressure gauges and send to Engineering.

### OPERATOR INFORMATION

OGCC Operator Number: 10433

Name of Operator: LARAMIE ENERGY LLC

Address: 1401 SEVENTEENTH STREET #1400

City: DENVER State: CO Zip: 80202

Contact Name and Telephone:

Name: Dan Fouts

Phone: (970) 263-3625 Fax: ( )

Email: dfouts@laramie-energy.com

### 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: 17605 mg/L Frac Gradient: 0.65 psi/ft Permeability: 100 mD  
Proposed Stimulation Program: ☐ Acid ☐ Frac Treatment ☐ None

FORMATION (Name): WILLIAMS FORK Porosity: 11 %  
Formation TDS: 17605 mg/L Frac Gradient: 0.65 psi/ft Permeability: 100 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 0 to 14400 bbls/day  
Surface Injection Pressure Range From 0 to 2500 psi  
FOR GAS: Daily Injection Rate Range From 0 to 0 mcf/day  
Surface Injection Pressue Range From 0 to 0 psi

Estimated Initial Injection Date: 8/1/2018

### **AREA OF REVIEW OIL and GAS WELL EVALUATION SUMMARY**

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

Area Review Date: 5/1/2018

Total number of Oil & Gas Wells within Area of Review: 32

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

Total within Area of Review	0
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	32
Number Requiring Casing Repair	0
Number To Be Plugged	0

Operator's Area of Review Contact Email: jproulx@laramie-energy.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: Joan Proulx

Signed: \_\_\_\_\_

Title: Regulatory Analyst

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: 0

**CONDITIONS OF APPROVAL, IF ANY:**

**COA Type**

**Description**

--	--

**Attachment Check List**

**Att Doc Num**

**Name**

401625511	WELLBORE DIAGRAM-CURRENT
401625512	WELLBORE DIAGRAM-PROPOSED
401625514	LIST OF MINERAL OWNERS ¼-MILE
401625519	MAP OF MINERAL OWNERS ¼-MILE
401625520	MAP OF SURFACE OWNERS ¼-MILE
401625521	LIST OF WATER WELLS ¼-MILE
401625525	MAP OF WATER WELLS ¼-MILE
401625528	MAP OF O&G WELLS IN AREA OF REVIEW
401625537	OTHER
401625548	OTHER
401628685	OIL & GAS WELL PLAT
401628686	SURFACE FACILITY DIAGRAM
401631463	OFFSET WELL EVALUATION

Total Attach: 13 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

		Stamp Upon Approval
--	--	---------------------

Total: 0 comment(s)