

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

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FOR OGCC USE ONLY

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**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: Cascade Creek    604-12-13    County: GARFIELD  
SWD

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)	Step Time (hours)	Time Cumulative (minutes)	Time Cumulative (hours)	Pump Rate (BPM)	Step Volume (BBLs)	Volume Cumulative (BBLs)
1	60	1	0.00	0	02	60	1
2	120	2	0.40	24	243	60	1
3	180	3	0.70	42	664	60	1
4	240	4	1.00	60	1265	60	1
5	300	5	1.33	80	2066	60	1
6	360	6	1.67	100	3067	60	1
7	420	7	2.00	120	4268	60	1
8	480	8	2.50	150	5769	60	1
9	540	9	3.00	180	75610	60	1
10	600	10	4.00	240	99611	60	1
11	660	11	5.00	300	129612	60	1
12	720	12	6.00	360	165613	60	1
13	780	13	7.00	420	207614	1440	24
14	2220	37	0.00	0	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) 852-1170    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 Pressure 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:

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: 160016

**CONDITIONS OF APPROVAL, IF ANY:**

**COA Type**                      **Description**

COA Type	Description

**Attachment Check List**

<b>Att Doc Num</b>	<b>Name</b>
401697443	OTHER
401697444	WELLBORE DIAGRAM-SUBSEQUENT
401697445	ANALYSIS OF INJECTION ZONE WATER
401697446	STEP RATE/INJECTIVITY TEST DOCUMENTATION
401697449	ANALYSIS OF INJECTION WATER

Total Attach: 5 Files

**General Comments**

<b>User Group</b>	<b>Comment</b>	<b>Comment Date</b>
		Stamp Upon Approval

Total: 0 comment(s)