

State of Colorado Oil and Gas Conservation Commission

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FOR OGCC USE ONLY Document Number: 400926623 Date Received: 12/08/2016

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 [X] Intent [ ] Subsequent UIC Facility ID 160000 UIC Facility ID Required for Subsequent Form 31

UIC FACILITY INFORMATION

Facility Name and Number: Buffalo Ridge Energy Services Facil County: WELD Facility Location: NWSE / 26 / 3N / 64W / 6 Field Name and Number: WATTENBERG 90750 Facility Type: [ ] Enhanced Recovery [X] Disposal [ ] Simultaneous Disposal Single or Multiple Well Facility? [X] Single [ ] Multiple

Proposed Injection Program (Required):

This is a deep injection well for disposal of Class II fluids. It will be part of a waste processing facility serving the oil and gas industry. This is a commercial operation.

OPERATOR INFORMATION

OGCC Operator Number: 10473 Contact Name and Telephone: Name: Jason Chan Name of Operator: WASTE MANAGEMENT OF COLORADO INC Phone: (303) 486-6063 Fax: (844) 840-2316 Address: 5500 SOUTH QUEBEC STREET #250 Email: jchan2@wm.com City: GREENWOOD VILLAGE State: CO Zip: d80111

INJECTED FLUID TYPE

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

(Check all that apply.)

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

[X] Other Fluids (describe):

Any other Class II (RCRA Subpart C exempt) waste.

Commercial Disposal Facility [X] Yes [ ] No Commercial UIC Bond Surety ID: 20160092

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

1. Oil and gas wells in southern Weld County
2. A waste facility is planned. Construction drawings are attached. The rest of the facility is being permitted by CDPHE.
3. E&P liquid waste.
4. Solid and liquid waste recycling and solid waste landfill (permitted by CDPHE).

**PROPOSED INJECTION FORMATIONS**

FORMATION (Name): <u>ADMIRE</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>AMAZON</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>ATOKA</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>COUNCIL GROVE</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>DENVER BASIN COMBINED DISPOSAL ZONE</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>DES MOINES</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>FOUNTAIN</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>LOWER SATANKA</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>LYONS</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	
FORMATION (Name): <u>MISSOURI</u>	Porosity: _____ %
Formation TDS: _____ mg/L	Frac Gradient: _____ psi/ft
Permeability: _____ mD	
Proposed Stimulation Program: <input type="checkbox"/> Acid <input type="checkbox"/> Frac Treatment <input checked="" type="checkbox"/> None	

FORMATION (Name): VIRGIL Porosity: \_\_\_\_\_ %  
 Formation TDS: \_\_\_\_\_ mg/L Frac Gradient: \_\_\_\_\_ psi/ft Permeability: \_\_\_\_\_ mD  
 Proposed Stimulation Program:  Acid  Frac Treatment  None

FORMATION (Name): WOLFCAMP Porosity: \_\_\_\_\_ %  
 Formation TDS: \_\_\_\_\_ mg/L Frac Gradient: \_\_\_\_\_ psi/ft Permeability: \_\_\_\_\_ 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 10000 bbls/day  
 Surface Injection Pressure Range From 0 to 1438 psi  
 FOR GAS: Daily Injection Rate Range From \_\_\_\_\_ to \_\_\_\_\_ mcf/day  
 Surface Injection Pressue 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: 11/30/2016

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	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	21
Number Requiring Casing Repair	0
Number To Be Plugged	0

Operator's Area of Review Contact Email: \_\_\_\_\_

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: Denise M. Onyskiw, P.E. Signed: \_\_\_\_\_  
 Title: Engineer Date: 12/8/2016 9:50:15 PM

COGCC Approved:  Date: 03/01/2017

Form 31 - Intent Expiration Date: 09/01/2017

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: 160000

CONDITIONS OF APPROVAL, IF ANY:

COA Type	Description
	<p>1. Injection is not authorized until approval of Subsequent Forms 31 and 33.</p> <p>2. PRIOR TO PERFORMING OPERATIONS: Operator is required to contact COGCC to discuss Step Rate Test or Injectivity Test criteria for Maximum Surface Injection Pressure determination. Prior approval of Form 4 is required for step rate and injectivity tests.</p> <p>3. PRIOR TO PERFORMING OPERATIONS: Approval of Form 4 is required for acid and fracturing jobs. (New as of 4/13/2016).</p> <p>4. Retrieve water sample(s) from injection zone(s) before stimulating formation. Samples must be analyzed for Total Dissolved Solids at a minimum.</p> <p>5. For ALL NEW DRILL UNDERGROUND INJECTION WELLS a suite of open-hole Resistivity/Gamma Ray and Density/Neutron logs IS REQUIRED from Surface Casing shoe to TD. A PDF, TIFF, or PDS visual image and a LAS or DILS file version of each log is required.</p> <p>6. For all new and converted Underground Injection Control wells a Cement Bond Log (CBL) is required on the cased portions of the hole from the bottom of the casing to the top of the next shallower casing string for all casing strings other than the Surface Casing. Only a PDF, TIFF, or PDS visual image is required.</p> <p>7. Operator must provide all tops of formations encountered from surface to TD on the Form 5 when submitted.</p>
	"Any other Class II (RCRA Subpart C exempt) waste." as cited in the Injected Fluid Tab will require a Form 14A-Authorization of Source of Class II Waste For Disposal and Forms 14-Monthly Report of Non-Produced Water Injected as needed.

### Attachment Check List

Att Doc Num	Name
400926623	FORM 31-INTENT-SUBMITTED
401095692	SURFACE FACILITY DIAGRAM-AREA
401100364	MAP OF SURFACE OWNERS ¼-MILE
401100365	LIST OF O&G AND WATER WELLS ¼-MILE
401100368	LIST OF MINERAL OWNERS ¼-MILE
401100369	NOTICE TO SURFACE & MINERAL OWNERS
401151756	PROOF OF PUBLICATION-GENERAL
401160993	CERTIFIED MAIL RECEIPT(S)
401161012	MAP OF MINERAL OWNERS ¼-MILE
401161046	MAP OF O&G WELLS IN AREA OF REVIEW
401161048	SURFACE FACILITY DIAGRAM-LANDFILL OPS
401161078	OFFSET WELL EVALUATION
401164053	WELLBORE DIAGRAM-PROPOSED
401222299	OTHER
401222302	HYDROLOGY EVALUATION

Total Attach: 15 Files

### General Comments

User Group	Comment	Comment Date
UIC	Operator is the Surface Owner at the wellhead. Therefore no Surface Use Agreement required. See statement on page 1 of Surface and Mineral Owners List Doc # 401100368.	03/01/2017
UIC	Surface Facility Diagram Doc 401095692 created August 2016 shows general layout. Surface Facility Diagram Doc 401161048 shows detail of Landfill Facility.	02/27/2017
UIC	Returned to DRAFT for corrections and updates to attachments. Operator needs to fill out all injected formations not just the acronym (DJINJ) used for Form 7 reporting. Document was resubmitted 12/8/2016.	11/30/2016
UIC	Form 2 submitted 6/16/2016.	10/31/2016

Total: 4 comment(s)