

STATE OF WYOMING
DEPARTMENT OF ENVIRONMENTAL QUALITY
UNDERGROUND INJECTION CONTROL PERMIT ISSUED UNDER
WYOMING WATER QUALITY RULES AND REGULATIONS
CHAPTER 16

CLASS V INJECTION WELL

(X) New
() Modified
() Renewal

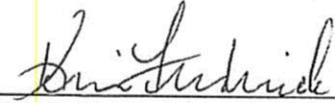
Permit Number: **15-081**
Previous Permit: None
Facility Number WYS-037-00199

In compliance with the Wyoming Environmental Quality act (W.S. 35-11-101 through 1104, specifically 301(a)(i) through 301(a)(iv), Laws 1973, Ch. 250, Section 1) and Wyoming Water Quality Rules and Regulations, Chapter 27.

Applicant: Lost Creek ISR, LLC
5880 Enterprise Dr., Ste 200
Casper, WY 82609
(307) 265-2373

Lost Creek ISR, LLC, hereafter referred to as the permittee, is authorized to operate two injection wells, M-FG6 and M-FG7, according to the procedures and conditions of application 15-081 and requirements and other conditions of this permit. Issuance of this permit does not obligate the Department of Environmental Quality to approve injection if doing so would endanger human health or the environment or if the wells do not comply with all terms and conditions of this permit (WQRR Chapter 27, Section 7(d)(vii)(B)).

This is an area permit for the M-FG6 and M-FG7 wells. No additional wells may be constructed under this permit without prior permit modification. This permit shall become effective on date of issuance and is valid until February 8, 2026.



Kevin Frederick, Administrator
Water Quality Division
Herschler Building 4-W, 122 West 25th Street, Cheyenne, WY 82002

June 8, 2016
Date



Todd T. Parfitt, Director
Department of Environmental Quality
Herschler Building 4-W, 122 West 25th Street, Cheyenne, WY 82002
JP/CB/rm/16-0573
Ref # 16-0070

June 8, 2016
Date

ACRONYMS

AOR	Area of review
APFT	Annual pressure fall-off test
bbl/day	Barrels per day (standard barrel equals 42 gallons)
bgs	Below ground surface
CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality
EDD	Electronic data deliverable
ft	Feet
F	Fahrenheit
g/cm ³	Grams per cubic centimeter
gpm	Gallons per minute
ISR	In-situ recovery
LSIP	Limiting surface injection pressure (maximum injection pressure which cannot be exceeded at any time other than well stimulation)
MIT	Mechanical integrity test
mg/L	Milligrams per liter
NAICS	North American Industry Classification System
pCi/L	Pico curies per liter
PLSS	Public lands survey system
psi	Pounds per square inch
psia	Pounds per square inch, absolute
psig	Pounds per square inch, gage
PVC	Poly-vinyl chloride
SAP	Sampling and Analysis Plan
SIP	Surface injection pressure
s.u.	Standard units
UIC	Underground Injection Control
USEPA	United States Environmental Protection Agency (EPA)
WDEQ	Wyoming Department of Environmental Quality
WQD	Water Quality Division of WDEQ
WQRR	Water Quality Rules and Regulations

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1. **WELL LOCATIONS AND AREA OF REVIEW**

a. The well(s) authorized by this permit are located as shown on Table 1.

TABLE 1. Well Location(s)

Well Name	Legal Description	Latitude	Longitude
M-FG6	NW¼NW¼SE¼ Section 18; T25N; R92W	42.138509	-107.859310
M-FG7	NW¼NW¼SE¼ Section 18; T25N; R92W	42.138258	-107.826213

NOTE: Latitude and Longitude reference NAD 83

b. The AOR for a Class V injection well is the maximum area affected by injected waste. The AOR is based on the larger of the radius of volume of emplaced waste cylinder or the minimum radius required. The results of the AOR calculations (WQRR Chapter 27, Section 9(c)(iv)(A)) are shown in Table 2. The AORs for the M-FG6 and M-FG7 wells are based on the area of the radius of emplaced waste. Calculations for the area of emplaced waste for the injection wells are based on a fourteen (14) year operational life of the facility, a variable injection rate of 2,057 to 5,143 bbl/day depending on the operation phase of the facility, a porosity of 25%, and an injection zone of 265 ft thick. In addition, the faults bounding the area were considered no-flow boundaries which served to elongate the radii of emplaced waste cylinders and create roughly ovoid shapes.

TABLE 2. Area of Review Summary

Well Name	East-West Radius of Emplaced Waste Ovoid (ft)*	Radius of Area of Emplaced Waste Cylinder (ft)
M-FG6	2,000	843
M-FG7	2,000	843

* Using the north and south faults as no-flow boundaries.

c. The combined AOR (WQRR Chapter 27, Section 9(c)(iv)(C)) for both wells is described using the PLSS to the nearest ten (10) acres in Table 3.

TABLE 3. Legal Description(s) of the Area(s) of Review

Well Name	Quarter-Quarter-Quarters	Section	Township/Range
M-FG6 and M-FG7	NE¼NW¼SW¼	18	T25N; R92W
	SW¼SE¼NW¼		
	NE¼SW¼ except SW¼		
	S½SW¼NE¼		
	NW¼SE¼		
	SE¼NE¼ except NW¼		
	NE¼SE¼ except SE¼		
	NW¼NW¼SW¼	17	

Well Name	Quarter-Quarter-Quarters	Section	Township/Range
M-FG6 and M-FG7 (cont.)	SW¼SW¼NW¼		T25N; R92W

2. DISCHARGE ZONES

- a. The authorized discharge zone is defined as the upper Battle Spring Formation, located from ground surface to approximately 500 feet below ground surface (ft-bgs). The injection well(s) are authorized to inject into the upper Battle Spring Formation within the interval(s) specified in Table 4. Fluid may migrate above and/or below the perforations as long as it remains within the discharge zone.

TABLE 4. Discharge Zone(s)

Well Name	Surface Elevation (ft-amsl)	Depth to Top of Perforated Interval (ft-bgs)	Depth to Bottom of Perforated Interval (ft-bgs)	Gross Discharge Zone Thickness (ft)	Well Depth (ft-bgs)
M-FG6	6,980	190	410	220	445
M-FG7	6,983	190	455	265	460

- b. If the permittee determines that the authorized discharge zones identified in Table 4 are inadequate, and additional discharge zones are necessary, a permit modification will be required. The Permittee must make application for a permit modification and the request shall be supported by data approved by the Administrator. Discharge into the additional discharge zones may not occur until authorized by a permit modification approved by the Administrator.

3. GROUNDWATER CLASSIFICATION

- a. The groundwater in the upper Battle Springs Formation is classified as Class IVA (industrial) according to WQRR, Chapter 8. This classification is made due to:
 - i. Class IVA (industrial) groundwater of the State does not have a TDS concentration in excess of 10,000 mg/L.
 - ii. The groundwater in the formation contains naturally occurring concentrations of total iron at 1.03 mg/L (> 0.3 mg/L), gross alpha (minus radon and uranium contribution) at 57 pCi/L (> 15 pCi/L), and radium 226+228 at 5.4 pCi/L (> 5 pCi/L). *See Tables 3-1 and 3-2 to UIC Permit Application #15-081.*
- b. The aquifer Class IVA designation is limited to the volume of emplaced waste ovoid for each well shown in Table 2. The Class IVA designation extends 2,000 ft to the east and west of M-FG6 and MG-7 and is bounded on the north and south by identified faults. All waste injected over the life of this facility is calculated to remain within the fourteen (14) year volume of emplaced waste ovoid identified in Table 2 and the permitted mine boundary.

4. PRE-INJECTION REQUIREMENTS

Injection into a well may not begin until written authorization to discharge is provided by the Administrator. The authorization to discharge will not be provided until the following are completed to the satisfaction of the Administrator:

- a. For each injection well, the permittee shall collect a baseline groundwater quality sample from the discharge zones (WQRR Chapter 27, Section 9(c)(vii)) and submit results for all the analytes and parameters in WQRR Chapter 8, Table I plus total uranium. The methods and procedures for sample collection and analysis must be approved by the WQD prior to sampling.

5. AUTHORIZED OPERATIONS

- a. The maximum instantaneous injection rate for each well shown in Table 5 is allowed provided that the LSIP is not exceeded.
- b. The injection pressure in each injection well shall be limited to the LSIP shown in Table 5.
 - i. Exceeding the LSIP in Table 5 or creating or propagating fractures within the receiver once waste disposal has commenced are violations of this permit and shall be reported pursuant to Section 12 of this permit.
 - ii. The LSIP in Table 5 is a temporary limit. The temporary limit applies until a step-rate injection test has been conducted and the recalculated LSIP has been approved by the Administrator.
 - iii. The permittee shall conduct a step-rate injection test within one (1) year of permit issuance or well construction or modification, whichever comes later, to determine the actual fracture pressure of the receiver.
 - iv. The permittee may conduct additional step-rate injection tests at their discretion to refine estimates of the SIP as injection continues. The SIP will be used to recalculate the LSIP.
 1. Step-rate injection tests shall be conducted using surface pressure gauges or transducers. For a conclusive result, at least three of the injection rate steps below the fracture threshold will be collinear. Upon completion of the step-rate injection test, the permittee shall recalculate the LSIP.
 2. If the recalculated LSIP is greater than the permitted LSIP in Table 5, the permittee must obtain the approval of the Administrator before operating the well at a pressure above the permitted LSIP.
 3. If the recalculated LSIP is less than the permitted LSIP in Table 5, the permittee must cease injection and not restart discharge until the wellhead pressure can be maintained below the recalculated LSIP.
 - v. Digital data, analyses, and interpretations for the step-rate tests shall be submitted to the Administrator within thirty (30) days or with the next quarterly report after the test is done, whichever is later.

**Table 5. Maximum Injection Rates
and Surface and Limiting Surface Injection Pressures (SIP, LSIP)**

Parameter	M-FG6	M-FG7
Maximum Injection Rate (bbl/day)	6,857	6,857
Maximum Injection Rate (gpm)	200	200
Estimated Fracture Gradient, F (psi/ft)	0.7	0.7
Fracture Pressure, $P_f = F \cdot D_p$	133	133
Depth to Top of Formation, D_p (ft) (bgs)	190	190
Maximum Total Dissolved Solids of Injectate (mg/L)	500	500
Density of Injectate, ρ_i (g/cm ³)	1	1
Injectate Fluid Gradient (psi/ft) $grad_j = \rho_j \cdot 12 \frac{\text{in}}{\text{ft}} \cdot 16.387 \frac{\text{cm}^3}{\text{in}^3} / 453.592 \frac{\text{g}}{\text{lb}}$	0.4335	0.4335
Hydrostatic Pressure (psi) $P_h = D_p \cdot grad_j$	82	82
Tubing Length, T_L (feet)	190	190
Tubing Inside Diameter, d (inches)	4.33	4.33
Average Injection rate, q (gpm)	150	150
Pressure Loss due to Tubing Friction (psi/ft) ^a $P_d = (4.52q^{1.85}) / (c^{1.85} d^{4.8655})$	0.00362	0.00362
Total Pressure Loss from Tubing Friction (psi) $P_L = P_d T_L$	0.688	0.688
$SIP = P_f - P_h + P_L$ (psig)	50	50
$LSIP = 0.9 \cdot SIP$ (psig)*	45	45

^a c = Hazen-Williams design coefficient for PVC piping, 150

6. PERMITTED WASTES

a. General Information

- i. Wastes approved for disposal include treated wastewater generated from ISR mining solutions, water derived from plant processes, chemistry lab waste water, water generated from ground-water restoration, water from UIC Class I and Class III wells during drilling, completion and maintenance.
- ii. All wastes accepted under any authorization contained in this permit shall be neutralized to a pH of greater than 6.5 and less than 9.0 s.u.

b. Water Treatment

- i. Prior to injection, the water will be treated with:
 1. Ion exchange to remove uranium
 2. Reverse osmosis to remove total dissolved solids, radionuclides and metals
 3. Dowex Complexer resin to remove radium

7. PROHIBITIONS

- a. This permit does not allow for the injection of any hazardous waste as defined in 40 CFR 261.3 or in Wyoming Solid Waste Management Rules and Regulations, Chapter 2. Injection of any substance defined as a hazardous waste, whether hazardous by listing or by characteristic is a violation of this permit and requires

notification under Section 10 of this permit. (WQRR Chapter 27, Section 20(d)(iii)).

- b. No person shall conduct any authorized injection activity in a manner that results in a violation of any permit condition or representations made in the application (WQRR Chapter 27, Section 20(a)(i)).
- c. No person shall conduct any authorized injection activity in a manner that results in a discharge to any zone other than the authorized discharge zone (WQRR Chapter 27, Section 20(d)(i)).
- d. No person shall construct, install, modify, or improve this authorized injection facility except in compliance with this permit (WQRR Chapter 27, Section 20(a)(ii)).

8. GENERAL OPERATION AND MAINTENANCE

- a. North American Industry Classification System (NAICS) – 212291 – Uranium-Radium-Vanadium Ore Mining.
- b. An automatic kill switch shall be installed on the injection tubing and set to preclude violations of LSIP limits found in Table 5.
- c. The operator shall maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes mechanical integrity of the well, effective performance, adequate funding, operator staffing and training, and laboratory and process controls, including quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit. (WQRR Chapter 27, Section 6(h)(iii)(E)).
- d. The permittee is required to operate in accordance with statements, representations, and procedures presented in the complete permit application and supporting documents as accepted and approved by the Administrator. If such procedures conflict with those in this permit, the conditions in this permit shall take precedence (WQRR Chapter 27, Section 6(h)(iii)(E)).
- e. Measuring and recording devices shall be tested and calibrated at a frequency sufficient to ensure accurate and precise measurements. A record of the date of the most recent calibration or maintenance shall be retained at the well site.
- f. Well stimulation (excluding swabbing and air lifting) requires prior approval of the Administrator.
- g. Each time a well is re-entered, a well workover report and mechanical integrity test (MIT) as per Section 2.2.2 of the permit application shall be submitted to the

Administrator within thirty (30) days or with the next quarterly report after the test is done, whichever is later.

- h. A comprehensive report for any aborted or curtailed operation, which results in the complete termination of discharge or associated activity, shall be submitted to the Administrator within thirty (30) days of termination in lieu of an annual report (WQRR Chapter 27, Section 6(h)(iii)(Q)).

9. MONITORING AND REPORTING

a. Environmental Monitoring

- i. Operators shall employ the sampling and analysis requirements specified below, or develop a site-specific SAP as per the requirements specified in WQRR, Chapter 16, Sections 6 and 11 for approval by the Administrator. The SAP shall insure that the pre-treatment plan for the ISR wastes are not discharging any toxic substances to groundwater at concentrations greater than the background groundwater concentration.
- ii. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity (WQRR Chapter 27, Section 6(h)(iii)(K)). A groundwater sample is considered representative of the aquifer being monitored when the well has been purged to remove stagnant water prior to collection of a sample for laboratory analysis. Purging can be considered complete when a sufficient volume of water has been removed from the well and stabilization of select groundwater parameters has been achieved. It is important to record the circumstances surrounding each sample collection event at your facility. These records can help resolve analytical discrepancies. One or both purging methods below shall be used prior to sample collection:

1. Purge by Volume Method

Removal of a *minimum* of three casing volumes of water from the well should be completed prior to collecting a groundwater sample. Minimum purge volume can be calculated by the following equation:

$$\text{Minimum Purge Volume} = 3 * ((\text{Total Well Depth in feet} - \text{Depth to Water in feet}) * \text{Well Capacity})$$

Where Well Capacity (gallons per foot) is based on well diameter:

2 inch well = 0.163	6 inch well = 1.47
4 inch well = 0.653	8 inch well = 2.61

2. Stabilization of Parameters Method

Purging of groundwater until select field parameters have stabilized can be used to demonstrate that a representative sample was collected. Field parameters measured during purging should include at a minimum: temperature, pH, and specific conductance. Field parameters should be measured after removal of every half casing volume of water.

Half Casing Volume

$$= 0.5 * ((\text{Total Well Depth in feet} - \text{Depth to Water in feet}) * \text{Well Capacity})$$

Where Well Capacity (gallons per foot) is based on well diameter:

2 inch well = 0.163

6 inch well = 1.47

4 inch well = 0.653

8 inch well = 2.61

A minimum of six (6) parameter measurements should be collected. If field parameters have not stabilized between the last three readings, purging and parameter measurement should continue until stabilization has been achieved. Stabilization can be demonstrated by a variance of no more than +/- 10% for temperature and specific conductance, and +/- 0.2 standard units for pH.

- iii. The permittee shall use EDD reporting when required by the Administrator.
- iv. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.
- v. The permittee shall retain all records concerning the nature and composition of injected fluids until five (5) years after completion of any specified plugging and abandonment procedures. The Administrator may require the owner/operator to deliver the records to the administrator at the conclusion of the retention period.
- vi. The permittee shall report any noncompliance which may endanger health or the environment within twenty-four (24) hours from the time the operator becomes aware of the circumstances. The report should include:
 1. Any monitoring or other information which indicates that any contaminant may cause an endangerment to a usable groundwater of the state;
 2. Any noncompliance with a permit condition or malfunction of the discharge (injection) system which may cause fluid migration into or between usable ground waters of the state;
 3. A written submission shall be provided within five (5) days of the time the operator becomes aware of the circumstances. This written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
 4. The Administrator may require remediation and/or site cleanup in the event of groundwater or soil contamination attributed to injection activities occurring at the permitted facility.
- vii. The monitoring reports shall be submitted on forms provided by the Department. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than forty-five (45) days following each schedule date. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

- viii. The permittee shall monitor the quality of the injectate quarterly, prior to injection, and when significant process changes occur, and when operating changes may significantly alter the waste stream.
- ix. Table 6 lists the parameters and methods to be analyzed quarterly and the associated permitted limits. WQD may approve alternate methods to those in Table 6 upon receipt of a written request describing the procedures, precision, and accuracy of the proposed method and a comparison of the proposed method with that in Table 6.
- x. The first two (2) parameters in Table 6 shall be measured at the sample site unless other methods are approved by the Administrator. The other analyses shall be performed by an EPA-certified laboratory. Metals shall be reported as total values, not dissolved.
- xi. Exceedances of the values in Table 6 are a violation of this permit and require notification under Section 10 of this permit.

Table 6. Groundwater Monitoring Schedule

Sample Point Name or Number	Sampling Schedule	Analyte or Parameter	EPA Analytical Method	Permit Limit (mg/L)
Injectate	Quarterly	Temperature in °F	SM2550 B	--
		pH	150.1 or SM4500H+B	6.5 ≤ pH ≤ 9 s.u.
		Specific Gravity	ASTM D1429	--
		Total Dissolved Solids	160.1 or SM2540 C	500 mg/L
		Uranium (natural)	E200.8	0.158 mg/L ¹
		Lead 210 ²	E900.0	10 pCi/L
		Polonium 210 ²	H Po-02-RC	40 pCi/L
		Thorium 230 ²	E908.0	100 pCi/L
		Radium 226 + 228	E903.0 and RA-05	5.4 pCi/L ¹
		Gross Alpha ³	E900.0	57 pCi/L ¹
		Gross Beta	E900.0	15 pCi/L ¹
Monitoring Wells (M-FG8, M-FG9, M-FG10, M-FG6 ⁴ /new monitoring well)	Semi-annually	Temperature in °F	SM2550 B	--
		pH	150.1 or SM4500H+B	6.5 ≤ pH ≤ 8.5 s.u.
		Specific Gravity	ASTM D1429	--
		Total Dissolved Solids	160.1 or SM2540 C	500 ^{1a}
		Radium 226 + 228	E903.0 and RA-05	5.4 pCi/L ¹
		Gross Alpha ³	E900.0	57 pCi/L ¹
		Gross Beta	E900.0	15 pCi/L ¹
		Top of Casing Elevation (one time)	--	--
		Static Water Level	--	--

Note: Methods preceded by "SM" are standard methods.

¹ – Permit limits based on background water quality samples

^{1a} – Permit limits based on the greater of background or Chapter 8 Class I standards

² – Permit limits derived by EPA from 10 CFR part 20 Appendix B Table 28

³ – Gross alpha including Radium 226, and excluding radon and uranium

⁴ – M-FG6 to be used as a monitoring well for M-FG7 until it is put in use as an injection well. A new monitoring well, permitted by Land Quality, will be required at that time.

xii. The following units are to be used where applicable:

1. Pressure - pounds (mass) per square inch for pressure with gauge or absolute pressure noted (psig or psia)
2. Volume - standard oil field barrels (bbl, equivalent to 42 gallons) for fluid volume
3. Fluid Flow Rate - bbl/day for fluid flow rates
4. Concentration - mg/L for analyte concentrations other than pH in s.u., or radium, radioactive strontium isotopes, and gross alpha particle radioactivity in pCi/L.

xiii. Quality Assurance - A duplicate sample shall be collected at least once per year. Blank and duplicate results and chain-of-custody forms shall be included in the quarterly reports.

b. Environmental Reporting Requirements

i. Quarterly Reports shall be submitted to the Administrator no later than thirty (30) days after the end of each calendar quarter ((WQRR Chapter 27, Section 6(h)(iii)(Q)). The quarterly results shall also be submitted online at <https://gem.wqd.apps.deq.wyoming.gov>, within forty-five (45) days of the end of quarter. The written quarterly report for each well shall include the following information:

1. Injection rates for each month of the quarter, including:
 - i. Minimum instantaneous
 - ii. Volume-weighted average
 - iii. Maximum instantaneous
 - iv. Maximum permitted injection rate
2. Injection pressure for each month of the quarter, including:
 - i. Minimum daily
 - ii. Average daily
 - iii. Maximum daily
 - iv. Maximum permitted injection pressure
 - v. Pressures at which alarms or kill switches are activated
3. Injection volume per well, including:
 - i. Total volume for each month
 - ii. Total volume for the quarter
 - iii. Total volume to date
4. Analytical results required by Table 6 of this permit.
5. Any permit exceedances within the quarter.

6. Description of all events that triggered alarms or shutdowns and the responses taken during the quarter.
 7. Reports for any well tests or well work overs conducted more than thirty (30) days before the end of the quarter.
- ii. Records of Monitoring Information shall include:
1. The date, exact place, and time of sampling or measurements.
 2. The name(s) of individual(s) who performed the sampling or measurements.
 3. The types of sample containers used, methods of preservation, and holding times.
 4. The date(s) analyses were performed.
 5. The name(s) of individual(s) who performed the analyses.
 6. The analytical techniques or methods used.
 7. The results and precision of such analyses.
 8. Chain of Custody forms.
- iii. Record Retention
1. The permittee shall retain records of all monitoring information including all calibration and maintenance records for a period of three (3) years after closure of the facility, at which time the permittee shall notify the Administrator and either deliver the records to WQD or discard them as directed by the Administrator.

10. NON-COMPLIANCE REPORTING

- a. Any permit noncompliance constitutes a violation of WQRR Chapter 16 and is grounds for enforcement action, permit termination, revocation, or modification. (WQRR Chapter 27, Section 6(h)(iii)(A))
- b. Confirmed noncompliance resulting in a migration of injected fluid outside the discharge zone shall be reported to the Administrator at (307) 777-7781 **within twenty-four (24) hours** from the time the permittee becomes aware of the circumstances and a written report shall be provided **within five (5) days** (WQRR Chapter 27, Section 6(h)(iii)(R)).
 - i. The oral report should include:
 1. Any monitoring or other information which indicates that any contaminant may cause an endangerment to a useable groundwater of the state.
 2. Any noncompliance with a permit condition or malfunction of the discharge (injection) system which may cause fluid migration into or between useable groundwaters of the state.
 - ii. The written report should include:
 1. A description of the noncompliance and its cause;
 2. The period of noncompliance, including exact dates and times;
 3. The operator shall prepare an estimate of the volume and quality of all wastewaters which were injected outside of the discharge zone. In the case

where any aquifer meeting the standards for Class I through IV(B) under WQRR, Chapter 8, has been contaminated due to out of zone injection, the operator shall prepare and implement a plan to recover these solutions to the extent practicable. The estimate of volume and quality of wastewater, and the plan to recover the solutions, if necessary, shall be provided to the Administrator within ninety (90) days of the notification date. The plan shall be immediately implemented upon WDEQ approval. Injection shall not resume until the well has been repaired, a Part I MIT has been passed, and written permission to resume operation has been obtained from the Administrator;

4. If the noncompliance has not been corrected, the anticipated time it is expected to continue, and
5. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

11. WHERE TO SUBMIT REPORTS

All reports submitted in conjunction with this permit including but not limited to permit transfers, monitoring reports, well test reports etc. shall be addressed to: UIC Program Supervisor, WDEQ – Water Quality Division, Herschler Building – 4W, 122 W. 25th St., Cheyenne, WY, 82002. This includes any information the operator is required to submit to the Administrator.

12. PERMIT CONDITIONS

- a. This permit is valid until the date specified on Page 1 of this permit. If the permittee wishes to continue injection after the expiration date of this permit, a renewal application should be submitted to the Administrator at least four (4) months prior to the expiration date of this permit (WQRR Chapter 27, Section 6(h)(iii)(B)).
- b. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit (WQRR Chapter 27, Section 6(h)(iii)(C)).
- c. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.
- d. The filing of a request by the permittee, or at the instigation of the Administrator, for permit modification, revocation, or termination, or the notification of planned changes or anticipated noncompliance shall not stay any condition of this permit (WQRR Chapter 27, Section 6(h)(iii) (F)). After notice and opportunity for a hearing, the Administrator may modify or revoke a permit, in whole or in part, during its term for cause. Causes include, but are not limited to, the following:
 - i. Noncompliance with terms or conditions of this permit (WQRR Chapter 27, Section 7(d)(xi)(A)).

- ii. Failure in the application or during the issuance process to disclose fully all relevant facts, or misrepresenting any relevant facts at any time (WQRR Chapter 27, Section 7(d)(xi)(B)).
- iii. A determination that the activity endangers human health or the environment and can only be regulated to acceptable levels by a permit modification or termination (WQRR Chapter 27, Section 7(d)(xi)(C)).
- e. This permit will be reviewed by WQD at least once every five (5) years, and may be reviewed more frequently (WQRR Chapter 27, Section 6(c)). Permits that do not satisfy the review criteria are subject to modification, revocation and reissuance, or termination (WQRR Chapter 27, Section 6(c)).
- f. The conditions in this permit supersede any application content.
- g. To comply with the Governor's Executive Order 2011-5 on Greater Sage-Grouse Core Area Protection, the Permittee shall ensure that all activities and habitat disturbances related to injection well(s) authorized by this permit are covered by the relevant Wyoming Game and Fish Department stipulations to protect sage grouse habitat.

13. DUTIES OF THE PERMITTEE

- a. The permittee shall comply with all conditions of this permit (WQRR Chapter 27, Section 6(h)(iii)(A)), all rules and regulations of the WDEQ, and all applicable state and federal laws. Nothing in this permit relieves the permittee of any duties under applicable regulations.
- b. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit (WQRR Chapter 27, Section 6(h)(iii)(D)).
- c. The permittee shall give advance notice to the Administrator as soon as possible of any planned physical alteration or additions, other than authorized operation and maintenance, to the permitted facility and receive authorization prior to implementing the proposed alteration or addition (WQRR Chapter 27, Section 6(h)(iii)(M)).
- d. The permittee shall give advance notice to the Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements (WQRR Chapter 27, Section 6(h)(iii)(N)).
- e. The permittee shall furnish the Administrator within a reasonable time, any information which the Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. (WQRR Chapter 27, Section 6(h)(iii)(H)).
- f. The permittee shall furnish the Administrator, upon request, copies of records

required to be kept by this permit (WQRR Chapter 27, Section 6(h)(iii)(H)).

- g. Any modification that will result in a violation of any permit condition shall be reported to the Administrator through the submission of a new or amended permit application and shall not be implemented until a new or modified permit has been issued (WQRR Chapter 27, Section 6(h)(iii)(N)).
- h. The permittee shall report all instances where it becomes aware that it failed to submit any relevant facts in the permit application, or where it submitted incorrect information in a permit application or in any report to the Administrator, and shall promptly submit such facts or information (WQRR Chapter 27, Section 6(h)(iii)(T)).
- i. Monitoring and test results shall be obtained and reported at the intervals specified elsewhere in this permit (WQRR Chapter 27, Section 6(h)(iii)(P)).
- j. The permittee shall report any changes to physical or mailing address, phone, or email, and any changes of the personnel responsible for complying with this permit to WQD within one (1) month of the change.

14. PLUGGING AND ABANDONMENT

- a. Any injection well under this permit is required to be covered under the Land Quality Division Reclamation Bond for the mine, and shall be plugged and abandoned within six (6) months after:
 - i. Permit expiration (unless application for a new permit has been made and has not been denied by the Administrator) or permit termination; or
 - ii. Final cessation of injection activities; or
 - iii. The permittee has removed equipment required for the proper operation and monitoring of the well (except for temporary removal during well maintenance).
- b. The permittee shall notify the Administrator of plans to convert or abandon a well at least **ninety (90) days prior** to the start of any conversion or abandonment activity (WQRR Chapter 27, Section 6(h)(iii)(V)). The permittee shall follow the plugging and abandonment procedure described in the application or subsequently prescribed by the Administrator (WQRR Chapter 27, Section 6(h)(iii)(W)). The procedure shall include well plugging, abandonment, surface reclamation and seeding of the well site, closure of related surge ponds, and removal or purging and plugging of any underground piping. Well plugging shall meet the requirements of Chapter 26, Section 6 for sealing the well annulus and of Chapter 26, Section 9 for sealing within casing. In no case shall the procedure be less stringent than that required by USEPA for Class I non-hazardous waste disposal wells at the time of abandonment (e.g., Title 40 Code of Federal Regulations Part 146.10)
- c. The permittee shall submit a plugging and abandonment report **within thirty (30) days** after plugging and abandonment of any wells covered by this permit, detailing the compliance with the plugging and abandonment procedures outlined in the

original permit application, and describing any deviation from the original plan (WQRR Chapter 27, Section 6(h)(iii)(W)).

15. PERMIT TRANSFER

- a. Any transfer of this permit shall be accomplished by the submission of the proper forms for permit transfer to the Administrator. Transfer of this permit must be approved by the Director and the Administrator and no transfer shall be approved unless the proposed permittee agrees to correct any and all noncompliance issues (WQRR Chapter 27, Section 6(h)(iii)(O)).
- b. The permittee is alone responsible for the operation of the facility covered by this permit. Operation of this facility by another entity is a violation of this permit unless a transfer of this permit has first been accomplished.

16. SIGNATORY REQUIREMENTS

- a. All reports filed in conjunction with this permit shall contain the following certification (WQRR Chapter 27, Section 6(h)(iii)(L)):

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (WQRR Chapter 27, Section 6(f)(xv)).
- b. All reports required by this permit and other requested information shall be signed by a responsible officer as described in WQRR Chapter 27, Section 6(f)(xiv); or by a duly authorized representative. A person is a duly authorized representative only if:
 - i. The authorization is made in writing by one of the prescribed principals;
 - ii. The authorization specifies either an individual or position having responsibility for the overall operation of the regulated facility or activity; and
 - iii. The written authorization is submitted to the Administrator.
- c. If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be submitted to the Administrator prior to, or together with, any reports or information to be signed by the new authorized representative.

17. ENTRY AND INSPECTION

- a. The permittee shall allow the Administrator, or an authorized representative for the Administrator (upon presentation of credentials and during normal working hours), to enter the premises where a regulated facility is located, or where records are kept for the purpose of inspections, testing and resource data collection under the conditions

of this permit, and perform any other function authorized by law or regulation (WQRR Chapter 27, Section 6(h)(iii)(I)).

- b. Inspectors shall not be required by the permittee to sign any waiver of liability.

18. PROPERTY RIGHTS

- a. This permit does not convey any property rights or any exclusive privileges. This permit does not authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations (WQRR Chapter 27, Section 6(h)(iii)(G)).

19. SEVERABILITY

The provisions of this permit are severable, and if any provision of the permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected.

END OF PERMIT