

STATE OF WYOMING
DEPARTMENT OF ENVIRONMENTAL QUALITY
UNDERGROUND INJECTION CONTROL PERMIT ISSUED UNDER
WYOMING WATER QUALITY RULES AND REGULATIONS
CHAPTER 13

CLASS I INJECTION WELL

- New
- Modified
- Renewed

Permit Number: **14-423**

UIC Facility Number: WYS-005-00621

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, Chapter 250, Section 1) and Wyoming Water Quality Rules and Regulations (WQRR) Chapter 13.

Applicant: Kissack Water and Oil Services
JC Reynolds
P.O. Box 9
Rozet, WY 82727

Kissack Water and Oil Services, hereafter referred to as the permittee, is authorized to operate the **Pfeiler #8** (API No. 49-005-29425) in Campbell County, in Section 4, Township 50, Range 69 according to the procedures and conditions of application 14-423 and to the requirements and 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 well(s) do not comply with all terms and conditions of this permit (WQRR Chapter 13, Section 8(e)).

This is an individual permit for one well: Pfeiler #8. No additional wells may be constructed under this permit without prior permit modification. This permit shall become effective on the date of issuance and is valid until **November 1, 2024**.

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

Date

Todd Parfitt, Director
Department of Environmental Quality
Herschler Building 4-W, 122 W 25th Street
Cheyenne, Wyoming 82002
CS/rm/14-0972

Date

Acronyms

amsl	Above mean sea level
AOR	Area of review
APFT	Annual pressure fall-off test
bbl/day	Barrels per day (standard barrels equal to 42 gallons)
bgs	Below ground surface
C	Celsius
CBL	Cement bond log
CFR	Code of federal regulations
ft	Feet
gpm	Gallons per minute
LSIP	Limiting surface injection pressure (maximum injection pressure which cannot be exceeded at any time other than well stimulation)
MCL	Maximum contaminant level
MCLG	Maximum contaminant level goal
MIT	Mechanical integrity test
mg/L	Milligrams per liter
NAICS	North American industry classification system
PLSS	Public lands survey system
psig	Pounds per square inch, gage
SIP	Surface Injection Pressure
s.u.	Standard units
TCLP	Toxicity characteristic leaching procedure
TDS	Total dissolved solids
UIC	Underground injection control
USEPA	United States environmental protection agency (EPA)
USDW	Underground source of drinking water (Classes I, II, III, IV(A), Special(A))
WDEQ	Wyoming department of environmental quality
WQD	Water quality division of WDEQ
WQRR	Water quality rules and regulations

Table of Contents

1.	PROPOSED WELL LOCATION(S) AND AREA(S) OF REVIEW:.....	4
2.	DISCHARGE ZONE	5
3.	GROUNDWATER CLASSIFICATION	6
4.	PRE-INJECTION REQUIREMENTS	6
5.	AUTHORIZED OPERATIONS	7
6.	PERMITTED WASTES.....	9
7.	GENERAL OPERATION AND MAINTENANCE.....	14
8.	PROHIBITIONS	15
9.	MECHANICAL INTEGRITY	15
10.	ANNUAL PRESSURE FALLOFF TEST (APFT).....	16
11.	MONITORING AND REPORTING	17
12.	NON-COMPLIANCE REPORTING.....	20
13.	PERMIT CONDITIONS.....	21
14.	DUTIES OF THE PERMITTEE.....	22
15.	PLUGGING AND ABANDONMENT.....	23
16.	FINANCIAL RESPONSIBILITY	23
17.	PERMIT TRANSFER.....	24
18.	WHERE TO SUBMIT REPORTS.....	24
19.	SIGNATORIES REQUIREMENT	24
20.	ENTRY AND INSPECTION.....	25
21.	PROPERTY RIGHTS	25
22.	SEVERABILITY.....	25

1. Proposed Well Location(s) and Area(s) of Review:

- a. The proposed well authorized by this permit is located as shown in Table 1.

Table 1. Well Location

Well Name	Legal Description	Latitude*	Longitude*
Pfeiler #8	SWSW, Section 4, T50N, R69W	44.30784	-105.14528

*Latitude and Longitude are using NAD83.

- b. The area of review (AOR) is the area in which the potential for breaches in the upper and lower confining zones must be evaluated. Results of the area of review calculations (WQRR Chapter 13, Section 5(b)(iv)) are shown in Table 2. In this case the AOR is based on the radius of the area of emplaced waste (AEW). The AEW calculation assumed the injection rate of 1,700 bbl/d for 15 years into a 36-foot thick sandstone with a porosity of 15%. The cylindrical volume has a radius of 1,755 ft. A dispersion factor of 10% was applied to this radius of the cylindrical volume and a distance of 200 feet was added to account for fractures generated during well stimulation. The sum of these three addends (1,755 + 176 + 200) represents the radius of the individual AEW for the well: 2,131 ft.

The cone of influence (COI) calculation is calculated using the same parameters above and an intrinsic permeability of 120 millidarcy. The radius of the COI is 77 ft.

Table 2. Summary of Radius of Area of Review Calculations

Well Name	AEW (ft)	COI Area (ft)	Minimum AOR (ft)
Pfeiler #8	2,131	77	1,320

- c. The Area of Review (Chapter 13, Section 5(b)(iv)(E)) for the Pfeiler #8 injection well is described using the public lands survey system (PLSS) to the nearest sixteenth section in Table 3.

Table 3. Legal Description of the Area of Review

Quarter/Quarters	Section	Township/Range
SW ¼	4	T 50 N / R 69 W
SE ¼	5	T 50 N / R 69 W
E ½ of NE ¼	8	T 50 N / R 69 W
NW ¼ of NE ¼	8	T 50 N / R 69 W
NW ¼	9	T 50 N / R 69 W

- d. There are eight wells which penetrate the receiver within the AOR. These are listed Table 4. Good cement seals have been demonstrated and approved by the Wyoming Oil and Gas Conservation Commission for each of the wells which have been plugged and abandoned.

Table 4 Summary of Wells Penetrating the Receiver Within the AOR

Well Name	API No.	Total Depth	Target Formation	Depth to Bottom of Surface Casing (ft bgs)	Well Status
Keuhne-Koberstein #1	49-005-24817	8224	Minnelusa (no dune)	322	P&A
Pfeiler #2	49-005-22563	8400	Minnelusa (B Sand)	236	P&A
Pfeiler 2	49-005-24780	8285	Minnelusa (B Sand)	292	P&A
Pfeiler 1	49-005-24448	8275	Minnelusa (A sand)	270	P&A
Pfeiler Fee 6	49-005-28023	8405	Minnelusa (A Sand)	489	Active Injection
Howard Fee 3	49-005-27878	8300	Minnelusa	352	P&A
Howard Fee 1	49-005-25182	8312	Minnelusa (C Sand)	202	P&A
Belco Haines 1-9	49-005-23216	8353	Minnelusa (C sand)	249	P&A

2. Discharge Zone

- a. The injection well is authorized to inject into the Minnelusa Formation as specified in Table 5. The depths listed in Table 5 are perforation depths. The top of Minnelusa is 8,208 ft and the top of the impermeable Minnelusa dolomite is 8,290 ft below ground surface (BGS). Perforations in addition to those listed in the application may be installed within the above named interval with prior written approval of the Administrator. Fluid may migrate above or below the perforations as long as it remains within the authorized injection formation(s).

Table 5. Discharge Zones

Well Name	Surface Elevation (ft amsl)	Depth to Perforated Interval #1 (ft bgs)	Depth to Perforated Interval #2 (ft bgs)	Gross Discharge Zone Thickness (ft)	Well Depth (ft bgs)
Pfeiler #8	4,368	8,212-8,230	8,240-8,256	44	8,380

- b. If the permittee determines that the authorized discharge zones identified in Table 5 are inadequate and additional discharge zones are required, a permit modification will be required. The permit modification request shall be supported by data approved by the Administrator.
- c. The confining zone above the discharge zone consists of the Permian-age Forelle and Minnekahta Limestone and the Opeche shale. The Opeche shale overlies the injection zone and is considered an effectively impervious barrier to fluid movement. The confining zone below the discharge zone consists of the basal Minnelusa dolomite and the Pennsylvanian-age Amsden dolomite.

3. Groundwater Classification

- a. Groundwater within the Minnelusa Formation with upper and lower boundaries defined by the discharge zone in Table 5 is classified as Class VI (Unusable/Unsuitable) in accordance with WQRR, Chapter 8.

In a letter dated December 11, 1997 the Environmental Protection Agency (Region 8) concurred with the State's groundwater classification and issued a regional aquifer exemption "for the purpose of injection of commercial disposal of non-hazardous fluids and oil field brines through injection wells permitted by the Wyoming Department of Environmental Quality" for portions of the Minnelusa Formation underlying Campbell County. The Pfeiler #8 well is permitted to inject into the Minnelusa Formation and is located within the EPA approved regional aquifer exempted area. As stated in the EPA concurrence letter, the designated portion of the Minnelusa formation is Class VI groundwater and unusable or unsuitable for use:

- i. Due to excessive concentrations of TDS (e.g., some groundwater samples in the deeper regional exemption exceed 10,000 mg/L TDS);
- ii. Is so contaminated that it would be economically or technologically impractical to make the water useable; (i.e., as stated in the EPA concurrence letter, the Minnelusa has been an oil producing formation for decades; the high costs of treatment to remove hydrocarbons are extremely expensive compared to other options in the area);
- iii. Is located in such a way, including depth below the surface, so as to make use economically and technologically impractical (i.e., as stated in the EPA concurrence letter, other regional aquifers are better suited for development due to higher producing capability, significantly better water quality and lower treatment costs).

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:

- i. Well construction is complete (Chapter 13, Section 9(d)(xxix)).

- ii. The permittee has submitted an as-built well completion and testing report and the “Notification of Construction Completion of Injection Well” (available at <http://deq.state.us/wqd/groundwater/uicprogram>). Note that these documents require a Wyoming PE or PG certification.
- iii. For each new well, the permittee shall report depths to formation top for each formation from ground surface to the total depth drilled. (Not applicable to Pfeiler #8 because the well has already been drilled.)
- iv. For each new well or newly perforated zone within an existing well, the permittee shall collect a baseline groundwater quality sample from each aquifer or formation within the new discharge zones (Chapter 13, Section 13(a)) and submit results for all the analytes and parameters in WQRR Chapter 8, Table I. The methods and procedures for sample collection and analysis must be approved by the Water Quality Division prior to sampling.
- v. The permittee has demonstrated cement bond integrity by submitting cement bond logs (CBL) that are sensitive enough to identify channels in the cement annulus (cement to long string casing and cement to formation) that could result in a poor hydraulic seal. CBL output tracks shall include: gamma, amplitude, CBL waveform, and cement image. CBL shall be conducted no sooner than 72 hours from the last cement job to ensure adequate cement curing. A cement design shall also be included on a well schematic showing depth of fill for lead and tail cement (with compressive strength curves) for all stages.
- vi. Mechanical integrity of the well has been demonstrated (see Section 7 of this permit).
- vii. The permittee has demonstrated financial assurance (Chapter 13, Section 17 (a)).

5. Authorized Operations

- a. The maximum instantaneous injection rate is shown in Table 6. This rate is allowed provided that the limiting surface injection pressure (LSIP) is not exceeded.
- b. The injection pressure in the injection well shall be limited to the LSIP listed in Table 6 except as necessary during well stimulation approved by the Administrator (Chapter 13, Section 9(d)(ii)).
 - i. Exceeding the LSIP or creating or propagating fractures within the receiver or confining zone 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 6 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 year of permit issuance or well construction or modification, whichever comes later, to determine the actual fracture pressure of the receiver (Ch13, Sec9(d)(ii)).

- iv. The permittee may conduct additional step-rate injection tests at its discretion to refine estimates of fracture pressure.

Table 6 (Maximum and Limiting Surface Injection Pressures)

Parameter	Pfeiler #8
Maximum Injection Rate, q (bbls/day)	1,700
Maximum Injection Rate, q (gpm)	37
Maximum Annulus Pressure (psig)	800
Minimum Annulus Pressure (psig)	200
Fracture Gradient, F (psi/ft)	0.79
Fracture Pressure,	6,487
Depth to Top of Formation, D_p (ft) (bgs)	8,212
Density of Injectate, ρ_j (g/cm ³)	1.008
Temperature at Mid-Point of Perforations (°F)	143
Maximum Total Dissolved Solids of Injectate (mg/L)	
Injectate Fluid Gradient (psi/ft)	0.44
Hydrostatic Pressure (psi)	3,589
*Total Pressure Loss from Tubing Friction (psi)	143
(psig)	2,737

*See permit application Section 1, Exhibit D

- v. Step-rate injection tests shall be conducted using both surface and down hole pressure gauges or transducers. The down hole device shall be placed within 100 vertical feet of the packer, if possible. 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.
- vi. If the recalculated LSIP is greater than the LSIP in Table 6, the permittee must obtain the approval of the Administrator prior to operating the well at the higher pressure.
- vii. If the recalculated LSIP is less than the LSIP in Table 6, the permittee must cease injection and not restart until the wellhead pressure can be maintained below the recalculated LSIP.
- viii. Digital data, analysis, and interpretations for step-rate injection tests shall be submitted to the Administrator within 30 days or with the next quarterly report after the test is conducted, whichever is later.

6. Permitted Wastes

a. General Information

- i. All wastes accepted under any authorization contained in this permit shall be neutralized to a pH of greater than 2.0 and less than 12.5.
- ii. For each waste accepted under any of the categorical authorizations contained in this permit, the permittee shall require that the company generating these wastes provide a full written description of the wastes to support the fact that the wastes are similar to the wastes described in the authorization.
- iii. Permittee shall keep records on site concerning the source of all such wastes.
- iv. Permission to discharge non-hazardous waste other than from within those categories authorized under this permit may be authorized only upon written approval of the Administrator. Additional monitoring may be required for additional waste types.
- v. For further information on definitions of various waste sources and analysis of samples for hazardous waste toxicity characteristics please refer to "Underground Injection Control Program, Water Quality Division, Wyoming Department of Environmental Quality's Guidance Document #2, Approval/or New Waste Streams For Disposal in Class I Wells" (May 6, 2003) available at <http://deq.state.wy.us/wqd/groundwater/uicprogram/index.asp>.

b. Exploration and Production (E&P) Exempt Wastes

- i. **Well Workover Wastes:** includes water associated with drilling fluids used during the drilling of any oil and gas well or the water supply wells on oil and gas locations; rig wash water; well completion, treatment and stimulation fluids; waste produced during any workover or abandonment of and oil or gas well or test hole; wastes from subsurface gas storage and retrieval; liquid hydrocarbons removed from the production stream but not from oil refining; materials ejected from a producing well during the process known as blowdown.

No additional prior approval is required in order to accept these wastes. Please account for all such wastes on your quarterly reports under the heading **Well Workover Wastes - Authorization #1997-1**, rather than the name of the company generating the wastes

- ii. **Water and Other Tank Bottoms:** includes sediment, water and other tank bottoms from the storage facilities that hold crude oil, natural gas, gas condensate, or wastes which are exempt under the oil and gas exploration and production exemption to RCRA; accumulated materials such as hydrocarbons, solids, sand and emulsion from production separators, treating vessels, and production impoundments; pit sludges and contaminated bottoms from storage or disposal of exempt wastes; and, waste crude oil from primary field operations and production.

No additional prior approval is required in order to accept these wastes. Please account for all such wastes on your quarterly report under the title **Water and other tank bottoms - Authorization #1997-2**, rather than the name of the company generating these wastes.

At least once every three (3) years, permittee shall obtain comprehensive waste analyses to characterize the waste from each source of waste (accepted under this provision) according to EPA hazardous waste characteristics. Analytical parameters shall include reactivity, ignitability, corrosivity, and toxicity characteristics (TCLP) for VOCs, SVOCs, and eight (8) RCRA metals. The list of required analytes is found in Table 1, 40 CFR §261.24. The results of these analyses shall be submitted with the first **annual** report following receipt of the analyses.

- iii. Gas Plant Sweetening and Dehydration Wastes: includes gas plant sweetening wastes for sulfur removal including amines, backwash, and any wastes produced by a Bevon Stetford processing plant; gas plant dehydration wastes, and backwash.

No additional prior approval is required in order to accept these wastes. Please account for all such wastes on your quarterly report under the title **Gas Plant Wastes – Authorization #1997-3** rather than the name of the company generating these wastes.

At least once every three (3) years, permittee shall obtain comprehensive waste analyses to characterize the waste from each source of waste (accepted under this provision) according to EPA hazardous waste characteristics. Analytical parameters shall include reactivity, ignitability, corrosivity and toxicity characteristics (TCLP) for VOCs, SVOCs, and eight (8) RCRA metals. The list of required analytes is found in Table 1, 40 CFR §261.24. These analyses shall be accompanied by a complete description of the waste sampled including the plant name and location, and whether the waste is glycol, amine, or caustic waste. The results of these analyses shall be submitted with the first **annual** report following receipt of the analyses.

- iv. Miscellaneous Oilfield Related Wastes: includes cooling tower blowdown wastes on gas plant or other exempt sites; packing fluids; pigging wastes from in field gathering lines, but not from interstate pipeline systems.

No additional prior approval is required in order to accept these wastes. Please account for all such wastes on your quarterly report under the title **Miscellaneous Oilfield - Authorization # 1997-4**, rather than the name of the company generating these wastes

At least once every three (3) years, permittee shall obtain comprehensive waste analyses to characterize the waste from each source of waste (accepted under this provision) according to EPA hazardous waste characteristics. Analytical parameters shall include reactivity, ignitability, corrosivity, and toxicity characteristics (TCLP) for VOCs, SVOCs, and eight (8) RCRA metals. The list of required analytes is found in Table 1, 40 CFR §261.24. The results of these analyses shall be submitted with the first **annual** report following receipt of the analyses.

- v. **Oilfield Produced Water:** includes all waters produced directly with the production of oil and gas and collected in the field where the oil and gas were produced. It does not include tank bottoms or water accumulated in gas processing plants, refineries, or intrastate or interstate pipe line facilities.

No additional prior approval is required in order to accept these wastes. Please account for all such wastes on your quarterly reports under the heading **Oilfield Produced Water - Authorization #1997-6**, rather than the name of the company generating the wastes.

- c. **Regulated Underground and Above Ground Storage Tank Wastes:** includes wastes generated during the removal or maintenance of Underground or Above Ground Storage Tanks, so long as those tanks are regulated facilities under the Above Ground and Underground Storage Tank Program administered by the Solid and Hazardous Waste Division. Under this provision, wastes, including water from inside an active tank, water found inside the tank during a removal operation, groundwater contaminated by gasoline and diesel, and water used in any form of testing operation may be injected with prior approval.

The Water Quality Division may issue a letter of approval for each source of waste under this category prior to permittee accepting the first lot of waste. In order to obtain such an approval letter, permittee shall submit a complete written description of the waste, including the name of the company generating the waste, the address or legal description of the location where the waste was produced, a description of the processes that produced the waste, and analyses to characterize the wastes for eight (8) RCRA regulated metals for each source of waste (accepted under this provision) according to EPA hazardous waste characteristics, and has obtained a written statement from the DEQ's Solid and Hazardous Waste Division (307-777-7752) certifying that the waste being delivered is from an exempt Storage Tank Program remediation site and that the analytical results qualify the waste for the Storage Tank Program exemption. Please account for all such wastes on your quarterly report under the title **Regulated Tank Wastes - Authorization #1997-5** rather than the name of the company generating these wastes.

- d. **Sump Wastes:** includes wastes known as "sump wastes" from floor drains and septic tanks at various sites. This general category includes wastes from sumps in automotive shops, gasoline stations, oilfield service industries, airports, and similar shops which perform mechanical work. This category does not include industrial process wastes from manufacturing operations or wastes from sumps in shops which do not perform mechanical work. These wastes must be characterized fully prior to disposal to insure that they are not hazardous wastes.

The Water Quality Division may issue a letter of approval for each source of waste under this category prior to permittee accepting the first lot of waste. In order to obtain such an approval letter, permittee shall submit a complete written description of the waste, including the name of the company generating the waste, the address or legal description of the location where the waste was produced, a description of the processes that produced the waste, and a comprehensive analyses to characterize the waste from each source of waste (accepted under this provision) according to EPA hazardous waste characteristics. Analytical parameters shall include reactivity, ignitability, corrosivity, and toxicity characteristics (TCLP) for VOCs, SVOCs, RCRA pesticides, RCRA herbicides, and eight (8) RCRA metals. The list of required analytes is found in Table 1, 40 CFR §261.24. These parameters are in addition to the WQRR Chapter 13, Appendix A list. Please account for all such wastes on your quarterly report under the title **Miscellaneous Sump Waste – Authorization #1997-7** rather than the name of the company generating these wastes.

- e. **Bevill Amendment Exempt Wastes:** includes most wastes generated in the mining industry from regulation under RCRA. Wastes covered by the Bevill Amendment to RCRA are detailed in 40 CFR 261.4(b)(7). This section of 40 CFR 261 sets up two (2) types of mining wastes which are exempt, beneficiation wastes and processing wastes. The two terms are almost interchangeable, except that processing usually refers to a process which produces a final end product, while beneficiation produces an intermediate product which must be further refined to be used. Please account for all such wastes on your quarterly report under the title **Bevill Amendment Waste - Authorization# 1997-8** rather than the name of the company generating these wastes.

At least once every three (3) years, permittee shall obtain comprehensive waste analyses to characterize the waste from each source of waste (accepted under this provision) according to EPA hazardous waste characteristics. Analytical parameters shall include reactivity, ignitability, corrosivity, and toxicity characteristics (TCLP) for VOCs, SVOCs, and eight (8) RCRA metals. The list of required analytes is found in

Table 1, 40 CFR §261.24. The results of these analyses shall be submitted with the first **annual** report following receipt of the analyses.

- f. **Potable Water Well Wastes:** includes water associated with drilling fluids used during the drilling of any water supply well, rig wash water, well completion, treatment and stimulation fluids, waste produced during any workover or abandonment of a water well, or a test hole including spent acid from acid fracturing or well acidizing jobs.

No additional prior approval is required in order to accept these wastes. Please account for all such wastes on your quarterly reports under the heading Water Well Wastes - Authorization #1997-9, rather than the name of the company generating the wastes.

- g. **Miscellaneous Non-hazardous Wastes:** in addition to the authorizations contained in this permit, permittee may obtain additional approvals for wastes which do not fit any of the above classifications. Any such waste must be characterized fully in order to insure that this waste is not a hazardous waste.

The Water Quality Division may issue a letter of approval for each source of waste under this category prior to permittee accepting the first lot of waste. In order to obtain such an approval letter, permittee shall submit a complete written description of the waste, including the name of the company generating the waste, the address or legal description of the location where the waste was produced, a description of the processes that produced the waste, a certification provided by the waste generator that the waste is not a listed hazardous waste, and a comprehensive analysis to characterize the waste from each source of waste (accepted under this provision) according to EPA hazardous waste characteristics. Analytical parameters shall include reactivity, ignitability, corrosivity, and toxicity characteristics (TCLP) for VOCs, SVOCs, RCRA pesticides, RCRA herbicides, and eight (8) RCRA metals. The list of required analytes is found in Table 1, 40 CFR §261.24. Please account for all such wastes on your quarterly report under the title **Miscellaneous Non-Hazardous Waste - Authorization #1997-10** rather than the name of the company generating these wastes.

- h. **Corrosion Inhibitors**

- i. The composite injection stream may also contain a small amount of Cortron® RN-206 corrosion inhibitor.
- ii. The composite injection stream may also contain a small amount of Gypton® T-186 or Gypton® T-379 scale inhibitor .
- iii. The composite injection stream may also contain a small amount of Bactron® K-31W.
- iv. The composite injection stream may also contain a small amount of Emulsotron® X-203 Emulsion Breaker.

- v. Additional corrosion inhibitors may be used with the prior written approval of the Water Quality Division.

7. General Operation and Maintenance

- a. Each injection well shall be constructed, operated, and maintained to prevent movement of fluid from the well into any underground sources of drinking water (USDW) (Chapter 13, Section 11(a)).
- b. Injection shall be conducted through tubing which has been secured by a packer set below the top of the confining zone and within 100 feet of the top of the authorized discharge zone (Table 4) and within a zone of good quality cement bond (Chapter 13, Section 9(d)(xxv)).
- c. An automatic trip switch shall be installed on the injection tubing and shall be set to preclude the LSIP from being exceeded.
 - i. The annulus between the injection tubing and long string casing shall be filled with a corrosion-inhibiting fluid and be monitored and maintained in a way that allows reliable leak detection. The annulus pressure shall be maintained within the limits in Table 6. During periods of continuous injection, the annulus pressure should be reasonably constant but large variations in pressure are allowed during startup and shutdown.
 - ii. The permittee shall set alarms or use daily observations to detect changes in annulus pressure and shall immediately cease injection and shut the well in when an alarm is triggered; or the permittee shall install an automatic trip switch to stop injection if casing, tubing or well head leak.
 - iii. Settings for low- and high-pressure alarms shall take into account annulus pressure changes due to variations in temperature of the injected and annulus fluid.
- d. 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 (Chapter 13, Section 18(b)(i)).
- 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. 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 (Chapter 13, Section 18(b)(i)).

- g. Well stimulation requires prior approval of the Administrator (Chapter 13, Section 9(d)(ii)).
- h. A well work over report and Part I mechanical integrity test (MIT) (see Section 9 of this permit) shall be submitted to the Administrator each time a well is re-entered.
- i. A comprehensive report for any aborted or curtailed operation, which results in 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 (Chapter, Section 13(d)).

8. 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.
- 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 (Chapter 13, Section 18(b)(i)).
- c. No person shall conduct any authorized injection activity in a manner that results in a movement of fluids out of the receiver (Chapter 13, Section 18(b)(ii)).
- d. No zone or interval other than the discharge zone shall be used as a receiver for the discharge (Chapter 13, Section 18(b)(ii)(A)).
- e. No uncased hole may be used as a conduit for the discharge, excepting that portion of a hole within the discharge zone (Chapter 13, Section 18(b)(ii)(B)).
- f. No annular space between the wall of the hole and the outer casing may be used as a conduit for discharge, excepting in that portion of the space within the discharge zone (Chapter 13, Section 18(b)(ii)(C)). The annular space may receive fluids used in cementing casing during the cementing process.
- g. No person shall construct, install, modify, or improve this authorized injection facility except in compliance with this permit (Chapter 13, Section 18(b)(iii)).

9. Mechanical Integrity

- a. Mechanical integrity shall be maintained continuously and tested prior to injection and at intervals of no longer than five (5) years.
- b. The test used to determine mechanical integrity shall be a two part test approved by the Administrator (Chapter 13, Section 9(d)(vii)). The two parts shall be conducted no more than three months apart unless prior approval is obtained from the Administrator.
- c. **The permittee shall notify the Administrator a minimum of 30 days prior to conducting a mechanical integrity test (MIT)** (Chapter 13, Section 13(l)(vi)).
- d. Part I of the MIT shall demonstrate the absence of leaks through the packer, tubing and casing (Chapter 13, Section 9(d)(vii)(A)).

- i. The casing-tubing annulus of each well shall be tested at a pressure equal to the maximum permitted surface injection pressure (of each well) or 1,000 psig, whichever is greater.
- ii. A pressure change of less than 10% over a 30 minute test period shall be considered successful.
- iii. **A Part I MIT must be conducted and passed every time the well is re-entered.**
- e. Part II of the MIT shall demonstrate the absence of fluid movement behind the long-string casing (the formation-casing annulus) above the top of the perforation (Chapter 13, Section 9(d)(vii)(B)).
 - i. Each well shall be logged using a radioactive tracer survey (or oxygen activation log) and a temperature survey from the base of the conductor casing to the total depth of the well.
 - ii. The baseline temperature survey shall be logged prior to any injection or other tests.
 - iii. For an active injection well, the temperature survey shall start more than two hours, preferable more than 24 hours, after injection has ceased.
 - iv. A Part I MIT must be conducted and passed after completing the Part II MIT.
- f. Other types of pressure tests or logs may be substituted for those described above (Section 7, c. and d. of this permit) if they demonstrate the mechanical integrity of the well and are first approved by the Administrator (Chapter 13, Section 9(d)(vii)(C)).
- g. Data, results, analysis and interpretations shall be submitted to the Administrator within 30 days of the test or with the next quarterly report after the test is done, whichever is later (Chapter 13, Section 15(f)).
- h. **A failed MIT in a well which has begun waste disposal is non-compliance with this permit and as such :**
 - i. The well shall be shut-in immediately (Chapter 13, Section 9(d)(vii)).
 - ii. The operator shall prepare an estimate of the volume and quality of all wastewaters which were injected outside of the discharge zone.
 - iii. In the case where any aquifer meeting the standards for Class I through IV(B) under Wyoming Water Quality Rules and Regulations, 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 90 days of the notification date.
 - iv. The Administrator shall be notified orally and in writing according to the procedures in Section 12 of this permit (Chapter 13, Section 9(d)(xxi)).
 - v. Injection shall not resume until the well has been repaired, a complete mechanical integrity test has been passed, and written permission to resume operation has been obtained from the Administrator.

10. Annual Pressure Falloff Test (APFT)

- a. The permittee shall shut-in each well covered by this permit annually for a period of time long enough to observe a valid pressure falloff curve (Chapter 13, Section 13(e)).
- b. The minimum duration of injection and falloff shall be longer than wellbore storage and skin effects and sufficient for persuasive analysis and accurate estimates of permeability.
- c. The tests shall be analyzed by the permittee using commonly accepted methods to obtain hydraulic conductivity or permeability, transmissivity and skin factor and to identify reservoir boundaries (including flow in fractures) and other anomalies such as partial penetration or layering. The test method chosen should be justified by a review of relevant assumptions and actual conditions.
- d. Along with the analysis and interpretation, the permittee shall submit plots of injection rate, pressure, and the pressure derivative versus time on appropriate graphs. If the method used differs from previous methods used for the same well, the analyst should discuss the comparability of the results.
- e. Digital data, results, analyses and interpretations for the falloff test shall be submitted to the Administrator within 30 days or with the next quarterly report after the test was done, whichever is later (Chapter 13, Section 15(f)).
- f. These data shall include:
 - i. pressures starting with the introduction of the pressure measuring device into the well (or for at least one hour prior to the start of the test for a permanently installed down hole device); and
 - ii. injection rates starting at least twice the falloff period before the start of the falloff test.
- g. The results of the pressure falloff test shall be used to update the AOR calculation (Table 2) for each discharge zone (Table 4). The annual updates shall account for historical injection and remaining project life. The permittee shall provide a map showing the updated AOR and all the wells which penetrate the confining zone within the new AOR.
- h. If the updated combined AOR encompasses wells not previously identified as within the area of review:
 - i. The permittee shall demonstrate that the new wells do not represent potential pathways from the receiver to the lower-most non-exempted USDW above the injection zone.
 - ii. If this cannot be demonstrated, a corrective action plan to prevent movement of fluid into any USDW shall be submitted to and approved by the Administrator and shall be incorporated as a permit condition (Chapter 13, Section 5(b)(x)).

11. Monitoring and Reporting

- a. Operational Monitoring
 - i. The permittee shall monitor the injection pressure, both in the annulus and in the tubing, continuously and record the readings on a chart recorder or electronically (Chapter 13, Section 13(i)).

- ii. The permittee shall monitor the injection rate continuously and record the rates and volumes on a chart recorder or electronically (Chapter 13, Section 13(i)).
- b. Environmental Monitoring
 - i. The permittee shall monitor the quality of the injectate quarterly (Chapter 13, Section 15(c)(v)), and when significant process changes occur, and when operating changes may significantly alter the waste stream (Chapter 13, Section 13(h)).
 - ii. Procedures and methods for sample collection and analysis shall be implemented by the permittee to ensure that the samples are representative of the groundwater, water or waste being sampled (Chapter 13, Section 14(a)). Samples of waste must be representative of the waste as it enters the well. If any group of wells receives waste from the same pipe exiting the processing plant or waste collection area, a single sample may be collected from that pipe rather than from the individual wells.
 - iii. The parameters, methods and limits to be analyzed quarterly are listed in Table 7. The Administrator may approve alternate methods to those in Table 7 upon receipt of written request describing the procedures, precision and accuracy of the proposed method and a comparison of the proposed method with that in Table 7.
 - iv. The first three parameters in Table 7 shall be measured at the sample site unless other methods are approved by the Administrator. Specific conductance (SC) shall be reported for the equivalent value at a temperature of 25 C°. The other analyses shall be performed by an EPA-certified laboratory.
 - v. Exceedance of these values is a violation of this permit and requires notification under Section 12 of this permit.
 - vi. The following units are to be used where applicable:
 1. Pressure - pounds (mass) per square inch with gauge or absolute pressure noted (psig or psia),
 2. Fluid volume - standard oilfield barrels (bbl, equivalent to 42 gallons),
 3. Fluid flow rates – standard oilfield barrels per day (bbl/d),
 4. Concentration – milligrams per liter (mg/L), and
 5. pH – standard units (s.u.).
 - vii. Quality assurance – A trip blank of distilled water shall be collected for each quarterly sampling date and 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 reporting.

Table 7. Quarterly Injectate Monitoring

Analyte	Analytical Method	CAS Number	Limits
pH	SM4500-H ⁺ B	None	2.0≤pH≤12.5 s.u.
Specific Gravity		None	None
Electrical Conductivity (to estimate TDS)	SM2540	None	None
Total Dissolved Solids	SM2540	None	None

Total Extractable Petroleum Hydrocarbons (as diesel range organics), Total Volatile Petroleum Hydrocarbons (as gasoline range organics)	M8015B	Various	None
--	--------	---------	------

c. Reporting Requirements

- i. Quarterly reports shall be submitted to the Administrator no later than 30 days after the end of each calendar quarter (Chapter 13, Section 15(a) and (c)). The quarterly results shall also be submitted online at <https://gem.wqd.apps.wyoming.gov> within 45 days of the end of the quarter. The written quarterly report shall include for each well:
 1. Injection rates for each month of the quarter including:
 - a. minimum instantaneous,
 - b. volume-weighted average,
 - c. maximum instantaneous, and
 - d. maximum permitted.
 2. Injection pressures for each month of the quarter, including:
 - a. Minimum daily,
 - b. Average daily,
 - c. Maximum daily, and
 - d. Maximum permitted injection pressure.
 3. Injected volume, including:
 - a. Total volume for each month,
 - b. Total volume for the quarter, and
 - c. Total volume to date.
 4. Annulus pressures, including:
 - a. Maximum for each month,
 - b. Minimum for each month, and
 - c. Pressures at which any alarms or trip switches are activated.
 5. Analytical results required by Table 7.
 6. All permit exceedances within the quarter.
 7. Full descriptions of all events that triggered alarms or shutdowns that resulted in a permit limit exceedance and the responses taken during the quarter.
 8. Reports of all well tests and well work overs conducted more than 30 days before the end of the quarter.
- ii. Annual reports shall be submitted to the Administrator no later than 30 days after the end of each calendar year (Chapter 13, Section 15(c)). The annual report for each well shall include the following information in addition to that required in the quarterly report:
 1. A graph of the injection pressures and volumes versus time for the current and previous five (5) year's operation and a digital file (e.g., .csv, .txt, .xls, .xlsx) containing this data.
 2. Graphs of the analyte concentrations versus time for the analytes required by Table 7 for the current and previous five (5) year's operation and a digital

file (e.g., .csv, .txt, .xls, .xlsx) containing this data.

- iii. Records of monitoring 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 the individual(s) who performed the analyses;
 - 6. The analytical methods or techniques used;
 - 7. The results and precision of such analyses.
 - 8. Chain of Custody
- d. Record retention
 - i. The permittee shall retain records of all monitoring information (Chapter 13, Section 9(d)(xiv)), including all calibration and maintenance records and all original chart and/or digital recordings for a period of three (3) years after closure of the facility (Chapter 13, Section 15(g)). After three (3) years the permittee shall notify the Administrator and either deliver the records to the Administrator or discard them as directed by the Administrator.
 - ii. The permittee shall maintain all records concerning the nature and composition of injected fluids until five (5) years after the completion of any specified plugging and abandonment procedures. The Administrator may require the permittee to deliver the records to the Administrator at the conclusion of the retention period.

12. Non-Compliance Reporting

- a. Any permit noncompliance constitutes a violation of WQRR Chapter 13 and is grounds for enforcement action, permit termination, revocation, or modification.
- 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 24 hours from the time the permittee becomes aware of the circumstances and a written report shall be provided within five days (Chapter 13, Section 9(d)(xxi)).
- c. The oral report should include:
 - i. Any monitoring or other information which indicates that any contaminant may cause an endangerment to a useable groundwater of the state.
 - ii. 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.
- d. The written report should include:
 - i. A description of the noncompliance and its cause;
 - ii. The period of noncompliance, including exact dates and times;
 - iii. An estimate of the volume and quality of all wastewaters which were injected outside of the discharge zone.
 - iv. In the case where any aquifer meeting the standards for Class I through IV(B) under Wyoming Water Quality Rules and Regulations, 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 90 days of the notification date.

- v. 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 (Chapter 13, Section 9(d)(xxi)).
- vi. Injection shall not resume until the well has been repaired, a complete (Part I and Part II) mechanical integrity test has been passed, and written permission to resume operation has been obtained from the Administrator.

13. Permit Conditions

- a. The permittee should apply to the Administrator at least four months prior to the expiration date of this permit if he wishes to continue injection after that date (Chapter 13, Section 9(d)(iii)).
- 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 (Chapter 13, Section 9(d)(iv)).
- 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 (Chapter 13, Section 9(d)(ix)).
- e. 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 (Chapter 13, Section 8(e)(i));
 - ii. Failure in the application or during the issuance process to disclose fully all relevant facts, or misrepresenting any relevant facts at any time (Chapter 13, Section 8(e)(ii)); or
 - iii. Failure of the casing, cement, or the confining layer; or
 - iv. 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 (Chapter 13, Section 8(e)(iii)).
- f. Permits will be automatically terminated after closure and release of financial responsibility by the Administrator (Chapter 13, Section 8(i)).
- g. This permit will be reviewed by Water Quality Division (WQD) at least once every five years, and may be reviewed more frequently (Chapter 13, Section 9(b)). Permits that do

not satisfy the review criteria are subject to modification, revocation and reissuance, or termination (Chapter 13, Section 9(c)).

- h. The conditions in this permit supersede any application content (Chapter 13, Section 18(b)(i)).
- i. To comply with the Governor's Executive Order 2008-2 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.

14. Duties of the Permittee

- a. The permittee shall comply with all conditions of this permit (Chapter 13, Section 9(d)(i)), all rules and regulations of the Department of Environmental Quality, 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 (Chapter 13, Section 9(d)(v)).
- 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 (Chapter 13, Section 9(d)(xvi)).
- 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 (Chapter 13, Section 9(d)(xvii)).
- 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 (Chapter 13, Section 9(d)(xi)).
- f. The permittee shall furnish the Administrator, upon request, copies of records required to be kept by this permit (Chapter 13, Section 9(d)(xi)).
- 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 (Chapter 13, Section 9(d)(xvii)).
- 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 (Chapter 13, Section 9(d)(xxiii)).
- i. Monitoring results shall be obtained and reported at the intervals specified elsewhere in this permit (Chapter 13, Section 9(d)(xix)).

- j. Test results shall be obtained and reported at the intervals specified elsewhere in this permit.
- k. 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 30 days of the change.

15. Plugging and Abandonment

- a. Any well under this permit 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 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 (Chapter 13, Section 9(d)(xxvi)). The permittee shall follow the plugging and abandonment procedure described in the application or subsequently prescribed by the Administrator. 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. Within 30 days after plugging and abandonment of any wells covered by this permit, the permittee shall submit a plugging and abandonment report, detailing the compliance with the plugging and abandonment procedures outlined in the original permit application, and describing any deviation from the original plan (Chapter 13, Section 9 (d)(xxvii)).

16. Financial Responsibility

- a. The permittee is required to maintain financial assurance in a form approved by the Administrator, to close, plug, and abandon the injection well operation and to reclaim the surface facilities in a manner approved by the Administrator (Chapter 13, Section 17(a)).
- b. The obligation to maintain financial responsibility survives the termination of the permit or the cessation of injection (Chapter 13, Section 17(c)).
- c. If the institution issuing the financial instrument files for bankruptcy or loses its authority to issue financial instruments, the permittee shall notify the Administrator within two (2) weeks and obtain other financial assurance within two (2) months. If the

permittee is named as debtor in any voluntary or involuntary bankruptcy proceeding, it must notify the Administrator within two (2) weeks.

- d. The financial assurance consists of a letter of credit in the amount of \$80,000 from Wells Fargo Bank. This Performance Bond or replacement financial instruments shall be maintained as long as this well is covered under this permit.
- e. The financial assurance amount shall be increased by three percent (3%) each calendar year. Annual financial responsibility document updates shall be submitted to the Administrator no later than February 14th of each year.

17. Permit Transfer

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 (Chapter 13, Section 9(d)(xviii) and Chapter 13, Section 8(k)).

18. 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, DEQ – Water Quality Division, Herschler Building – 4W, 122 W. 25th St., Cheyenne, WY, 82002. This includes any information the permittee is required to submit to the Administrator.

19. Signatories Requirement

- a. All reports filed in conjunction with this permit shall contain the following certification (Chapter 13, Section 9(d)(xv)):

“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.”

(Chapter 13, Section 5(c)(xv)).
- b. All reports required by this permit and other requested information shall be signed by a responsible officer as described in WQRR Chapter 13, Section 5(b)(xiv); **or**
- c. 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.
- d. 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.

20. Entry and Inspection

- a. The permittee shall allow the Administrator, or an authorized representative of 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 under the conditions of this permit; to inspect and photograph the discharge and related facilities and equipment; to review and copy reports and records required by this permit; to collect fluid samples for analysis; to measure and record pressures and water levels; to observe and record data from monitoring equipment; and to perform any other function authorized by law or regulation (Chapter 13, Section 9(d)(xii)).
- b. Inspectors shall not be required by the permittee to sign any waiver of liability.

21. 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 (Chapter 13, Section 9(d)(x)).
- b. The state of Wyoming passed Wyoming statute §34-1-152 and amended Wyoming statute §34-1-202 regarding the ownership of pore space within the subsurface. The Permittee shall consider how these laws may apply to their injection of material into the subsurface.

22. 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