

UNDERGROUND INJECTION CONTROL PROGRAM

Draft Permit

Class V Experimental Technology Injection Well

Permit No. MT52233-09515

Issued to:

Montana State University-Bozeman, Energy Research Institute
207 Montana Hall
Bozeman, MT 59717-2465

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PART I. AUTHORIZATION TO OPERATE A CLASS V WELL AUTHORIZATION TO INJECT

Under the authority of the Safe Drinking Water Act (SDWA) and Underground Injection Control (UIC) Program regulations of the U. S. Environmental Protection Agency (EPA) codified at Title 40 of the Code of Federal Regulations (40 CFR) parts 2, 124, 144, 146, and 147, and according to the terms of this Permit,

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hereby referred to as the "Permittee", is authorized to inject food grade carbon dioxide (CO₂) into the Zero Emission Research and Technology (ZERT) Class V well. The well is a stainless steel pipe 320 feet (98 meters) long, situated approximately 5.9 feet (1.8 meters) below ground surface and slotted to allow CO₂ to flow into the subsurface. The Class V well is located west of the MSU-Bozeman campus in Bozeman, Montana, NE¼ of SW¼ Section 14, Township 2S, Range 5E, in Gallatin County. MSU-ERI may also inject a small concentration of perfluorocarbon tracer with the CO₂ stream. **Under no circumstance shall any other fluids be injected into the above-mentioned Class V well.**

This Permit is based on representation made by the applicant and on other information contained in the Administrative Record. Misrepresentation of information or failure to fully disclose all relevant information may be cause for termination, revocation and reissuance, or modification of this Permit and/or formal enforcement action. It is the Permittee's responsibility to read and understand all provisions of this Permit.

Where a state or tribe is not authorized to administer the UIC program under the SDWA, the EPA regulates underground injection of fluids into wells so that injection does not endanger Underground Sources of Drinking Water (USDWs). EPA UIC Permit conditions are based on authorities set forth at 40 CFR parts 144 and 146, and address potential impacts to USDWs. Under 40 CFR part 144, Subpart D, certain conditions apply to all UIC Permits and may be incorporated either expressly or by reference. Regulations specific to Montana injection wells are found at 40 CFR part 147 subpart BB.

The Permittee is allowed to engage in underground injection in accordance with the conditions of this Permit. The Permittee shall not construct, operate, maintain, convert, plug, abandon, or conduct any other activity in a manner that allows the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 141 or may otherwise adversely affect the health of persons. Any underground injection activity not authorized by this Permit or by rule is prohibited.

Issuance of this Permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of any other Federal, State or local law or regulations (40 CFR §144.35). Compliance with the terms of this Permit does not constitute a defense to any enforcement action brought under the provisions of Section 1431 of the SDWA or any other law governing protection of public health or the environment, for any imminent and substantial endangerment to human

health or the environment, nor does it serve as a shield to the Permittee's independent obligation to comply with all UIC regulations. Nothing in this Permit relieves the Permittee of any duties under applicable regulations.

This Permit is issued for ten (10) years from the Effective Date unless modified, revoked and reissued, or terminated under 40 CFR §144.39 or §144.40. This EPA Permit may be terminated if primary enforcement authority for a UIC Program is delegated to an Indian Tribe or the State. Upon the effective date of delegation, reports, notifications, questions and other correspondence should be directed to the Indian Tribe or State Director.

Issue Date: _____ Effective Date _____

Callie A. Videtich
Acting Assistant Regional Administrator*
Office of Partnerships and Regulatory Assistance

*NOTE: Throughout this Permit the term "Director" refers to either the Assistant Regional Administrator for the Office of Partnerships and Regulatory Assistance (OPRA) or the Assistant Regional Administrator of Environmental Compliance, Enforcement and Justice (ECEJ).

PART II. SPECIFIC PERMIT CONDITIONS

SECTION A. INJECTION WELL CONSTRUCTION REQUIREMENTS

The well construction and physical attachments are shown in Appendix A.

1. Proposed Changes. The Permittee shall give advance notice to the Director as soon as possible and no later than thirty (30) days **before** any planned physical alterations or additions to the permitted shallow injection well. Alterations of the permitted shallow injection well shall meet all conditions as set forth in this Permit. An alteration or addition shall be considered any work performed which affects the quantity or quality of the fluid being injected.

After approval by the Director, the Permittee shall provide plans, as-built schematics, sketches, or other test data, to EPA within sixty (60) days of completion of the alteration or addition which took place.

SECTION B. SHALLOW INJECTION WELL OPERATION

1. Injection Pressure and Rate Limitation. The permitted maximum injection rate is 300 kg/day. The maximum allowable injection pressure measured at the wellhead is 10.0 psig.

2. Injection Volume Limitation. The maximum injection volume, from the period of January 1 to December 31 for any calendar year, is 6.0 tonnes per year.

3. Injection Fluid Limitation. Approved injected fluids are limited to the following:
- a) food grade CO₂; and
 - b) perfluorocarbon (PFC) tracers, specifically the following PFCs:
perfluoroethylcyclohexane (PECH), perfluoro(methylcyclohexane) (PMCH),
perfluoro(methylcyclohexane) (PTMCH), perfluoro-iso-propylcyclohexane
(i-PPCH), perfluorodimethylcyclobutane (PDCB); and
 - c) the ratio of CO₂ to PFC shall not exceed 40,000:1.

4. Injectate Fluid Analysis Limits. The concentration of any constituent in the injected fluid shall not cause a violation of any primary drinking water regulation under 40 CFR part 141 or otherwise adversely affect the health of persons. The purity of the CO₂ is provided in the Certificate of Analysis. The results of the analysis must meet the beverage specifications provided on the Certificate of Analysis. With each batch of CO₂ injected, the accompanying copy of the Certificate of Analysis shall be submitted to the EPA with the quarterly report.

SECTION C. MONITORING, SAMPLING, AND REPORTING OF RESULTS REQUIREMENTS

Monitoring observations, measurements, samples, etc. taken for the purpose of complying with these requirements shall be representative of the activity or condition being monitored.

1. Monitoring and Reporting Parameters and Frequency.

- (a) The following monitoring parameters shall be recorded weekly

- (i) injection pressure (psig); and
- (ii) injection flowrate (kg/day); and
- (iii) yearly cumulative injection volume (tonnes).

(b) The listed parameters shall be reported with the quarterly report:

- (i) monthly minimum, average, and maximum injection pressure (psig); and
- (ii) monthly minimum, average, and maximum injection rate (kg/day); and
- (iii) yearly cumulative CO₂ volume injected (tonnes); and
- (iv) results from the analysis for the analytes listed in Appendix C.

(c) Monitoring records must include:

- (i) the date, time, exact place and the results of the measurement; and
- (ii) name of the individual(s) who performed the measurement

2. Monitoring Methods. The Permittee shall maintain in good operating condition recording devices capable of continuously monitoring, within a certified accuracy of 95% or better: injection pressure (psig), CO₂ injection rate (kg/day), and yearly cumulative volume injected (tonnes). Monitoring shall be carried out with digital equipment and the instrumentation shall be capable of recording at least one value for each of the parameters at least every thirty (30) seconds. Recordings shall be made at least once every ten (10) minutes.

3. Monitor Well Sampling Program. The locations of the monitoring wells are shown in Appendix B.

- a) Prior to injection into the ZERT Class V well, the 2B monitoring well shall be sampled and analyzed for the analytes denoted in Appendix C to obtain background concentrations.
- b) Sampling from the monitoring well shall be **monthly** for the analytes found in Appendix C. If injection did not occur in that month, sampling is not required. Samples shall be collected by the Permittee or his/her representative from the **2B and 4B monitoring wells** during the third week of the month. In the event, that the groundwater level does not reach the depth of the 2B or 4B monitoring wells, the deeper 2A or 4A wells will be sampled. Such sampling techniques shall be utilized so that the fluid sample is representative of the fluid in the subsurface and the sample can be analyzed with an approved EPA method. The analyzing laboratory shall utilize the same EPA methods or other methods that have been approved by the Director.

4. Monitoring Well Fluid Analysis Limits. The samples from the monitoring well must meet the Permit Limits found in Appendix C.

Title 40 CFR part 141 Subpart C specifies analytical methods that shall be used for compliance monitoring under UIC permits. Another analytical method may be used if the laboratory can provide Quality Control information to verify that the alternative analytical method is equivalent to the approved drinking water method. The laboratory performing the analyses for compliance monitoring under this Permit shall be approved by the State Drinking Water Program

to perform these analytical methods.

If at any time, the analysis of the injection fluid shows an exceedance of the Permit Limits, EPA **must** be notified within twenty-four (24) hours, per Part III Section D.10.e. of the Permit. A follow-up sample must be collected within 24 hours and submitted for analysis at the earliest opportunity. If the second sample confirms the exceedance of permit limits, injection must cease immediately and corrective action must be taken to comply with the requirements in this permit, and EPA must be notified within twenty-four (24) hours after receiving analytical results. EPA will subsequently notify the Permittee if injection activities may resume.

5. Sampling Information. Records of any monitoring activity required under this permit shall include:

- (a) The date, exact place, the time of fluid sampling;
- (b) The name of the individual(s) who performed the fluid sampling;
- (c) A certification by the individual(s) who performed the sampling as to the date, exact place, and the time of the sampling;
- (d) The name and address of the laboratory which made the analysis of the fluid;
- (e) The exact sampling method(s) used to take the samples;
- (f) The date the fluid sample was sent to the laboratory;
- (g) The date(s) laboratory analyses were performed;
- (h) The name of the individual(s) who performed the analyses;
- (i) The analytical techniques or methods and quality control used by laboratory personnel; and
- (j) The results of such analyses.

6. Quarterly Reporting of Results. Whether the well is operating or not, the Permittee shall submit Reports to the Director that summarizes the results of the monitoring required Quarterly in 1.b of this Section.

The Quarterly Reports shall cover the period from the January 1 through March 31, April 1 through June 30, July 1 through September 30, and October 1 through December 31. The Quarterly Reports shall be submitted within 30 days following the end of the data collection period.

SECTION D. RECORD KEEPING

1. Records to Retain and Retention Time. The Permittee shall retain records of all monitoring activity and results (whether or not required by this Permit) and other information

required by this Permit for the time periods specified below. The following types of records should be retained.

- (a) Records of calibration and maintenance, and all original recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit shall be retained for a period of AT LEAST THREE (3) YEARS from the date of the sample, measurement, report, or application. This period may be extended anytime prior to its expiration by request of the Director.
- (b) Records of the nature and composition of all injected fluids must be retained until three (3) years after the completion of any plugging and abandonment (P&A) procedures specified in Appendix D. The Director may require the Permittee to deliver the records to the Director at the conclusion of the retention period. The Permittee shall continue to retain the records after the three (3) year retention period unless the Permittee delivers the records to the Director or obtains written approval from the Director to discard the records.

SECTION E. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment. The Permittee shall notify the Director in writing at least 45 calendar days before plugging and abandoning an injection well.

2. Plugging and Abandonment Requirements. Prior to abandonment, the injection well shall be plugged in a manner which cannot allow the movement of a fluid containing any contaminant into any USDW, if the presence of that contaminant may cause a violation of the primary drinking water standards under 40 CFR part 141, other health-based standards, or may otherwise adversely affect the health of persons.

3. Approved Plugging and Abandonment Plan. The approved plugging and abandonment plan and required tests are incorporated into this Permit as Appendix D. Changes to the approved plugging and abandonment plan must be approved by the Director prior to beginning plugging operations. The Director also may require revision of the approved plugging and abandonment plan at any time prior to plugging the well.

4. Plugging and Abandonment Report. Within sixty (60) calendar days after plugging the well, the Permittee shall submit a narrative report to the Director. The person who performed the plugging operation shall certify per the requirements found at Part III Section D.9 that the report is accurate. The report shall consist of either: (1) a statement that the well was plugged in accordance with the approved Plugging and Abandonment Plan; or (2) where actual plugging procedures differed from the plan, a statement that specifies the different procedures which were followed with supporting justification for the selected closure method.

5. Inactive Wells. After any period of two (2) years during which there is no injection, the Permittee shall plug and abandon the well in accordance with the requirements in this Section and Appendix D unless the Permittee:

- (a) provides notice to the Director; and

- (b) describes actions or procedures that will be taken to ensure that the well will not endanger USDW during the period of inactivity.
- (c) describes actions or procedures, satisfactory to the Director, that will be taken to ensure that the well will not endanger underground sources of drinking water during the period of temporary abandonment.

PART III. CONDITIONS APPLICABLE TO ALL PERMITS

SECTION A. PERMIT ACTIONS

1. Modification, Revocation and Reissuance, or Termination. The Director may, for cause or upon a request from the Permittee, modify, revoke and reissue, or terminate this Permit in accordance with 40 CFR §124.5, §144.12, §144.39, and §144.40. Also, this Permit is subject to minor modification for causes as specified in 40 CFR §144.41. The filing of a request for modification, revocation and reissuance, termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any condition of this Permit.

2. Conversions. The Director may, for cause or upon a request from the Permittee, allow conversion of the well from a Class V injection well to a non-Class V well. Conversion may not proceed until the Permittee receives written approval from the Director.

3. Transfers. Under 40 CFR §144.38, a permit may be transferred by the Permittee to a new owner or operator only if:

- (a) the permit has been modified or revoked and reissued (under §144.39(b)(2)), or a minor modification made (under §144.41(d)), to identify the new permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act (SDWA), or
- (b) the current permittee notifies the Director (EPA Form 7520-7) at least 30 days in advance of the proposed transfer date and submits a written agreement between the existing and new permittees containing a specific date for transfer or permit responsibility, coverage, and liability between them, and demonstrates that the financial responsibility requirements of §144.52(a)(7) will be met by the new permittee. If the Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify or revoke and reissue, or modify under §144.41, the transfer is effective on the date specified in the written agreement.

4. Permittee Change of Address. Upon the Permittee's change of address, or whenever the operator changes the address where monitoring records are kept, the Permittee must provide written notice to the Director within 30 days.

SECTION B. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this 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 thereby affected.

SECTION C. CONFIDENTIALITY

In accordance with 40 CFR part 2 and 40 CFR, §144.5, any information submitted to EPA

pursuant to this permit may be claimed as confidential by the Permittee. Any such claim must be asserted at the time of submission by stamping the words "**Confidential Business Information**" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR part 2 (Public Information). Claims of confidentiality for the following information will be denied:

1. The name and address of the permittee; and
2. Information about the existence, absence or level of contaminants in drinking water.

SECTION D. GENERAL DUTIES AND REQUIREMENTS

1. Duty to Comply. The Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification. Such noncompliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).

2. Continuation of Expiring Permit.

(a) Duty to Reapply. If the Permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee must submit a complete application for a new permit at least 180 days before this Permit expires.

(b) Permit Extensions. The conditions of an expired permit may continue in force in accordance with 5 U.S.C. 558(c) until the effective date of a new permit, if:

- (i) The Permittee has submitted a timely application which is a complete application for a new permit; and
- (ii) The Director, through no fault of the Permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit.

(c) Enforcement. When the Permittee is not in compliance with the conditions of the expiring or expired permit the Director may choose to do any or all of the following:

- (i). Initiate enforcement action based upon the permit which has been continued;
- (ii). Issue a notice of intent to deny the new permit. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit;
- (iii). Issue a new permit under part 124 with appropriate conditions; or

(iv). Take other actions authorized by these regulations.

(d) State Continuation. An EPA issued permit does not continue in force beyond its expiration date under Federal law if at that time a State has primary enforcement authority. A State authorized to administer the UIC program may continue either EPA or State-issued permits until the effective date of the new permits, if State law allows. Otherwise, the facility or activity is operating without a permit from the time of expiration of the old permit to the effective date of the State-issued new permit.

3. Penalties for Violations of Permit Conditions. Any person who violates any requirement of the UIC Program is subject to enforcement action under Section 1423 of the SDWA (42 U.S.C. Section 300h-2, et seq.) Violations of this permit may be subject to such other actions pursuant to the RCRA. If the violation is willful, criminal penalties, and/or imprisonment, may result in accordance with Title 18 of the United States Code.

4. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for a 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 this Permit.

5. Duty to Mitigate. The Permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit.

6. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes, but is not limited to, effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures.

7. Duty to Provide Information. The Permittee shall furnish to the Director, within the time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this Permit.

8. Inspection and Entry. The Permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- (a) Enter upon the Permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the condition of this permit;
- (b) Have access to and copy, at reasonable times, records that must be kept under conditions of this Permit;
- (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required

under this Permit; and

- (d) Sample or monitor at reasonable times, for the purpose of assuring Permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any location.

9. Signatory Requirements. All applications, reports or other information submitted to the Director shall be signed and certified according to 40 CFR §144.32. This section explains the requirements for persons duly authorized to sign documents, and provides wording for required certification.

10. Reporting Requirements. Copies of all reports and notifications required by this permit shall be signed and certified in accordance with the requirements under Part III Section D.9 of this Permit and shall be submitted to the EPA:

U.S. Environmental Protection Agency - Region 8
Shallow Well Compliance Lead, Mailcode: 8ENF-UFO
1595 Wynkoop Street
Denver, CO 80202

All correspondence should reference the site name and address and include the EPA Permit number.

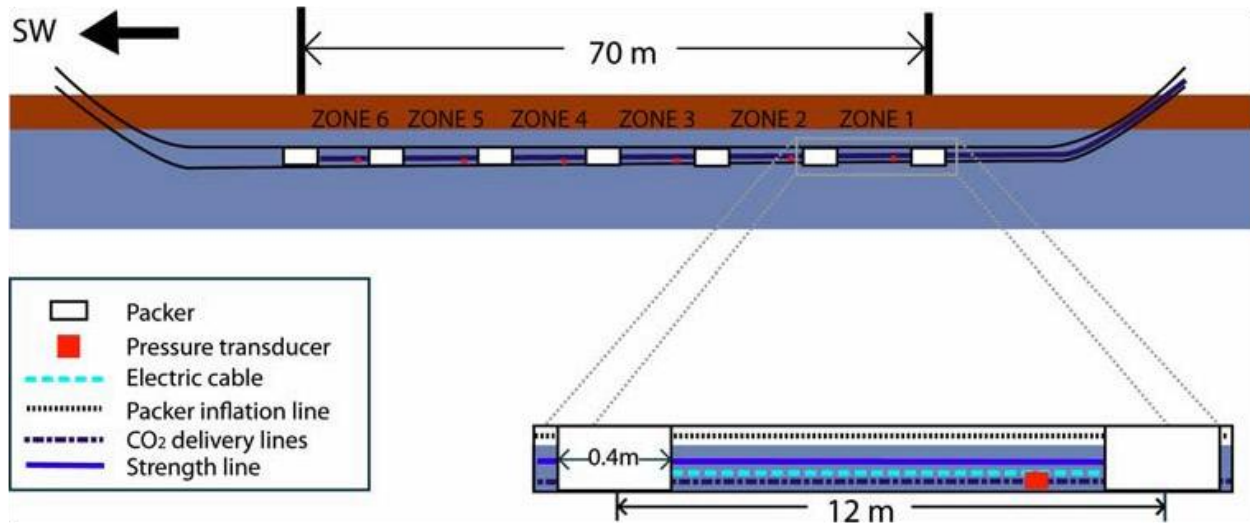
- (a) Monitoring Reports. Monitoring results shall be reported at the intervals specified in this Permit.
- (b) Planned Changes. The Permittee shall give notice to the Director as soon as possible of any planned changes, physical alterations or additions to the permitted injection well, and prior to commencing such changes.
- (c) Anticipated Noncompliance. The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (d) Compliance Schedules. 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 thirty (30) calendar days following** each schedule date. The Permittee will be notified by EPA in writing upon being subject to such a compliance schedule.
- (e) Twenty Four Hour Reporting.
 - (i) **The Permittee shall report to the Director any noncompliance which may endanger health or the environment.** Information shall be provided, either orally or by leaving a message, within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances by telephoning **(800) 227-8917 and asking for the EPA Region 8 UIC Program Compliance and Enforcement Director (during normal business hours)**, or by

contacting the **EPA Region 8 Emergency Operations Center at 303.293.1788 (for reporting at all other times)**. The following information shall be included in the verbal report:

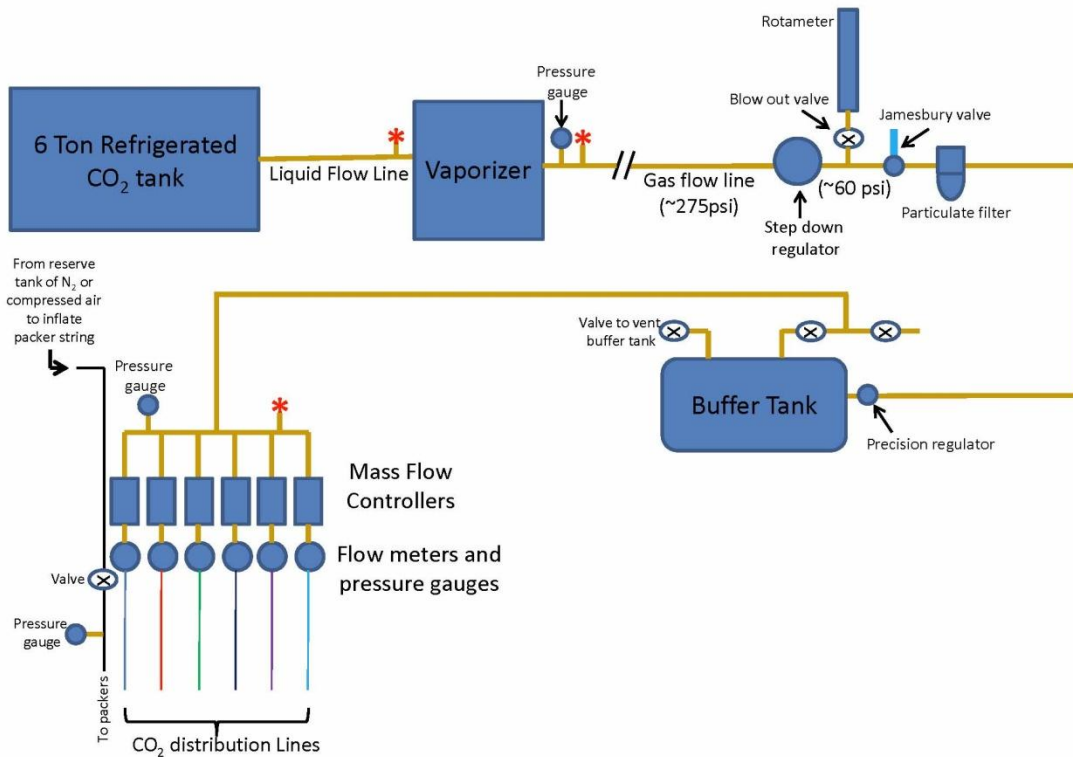
- (A) Any monitoring or other information which indicates that any contaminant may cause endangerment to a USDW.
 - (B) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.
- (ii) Written notice of any noncompliance which may endanger health or the environment **shall be provided to the Director within five (5) calendar days** of the time the Permittee becomes aware of the noncompliance. The written notice shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times; if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to prevent or reduce recurrence of the noncompliance.
- (f) Oil Spill and Chemical Release Reporting. The Permittee shall comply with all reporting requirements related to the occurrence of oil spills and chemical releases by contacting the National Response Center (NRC) at (800) 424-8802, (202) 267-2675, or through the NRC website <http://www.nrc.uscg.mil/index.htm>.
- (g) Other Noncompliance. The Permittee shall report all other instances of noncompliance not otherwise reported at the time of monitoring reports are submitted. The reports shall contain the information listed in Part III Section D.10.e of this Permit.
- (h) Other Information. When the Permittee becomes aware that any relevant facts were not submitted in the permit application, or incorrect information was submitted in a permit application or in any report to the Director, the Permittee shall submit such correct facts or information within 14 calendar days of the time such information becomes known.

APPENDIX A

WELL CONSTRUCTION

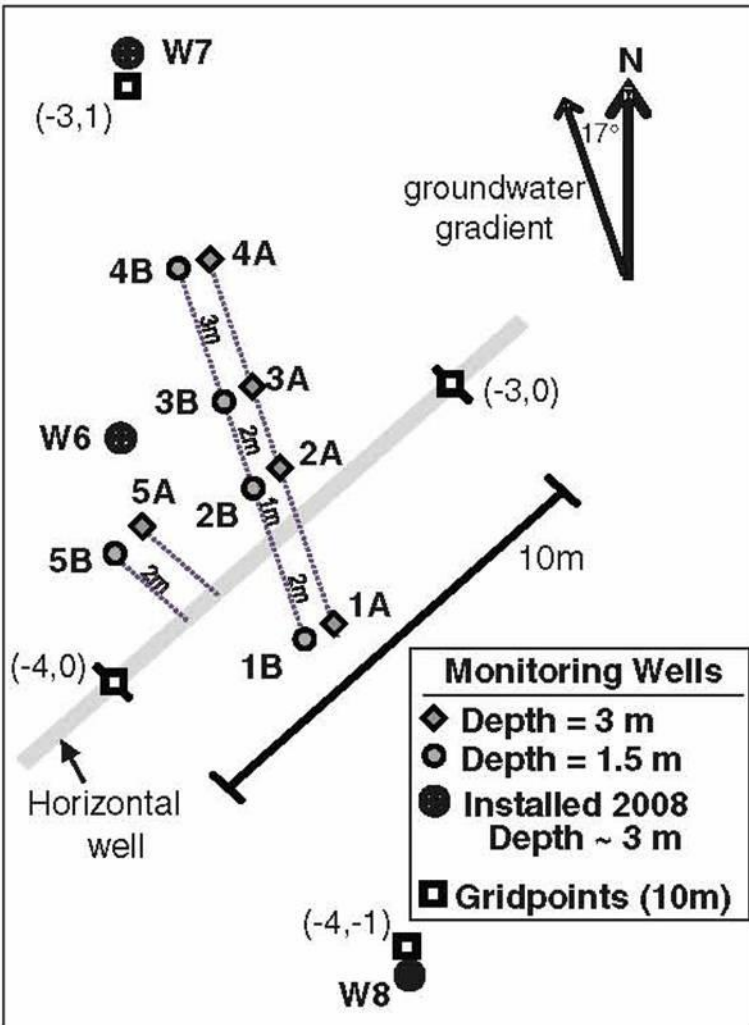


*=Safety pressure relief valve at appropriate psi setting



APPENDIX B

MONITORING WELL SCHEMATIC



APPENDIX C

MONITORING WELL SAMPLING PARAMETERS AND PERMIT LIMITS

The monitoring wells as described in Part II Section C.3.b shall be sampled monthly and analyzed for the analytes in the Tables E-1 through E-4. The Permit Limit is defined in the tables below and is only applicable for an analyte if it is listed below, otherwise, there is no permit limit for that analyte. The analytical methods below are provided for convenience only. These methods may be used or an alternative method described in Part II Section C.4 of this Permit.

The analytes denoted with a (+) are required to be sampled prior to injection into the ZERT Class V to obtain baseline values.

TABLE E-1

Inorganics			
Parameter Name	Permit Limit	Standard Type	Analytical Method
pH			150.1, 150.2
Specific Conductivity			SM 2510B
Temperature			SM 2550
Bicarbonate (HCO ₃)			SM 2320 B
Chloride			300.0, 300.1
+Cyanide	0.2 mg/L		335.4
+Fluoride	4.0 mg/L		300.0
Nitrate (NO ₃)	10 mg/L		
Potassium			200.7
Silica			200.7
Sulfate (SO ₄)			300.0, 300.1, 375.2
Total Dissolved Solids			SM 2540C

TABLE E-2

Volatile Organic Compounds*			
Parameter Name	CAS No	Permit Limit (mg/L)	Standard Type
Benzene	71-43-2	0.005	MCL
Ethylbenzene	100-41-4	0.7	MCL
Toluene	108-88-3	1	MCL
Xylenes (total)	1330-20-7	10	MCL

*Method 524.2 or 8260 is recommended for analyses of these analytes

APPENDIX C

TABLE E-3

Total Metals			
Parameter Name	Regulatory Limit (mg/L)	Standard Type	Analytical Methods
+Antimony	0.006	MCL	200.8, 200.9
Arsenic	0.01	MCL	200.8, 200.9
Barium	2	MCL	200.7, 200.8
+Beryllium	0.004	MCL	200.7, 200.8, 200.9
Cadmium	0.005	MCL	200.7, 200.8, 200.9
Calcium			200.7
Chromium(total)	0.1	MCL	200.7, 200.8, 200.9
Copper	1.3	MCL-TT	200.7, 200.8, 200.9
Lead	0.015	MCL-TT	200.8, 200.9
Magnesium			200.7
+Mercury(inorganic)	0.002	MCL	200.8, 245.1, 245.2
Selenium	0.05	MCL	200.8, 200.9
Sodium			200.7
+Thallium	0.002	MCL	200.8, 200.9

TABLE E-4

Radionuclides			
Parameter Name	Permit Limit	Standard Type	Analytical Method
+Radium 226 & 228 combined	5 pCi/L	MCL	EPA Method 903.0, 904.0
Uranium	30 µg /L	MCL	EPA Method 908.0, 908.1

APPENDIX D

PLUGGING AND ABANDONMENT PLAN

ZERT WELL (320 feet long, 4" diameter stainless steel horizontal well):

The portions of the well pipe that is 24 inches or shallower from surface will be removed. The endpoints of the remaining length of pipe in the subsurface will be documented with survey grade GPS and provided to MSU Facilities Services to be kept on permanent record.

WATER MONITORING WELLS:

The casing of the PVC water all monitoring wells shown in Appendix B will be pulled up out of the ground and the holes filled in with dirt. These wells are 1A, 1B, 2A, 2B, 3A, 3B, 4 A, 4B, 5A, 5B, W7, W8, and any additional monitoring wells that may be installed after the issuance of this permit.