UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

UNDERGROUND INJECTION CONTROL (UIC)

FINAL PERMIT

CLASS I
NON-HAZARDOUS INDUSTRIAL WASTE DISPOSAL WELL

Permit No. CO10787-00053

HOVENWEEP (HWD-1)
McELMO DOME FIELD

County & State: Montezuma County, Colorado

Issued To:

KINDER MORGAN CO_2 COMPANY LP
17801 Hwy 491
Cortez, CO 81321

Date Prepared: Monday, August 24, 2009

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PART I. AUTHORIZATION TO INJECT

Pursuant to the Underground Injection Control (UIC) Regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147,

Kinder Morgan CO_2 Company LP
17801 Hwy 491
Cortez, CO 81321
("the permittee")

is hereby reauthorized to operate a Class I injection well, commonly known as Hovenweep (HWD-1) located at 300 feet from the south line and 515 feet from the east line of Section 9, Township 38 North, Range 18 West, Montezuma County, Colorado. Injection shall be for the purpose of industrial waste fluid disposal into the gross Leadville and Ouray Formations, 8,230 feet - 8,534 feet, in accordance with conditions set forth herein.

This permit reauthorization includes certain modifications of the original permit and the 1996 reauthorization and shall continue operations upon the effective date of this permit renewal. 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. "Transition from Expiring Permit to Permit Re-Authorization" requirements are set forth in Part III, Section B.3 of this permit.

EPA regulates the injection of fluids into injection 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. General permit conditions for which the content is mandatory and not subject to site specific differences are not discussed in this document. Issuance of this Permit does not convey any property rights of any sort or any exclusive privilege, nor does it authorize injury to persons or property or invasion of other private rights, or any infringement of other Federal, State, or local laws or regulations (40 CFR 144.35)

All conditions set forth herein refer to Title 40 Parts 124, 144, 146, and 147 of the Code of Federal Regulations and are regulations that are in effect on the date that this permit becomes effective.

This reauthorized permit and the authorization to inject are issued for an **additional ten (10) years**, unless terminated. The permit will be reviewed at least every five years to determine whether action under 40 CFR 144.36(a) is warranted. The permit will expire at **midnight October 31, 2019**, or upon delegation of primary enforcement responsibility for the UIC 1422 Program to the State of Colorado, unless that State has adequate authority and chooses to adopt and enforce this permit as a State permit.

Reauthorized and issued this SEP 17 2009 day of _____.

This permit becomes effective SEP 17 2009

for Stephen S. Tuber
Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

PART II. SPECIFIC PERMIT CONDITIONS

A. WELL CONSTRUCTION REQUIREMENTS

1. Casing and Cementing.

The construction submitted with the reapplication is hereby incorporated into this permit as APPENDIX A, and shall be binding on the Permittee. The Permittee has cased and cemented the well to prevent the movement of fluids into or between underground sources of drinking water (USDWs). The casing and cement used in the construction of the well have been designed for the life expectancy of the well, and shall be maintained throughout the operating life of the well.

2. Tubing and Packer Specifications.

The applicant submitted details on the tubing and packer in the application; these are incorporated into the permit as APPENDIX A, and shall be binding on the Permittee.

Injection between the outermost casing protecting the underground sources of drinking water and the wellbore is prohibited. Injection directly through the casing is also prohibited.

3. Sampling and Monitoring Devices.

The Permittee shall install and maintain in good operating condition:

(a) a "tap" at a conveniently accessible location on the injection flow line between the pump house or storage tanks and the injection well, isolated by shut-off valves, for collection of representative samples of the injected fluid; and

(b) one-half (1/2) inch female iron pipe fitting, isolated by shut-off valves and located at the wellhead at a conveniently accessible location, for the attachment of a pressure gauge capable of monitoring pressures ranging from normal operating pressures up to the Maximum Allowable Injection Pressure specified in APPENDIX E:

(i) on the injection tubing; and

(ii) on the tubing-casing annulus (TCA); and

(c) a pressure actuated shut-off device attached to the injection flow line set to shut-off the injection pump when or before the Maximum Allowable Injection Pressure specified in APPENDIX E is reached at the wellhead; and

(d) a non-resettable cumulative volume recorder attached to the injection line; and

(e) a continuous recording device(s) to monitor injection pressure, flow rate, volume, and the pressure on the annulus between the tubing and the long string of casing.

4. Proposed Changes and Workovers.

Workovers and alterations shall meet all conditions of the Permit. Prior to beginning any addition or physical alteration to an injection well that may significantly affect the tubing, packer or casing, the Permittee shall give advance notice to the Director and obtain the Director's approval. The Permittee shall record all changes to well construction on a Well Rework Record (EPA Form 7520-12), and shall provide this and any other record of well workover, logging, or test data to EPA **within sixty (60) days** of completion of the activity.

B. CORRECTIVE ACTION

No wells were identified in the Area of Review. Therefore, the operator is not required to take corrective action prior to the effective date of this revised and reissued permit.

C. MECHANICAL INTEGRITY

1. Mechanical Integrity.

The Permittee is required to ensure that each injection well maintains mechanical integrity at all times. Pursuant to 40 CFR 146.8, an injection well has mechanical integrity if it has:

> **Internal (or Part I) Mechanical Integrity (MI)**:
> There is no significant leak in the casing, tubing, or packer. Internal MI generally is demonstrated by pressure testing the well to identify leaks; and
>
> **External (or Part II) MI:**
> There is no significant fluid movement into an underground source of drinking water (USDW) through vertical channels adjacent to the injection well bore. External MI involves evaluating the integrity of the cement behind the casing to find fluid channels or leaks.

Other UIC regulations which may apply include: 40 CFR 146.13.

2. Demonstration of MI.

The operator shall demonstrate Internal and External MI **within seventy-five (75) days** of the effective date of this final permit reauthorization and periodically thereafter, as described in APPENDIX D. The operator shall demonstrate Internal MI after any workover which affects the tubing, packer, or casing. The Director may stipulate specific test methods and criteria best suited for the specific well construction and injection operation. Well-specific conditions present at this well site that dictate the specific method(s) and frequency required for demonstrating MI, are discussed in the Statement of Basis. The method(s) and frequency required, designed to demonstrate both Internal (Part I) and External (Part II) MI, are listed in APPENDIX D of this Permit.

The Director, by written notice, may require the Permittee to comply with a schedule describing when MI demonstrations shall be made. The Director may require additional or alternative tests if the results presented by the operator are not satisfactory to the Director.

Results of MI tests shall be submitted as soon as possible, but **no later than sixty (60) days** after the demonstration is complete to:

U.S. EPA, Region 8
Attention: Mr. Nathan Wiser, or
UIC Technical Enforcement Program Staff
1595 Wynkoop Street, Mailcode: 8ENF-UFO
Denver, CO 80202

3. Mechanical Integrity Test Methods and Criteria.

EPA-approved methods shall be used to demonstrate MI. The following EPA Region 8 guidance and guidelines may be accessed online at *http://www.epa.gov/region8/water/uic/deep_injection.html*, or will be provided to you upon request.

- ☐ "Pressure Testing Injection Wells for Part I (Internal) Mechanical Integrity", *Ground Water Section Guidance No. 39*
- ☐ "Temperature Logging for Mechanical Integrity"

4. Notification Prior to Testing.

The Permittee shall notify the Director at least thirty (30) days prior to any scheduled MI test. The Director may allow a shorter notification period if it would be sufficient to enable EPA to witness the test. Notification may be in the form of a yearly or quarterly scheduled mechanical integrity test(s), or it may be on an individual basis.

5. Loss of Mechanical Integrity.

If the well fails to demonstrate MI during a test, or a loss of MI becomes evident during operation (such as presence of pressure in the tubing, casing, annulus (TCA), water flowing at the surface, etc), the Permittee shall notify the Director **within twenty-four (24) hours** (see Part III, Section E.11.(c) of this permit) and the well shall be shut-in **within forty-eight (48) hours** unless the Director requires immediate shut-in.

Within five (5) days of a loss of MI, the Permittee shall submit a follow-up written report that documents test results, repairs undertaken or a proposed remedial action plan. Injection operations shall not be resumed until after the well has successfully been repaired and demonstrated MI, and the Director has provided written approval to resume injection.

D. WELL OPERATION

1. Injection Interval.

Injection is permitted only within the approved injection interval listed in APPENDIX E. Additional individual injection perforations may be added provided that they remain within the approved injection interval and the Permittee provides notice to the Director in accordance with Part II, Section A.4.

2. Injection Pressure Limitation.

(a) The permitted Maximum Allowable Injection Pressure (MAIP), measured at the wellhead, is found in APPENDIX E. Injection pressure shall not exceed the amount the Director determines is appropriate to ensure that injection does not initiate new fractures or propagate existing fractures in the confining zone adjacent to USDWs. In no case shall injection pressure cause the movement of injected or formation fluids into a USDW.

(b) The pressure limit in paragraph (a) may be increased by the Director if the fracture pressure of the injection formation will not be exceeded, and the Permittee demonstrates that the proposed increase in surface pressure is necessary: (1) to overcome friction losses in the injection system, or (2) to inject the volume rate of fluid set by Part II, Section D.3., below. Either demonstration shall be made by performing a step rate test, using fluid normally injected, to determine both the instantaneous shut-in pressure (ISIP) and the formation breakdown pressure. The Director will determine any allowable increase based on the test results and other parameters reflecting actual injection operations.

(c) The Permittee shall give **thirty (30) days** advanced notice to the Director if an increase of injection pressure will be sought. Details of the proposed tests shall be submitted **at least seven (7)** days prior to the tests. Results of all tests shall be submitted to the Director **within ten (10) days** of the test. Injection at the increased pressure shall be approved by the Director, in writing, before the Permittee may begin continuous operations at the pressure.

(d) Any approval by the Director for the increased pressure limitations as stated in paragraph (b) shall be made a part of this permit by minor modification without further opportunity for public comment.

3. Injection Volume-Rate Limitation.

Injection volume is limited to the volume specified in APPENDIX E.

4. Injection Fluid Limitation.

The Permittee is authorized to inject field and gas plant waste streams and other associated waste streams generated at McElmo Dome and Doe Canyon. These waste streams shall be

nonhazardous at the time of injection. This means that they shall not exhibit any hazardous characteristics of ignitability, corrosivity, and/or toxicity. The present list of waste stream items consists of:

(a) spent sulfamic acid (2-8%) neutralized to a pH of 5 to 9 with soda ash or baking soda. This solution will also include a surfactant, a corrosion inhibitor and ammonium bifluoride;

(b) acetic acid;

(c) diethanolamine (DEA);

(d) coolant drain-off (50% water, 50% diethylene glycol);

(e) associated treatment chemicals, (e.g., antifreeze, corrosion inhibitor, and bacteria inhibitor);

(f) potassium permanganate in potable water;

(g) diethylene glycol;

(h) produced/processed fluids; and

(i) any non-hazardous fluids and/or treatment chemicals associated with field and plant development, operation and maintenance:

The above waste stream items generated at McElmo Dome and Doe Canyon are approved for injection. Prior to the injection of any additional waste streams, the Permittee shall notify the EPA and receive approval from the Director. The Permittee shall demonstrate that the character of the waste stream is not being significantly modified. At a minimum, this shall include pH, total dissolved solids (TDS), and specific gravity.

5. Tubing-Casing Annulus (TCA).

The tubing-casing annulus (TCA) shall be filled with water treated with corrosion inhibitor and oxygen scavenger, or other fluid approved by the Director. The permittee shall attempt to maintain zero (0) to twenty-five (25) pounds per square inch gauge (psig) pressure on the TCA.

If TCA pressure exceeds twenty-five (25) psi, the Permittee shall follow the procedures in *Ground Water Section Guidance No. 35,* "Procedures to follow when excessive annular pressure is observed on a well."

E. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Well Monitoring Program.

The Permittee submitted with the application a monitoring program, parts of which are incorporated into this permit as specified below. Samples and measurements shall be representative of the monitored activity. The Permittee shall utilize the applicable analytical methods described in Table I of 40 CFR Section 136.3, or in Appendix III of 40 CFR Part 261, or in certain circumstances, other methods that have been approved by the EPA Administrator. Monitoring shall consist of:

(a) analysis of the injection fluids, performed:

(i) **quarterly** for: pH, Total Dissolved Solids (TDS), and specific gravity;

(ii) The permittee shall submit a comprehensive water analysis and brief summary to the Director **within thirty (30) days** of observing any significant change(s) in the parameters measured under Part II, Section E.1.(a).(i) of this permit: pH, TDS, and specific gravity. The permittee shall identify the potential of any observed significant change(s) to cause fractures and/or of the potential of the injected fluid to exhibit a hazardous characteristic in the brief summary. A significant change observed for the parameters measured for the injection fluid are:

- pH - Analysis of the fluid's pH value shows it to be less than 2 and/or greater than 12.5;
- TDS - Measured TDS values are 10% greater than the parameter's baseline value; and/or
- Specific Gravity - Specific gravity data is 10% greater than the parameter's baseline value.

The operator shall submit a baseline value to the EPA **within thirty (30) days** following the issuance of the Final Permit. The baseline value shall be based on an average of five years of data for the TDS and specific gravity parameters.

(b) **weekly** observations and recordings of the injection pressure flow rate and volume. The average, maximum, and minimum injection pressure, flow rate, and volume values shall be reported **quarterly** to the Denver EPA office, as per Part II, Section E.4.; and

(c) **weekly** observations and recordings of the annulus pressure and annulus fluid level. The average, maximum, and minimum annulus pressure values, as well as the annulus fluid level, shall be reported **quarterly** to the Denver EPA office, as per Part II, Section E.4.

2. Monitoring Information.

Records of any monitored activity required under this permit shall include:

(a) the date, exact place, and time of sampling or field measurements;

(b) the name of the individual(s) who performed the sampling or measurements;

(c) the date(s) laboratory analyses were performed;

(d) the name of the individual(s) who performed the analysis;

(e) the analytical techniques or methods used by laboratory personnel; and

(f) the results of such analyses.

3. Recordkeeping.

The Permittee shall retain records concerning: all monitoring information and copies of all reports required by this permit for a period of at **least three (3) years** from the date of the sample, measurement, or report, during the operating life of the well. Monitoring data will be kept in the local office of the permittee. This period may be extended anytime prior to its expiration by request of the Director.

4. Reporting of Results.

The Permittee shall submit **Quarterly** Reports to the Director summarizing the results of the monitoring information required by Part II, Section E.1. of this permit. The Permittee shall also submit results of any mechanical integrity tests (MIT), any well workovers, logging, or testing that reveal conditions of the well or injection zone. These reports are due **within sixty (60) days** of the completion activity or at the time of the annual report, whichever is sooner.

The first **Quarterly** Report shall cover the period from the effective date of the permit through the end of the quarter period. Subsequent **Quarterly** Reports shall cover the periods of: January 1 through March 31, and April 1 through June 30, July 1 through September 30, and October 1 through December 31. Each **Quarterly** Report shall be submitted to the Denver Office by the last day (30th or 31st) of the following month. APPENDIX B contains Form 7520-8 which may be copied and used to submit the quarter summary of monitoring.

F. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment (P&A).

The Permittee shall notify the Director in writing **at least forty-five (45) days** prior to: plugging and abandoning an injection well and converting to a non-injection well.

2. Plugging and Abandonment Plan.

The Permittee shall plug and abandon the well as provided in the approved Plugging and Abandonment Plan. EPA reserves the right to change the manner in which the well will be plugged if the well is modified during its permitted life or if the well is not made consistent with EPA requirements for construction and mechanical integrity. The Director may ask the Permittee to update the estimated plugging cost periodically. Such estimates shall be based upon costs which a third party (such as EPA) would incur to plug the well according to the plan. See the approved Plugging and Abandonment Plan in APPENDIX C of this permit.

3. Cessation of Injection Activity.

After a cessation of injection for **two (2) years**, the Permittee shall plug and abandon the well in accordance with the Plugging and Abandonment Plan unless the Permittee:

(a) provides notice to the Director; and

(b) demonstrates that the well will be used in the future; and

(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.

4. Plugging and Abandonment Report.

Within sixty (60) days after plugging the well, the Permittee shall submit a report on Form 7520-13 to the Director. The report shall be certified as accurate by the person who performed the plugging operation and the report shall consist of either: (1) a statement that the well was plugged in accordance with the plan, or (2) where actual plugging differed from the plan, a statement that specifies the different procedures followed.

G. FINANCIAL RESPONSIBILITY

1. Financial Responsibility.

The Permittee shall maintain continuous compliance with the requirement to maintain financial responsibility and resources to close, plug, and abandon the underground injection well(s). No substitution of a demonstration of financial responsibility shall become effective until the Permittee receives written notification from the Director that the alternative demonstration of financial responsibility is acceptable. The Director may, on a periodic basis, require the holder of a permit to revise the estimate of the resources needed to plug and abandon the well to reflect changes in such costs and may require the Permittee to provide a revised demonstration of financial responsibility.

2. Insolvency of Financial Institution.
In the event of:

(a) the bankruptcy of the trustee or issuing institution of the financial mechanism; or

(b) suspension or revocation of the authority of the trustee institution to act as trustee; or

(c) the institution issuing the financial mechanism losing its authority to issue an instrument.

The Permittee shall notify the Director in writing, **within ten (10) business days**, and the Permittee shall establish other financial assurance or liability coverage acceptable to the Director **within sixty (60) days** after any event specified in (a), (b), or (c) above.

The Permittee shall also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, **within ten (10) business days** after the commencement of the proceeding. A guarantor, if named as debtor of a corporate guarantee, shall make such a notification as required under the terms of the guarantee.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The Permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The Permittee, as authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water (USDW), if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit or otherwise authorized by permit or 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. 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 Safe Drinking Water Act (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.

B. PERMIT ACTIONS

1. Modification, Reissuance, or Termination.

The Director may, for cause or upon request from the Permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR Sections 124.5, 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR Section 144.41. The filing of a request for a permit modification, revocation and reissuance, or 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 permit condition.

2. Transfers.

This permit is not transferrable to any person except after notice is provided to the Director and the requirements of 40 CFR 144.38 are complied with. The Director may require modification, or revocation and reissuance, of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the SDWA.

3. Transition From Expiring Permit to Permit Reauthorization.

This well has been operating by **permit** since **July 30, 1986** and a reauthorization was issued in 1996. Adherence to all requirements under 40 CFR Part 144, 146, and 147, including construction, has been verified for this well. An Internal (Part I) Mechanical Integrity (MI) and External (Part II) MI **is required for reauthorization** of injection activities for this well.

4. Waiver of Permit Requirements.

The conditions in this permit may be altered in accordance with the provisions under 40 CFR Section 144.16 (b). This regulation applies to wells which inject through or above an underground source of drinking water. Under this provision, the Director may authorize a well or project with less stringent requirements for operation, monitoring, and reporting than required in 40 CFR Section 144.52 or Part 146 to the extent that the reduction in requirements will not result in an increased risk of movement of fluids into an underground source of drinking water. The radius of endangering influence (or cone of influence) when computed must be smaller or equal to the radius of the well. **A waiver may be requested no sooner than one (1) year after the well has continued operation under this permit renewal. The Permittee may submit multiple applications due to changing site conditions.**

The Permittee shall discuss with the Director how they will obtain the following: the Radius of Endangering Influence (or cone of influence), Injection calibration data, Pressure Fall Off data, and viscosity of injection fluid measurements. Once the Permittee and the Director form a mutual agreement, the Permittee shall provide a work plan to the EPA for approval describing the Radius of Endangering Influence calculation, Injection Test, and Pressure Fall Off Test results, **thirty (30) days** prior to performing the test. All test results and calculations shall be provided to the Director **within sixty (60) days** of completion of the activity. If the Director determines that the requirements of 40 CFR Section 144.16(b) have been achieved, the conditions of this permit may be modified in accordance with the procedure identified in Part III, Section B.1.

C. 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 affected thereby.

D. 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 applicant. Any such claim shall 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:

- The name and address of the Permittee, and

- Information which deals with the existence, absence, or level of contaminants in drinking water.

E. 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 re-issuance, or modification. Such noncompliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).

2. Penalties for Violations of Permit Conditions.

Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to such actions pursuant to the RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. Continuation of Expiring Permits.

(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 shall submit a complete application for a new permit at least **one hundred eighty (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.

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 effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate 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.

7. Duty to Provide Information.

The Permittee shall furnish the Director, within a 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 are kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that shall be kept under the 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 purposes of assuring permit compliance or as otherwise authorized by the SDWA any substances or parameters at any location.

9. Records of the Permit Reauthorization/Issuance Application.

The Permittee shall maintain records of all data required to complete the permit reauthorization application and any supplemental information submitted for a period of **five (5) years** from the effective date of this permit. This period may be extended by request of the Director at any time.

10. Signatory Requirements.

All reports or other information requested by the Director shall be signed and certified according to 40 CFR 144.32.

11. Reporting of Noncompliance.

(a) 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.

(b) 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) days** following each schedule date.

(c) Twenty-four Hour Reporting.

(i) The Permittee shall report to the Director any noncompliance which may endanger health or the environment. Any information shall be provided orally **within twenty-four (24) hours** from the time the Permittee becomes aware of the circumstances by telephoning EPA at **(303) 312-6211 (during normal business hours)** or at **(303) 293-1788 (for reporting at all other times)**. The following information shall be included as information, which shall be reported orally **within twenty-four (24) hours**:

(A) Any monitoring or other information which indicates that any contaminant may cause endangerment to an underground source of drinking water; and/or

(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.

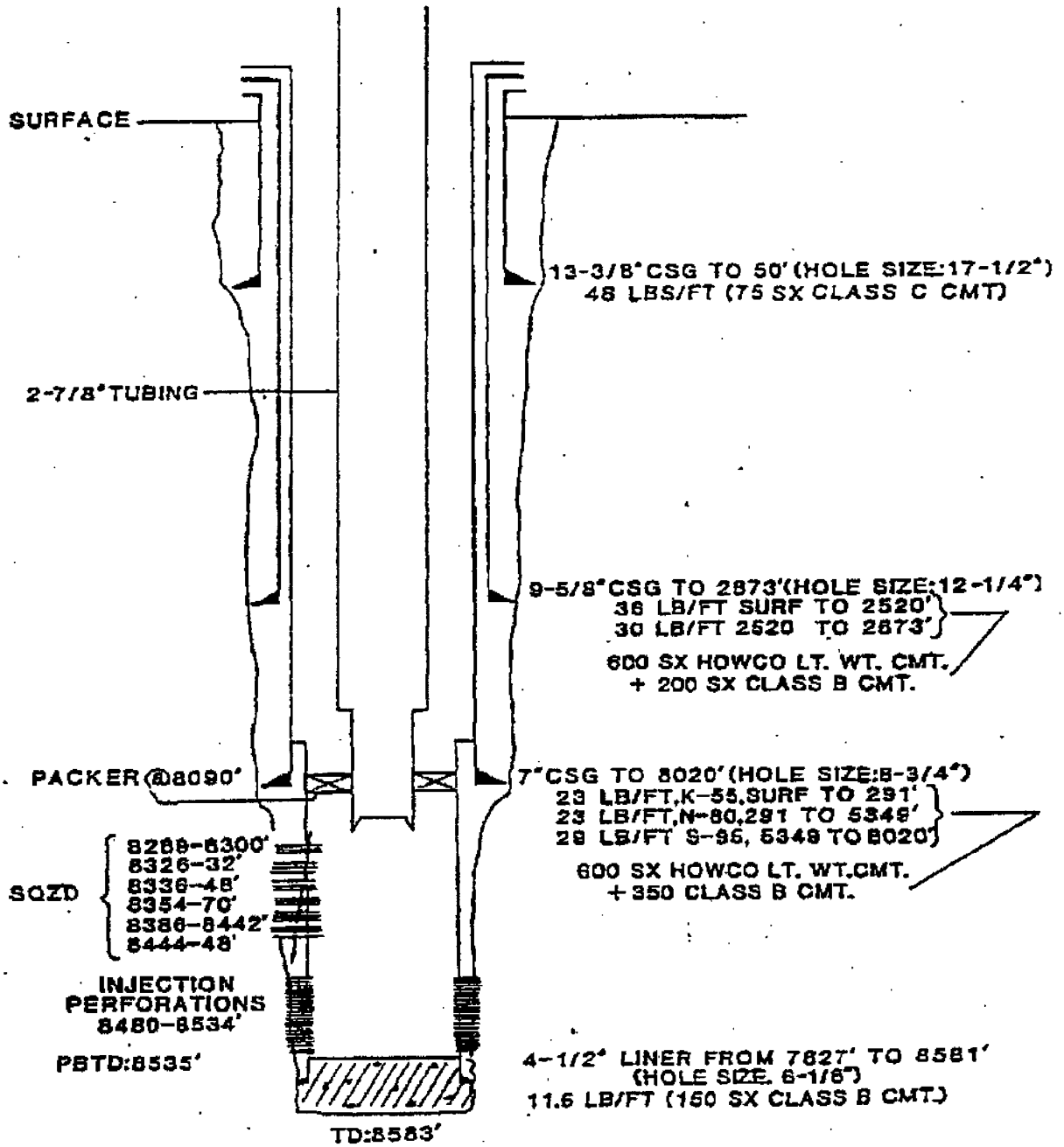
(ii) A written submission shall also be provided **within five (5) days** of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance 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.

(d) 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.

(e) Other Noncompliance. The Permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part III, Section E.11.(c)(ii) of this permit.

(f) Other Information. Where the Permittee becomes aware that he failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the Permittee shall submit such facts or information **within two (2) weeks** of the time such information became known to him.

APPENDIX A CONSTRUCTION PROCEDURES



APPENDIX B REPORTING FORMS

1. EPA Form 7520- 7: Application to Transfer Permit
2. EPA Form 7520- 8: Injection Well Monitoring Report
3. EPA Form 7520-12: Well Rework Record
4. EPA Form 7520-13: Plugging Record
5. EPA Form 3560-1A: Mechanical Integrity Test

OMB No. 2040-0042 Approval Expires 4/30/07

EPA

United States Environmental Protection Agency
Washington, DC 20460

Application To Transfer Permit

Name and Address of Existing Permittee	Name and Address of Surface Owner

Locate Well and Outline Unit on Section Plat - 640 Acres

N

W E

S

State	County	Permit Number

Surface Location Description

____ 1/4 of ____ 1/4 of ____ 1/4 of ____ 1/4 of Section ____ Township ____ Range

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ____ ft. frm (N/S) ____ Line of quarter section and ____ ft. from (E/W) ____ Line of quarter section.

Well Activity	Well Status	Type of Permit
____ Class I	____ Operating	____ Individual
____ Class II	____ Modification/Conversion	____ Area
____ Brine Disposal	____ Proposed	Number of Wells ____
____ Enhanced Recovery		
____ Hydrocarbon Storage		
____ Class III		
____ Other		

Lease Number Well Number

Name(s) and Address(es) of New Owner(s)	Name and Address of New Operator

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability betweend them.

The new permittee must show evidence of financial responsibility by the submission of a surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the Director.

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed

OMB No. 2040-0042 Approval Expires 4/30/07

EPA

United States Environmental Protection Agency
Washington, DC 20460

Injection Well Monitoring Report

Year	Month	Month	Month
Injection Pressure (PSI)			
1. Minimum			
2. Average			
3. Maximum			
Injection Rate (Gal/Min)			
1. Minimum			
2. Average			
3. Maximum			
Annular Pressure (PSI)			
1. Minimum			
2. Average			
3. Maximum			
Injection Volume (Gal)			
1. Monthly Total			
2. Yearly Cumulative			
Temperature (F °)			
1. Minimum			
2. Average			
3. Maximum			
pH			
1. Minimum			
2. Average			
3. Maximum			
Other			

Name and Address of Permittee		Permit Number
Name and Official Title *(Please type or print)*	Signature	Date Signed

EPA Form 7520-8 (Rev. 8-01)

OMB No. 2040-0042 Approval Expires 4/30/07

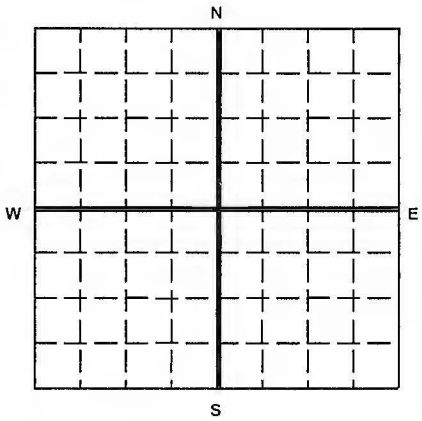
EPA

United States Environmental Protection Agency
Washington, DC 20460

WELL REWORK RECORD

Name and Address of Permittee	Name and Address of Contractor

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number

Surface Location Description

____ 1/4 of ____ 1/4 of ____ 1/4 of ____ 1/4 of Section ____ Township ____ Range ____

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ____ ft. frm (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section.

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☐ Brine Disposal		___ Individual
☐ Enhanced Recovery	Total Depth After Rework	___ Area
☐ Hydrocarbon Storage		Number of Wells ____
	Date Rework Commenced	
Lease Name		Well Number
	Date Rework Completed	

WELL CASING RECORD -- BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD -- AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed

Form Approved UMB No 2040-0042

EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

PLUGGING RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CEMENTING COMPANY

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT ---- 640 ACRES

N

W E

S

STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

_____ 1/4 of _____ 1/4 of _____ 1/4 of _____ 1/4 of Section _____ Township _____ Range_____

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

TYPE OF AUTHORIZATION

- o Individual Permit
- o Area Permit
- o Rule

Number of Wells _____

Lease Name

Describe in detail the manner in which the fluid was placed and the method used in introducing it into the hole

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL(FT)	TO BE LEFT IN WELL(FT)	HOLE SIZE

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- o CLASS I
- o CLASS II
  - o Brine Disposal
  - o Enhanced Recovery
  - o Hydrocarbon Storage
- o CLASS III
- o The Balance Method
- o The Dump Bailer Method
- o The Two-Plug Method
- o Other

CEMENTING TO PLUG AND ABANDONED DATA	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)							
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type cement or other material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS

From	To	From	To

Signature of Cementer or Authorized Representative	Signature of EPA Representative

CERTIFICATION

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. (REF. 40 CFR 122.22)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

Mechanical Integrity Test
Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Direct Implementation Program 8P-W-GW
999 18th Street, Suite 500 Denver, CO 80202-2466

EPA Witness: _____ Date: ____/____/____
Test conducted by: _____
Others present: _____

Well Name: _____ Type: ER SWD Status: AC TA UC
Field: _____
Location: _____ Sec: ____ T ____ N / S R ____ E / W County: _____ State: ___
Operator: _____
Last MIT: ____/____/____ Maximum Allowable Pressure: _____ PSIG

Is this a regularly scheduled test? [ ] Yes [ ] No

Initial test for permit? [ ] Yes [ ] No

Test after well rework? [ ] Yes [ ] No

Well injecting during test? [ ] Yes [ ] No If Yes, rate: _____ bpd

Pre-test casing/tubing annulus pressure: _____ psig

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING PRESSURE			
Initial Pressure	psig	psig	psig
End of test pressure	psig	psig	psig
CASING / TUBING ANNULUS PRESSURE			
0 minutes	psig	psig	psig
5 minutes	psig	psig	psig
10 minutes	psig	psig	psig
15 minutes	psig	psig	psig
20 minutes	psig	psig	psig
25 minutes	psig	psig	psig
30 minutes	psig	psig	psig
minutes	psig	psig	psig
minutes	psig	psig	psig
RESULT	[ ] Pass [ ]Fail	[ ] Pass [ ]Fail	[ ] Pass [ ]Fail

Does the annulus pressure build back up after the test ? [ ] Yes [ ] No

(over)

APPENDIX C PLUGGING & ABANDONMENT PLAN

The revised PLUGGING AND ABANDONMENT PLAN submitted by the applicant is considered to be protective of all USDWs. The revised PLAN is incorporated into this Permit and is binding on the Permittee.

After receiving approval from the Colorado Oil and Gas Conservation Commission, and notifying the appropriate Regional EPA office, the permitted injection well will be plugged and abandoned in accordance with the following PLUGGING AND ABANDONMENT PLAN.

PLUG NO. 1: (Leadville interval, 7" shoe, and 4.5" liner top, 7777 ft. - 8430 ft.) – Set a 4.5" cast iron bridge plug (CIBP) at approximately 8430 ft. Set a cement plug atop of the CIBP to at least 7777 ft.

PLUG NO. 2: (Paradox Salt and Desert Creek tops, 5956 ft. - 6180 ft.) – Set a balanced plug at a minimum from 5956 ft. to 6180 ft.

PLUG NO. 3: (Hermosa top, 4432 ft. – 4532 ft.) – Set a balanced plug at a minimum from 4432 ft. to 4532 ft.

PLUG NO. 4: (Cutler top, 2662 ft. - 2890 ft., 9.625" shoe) – Set a 7" cement retainer at approximately 2873 ft. Set a cement plug above the retainer at a minimum from 2662 ft. to 2873 ft. Set a cement plug below the retainer at a minimum from 2873 ft. and 2890 ft. Squeeze cement behind 7" casing from at least 2662 ft. to 2890 ft.

PLUG NO. 5: (Chinle top, 1900 ft. - 2000 ft.) – Set a 7" cement retainer at approximately 1950 ft. Set a cement plug above the retainer at a minimum from 1900 ft. to 1950 ft. Set a cement plug below the retainer at a minimum from 1950 ft. to 2000 ft. Squeeze cement behind the 7" casing from at least 1900 ft. to 2000 ft.

PLUG NO. 6: (Surface - 100 ft., 13.375" shoe) – Set a cement plug at a minimum from 0 to 100 ft. Squeeze cement behind casing from at least the surface to 100 ft.

Cut off the wellhead below the surface casing. Install P&A marker .

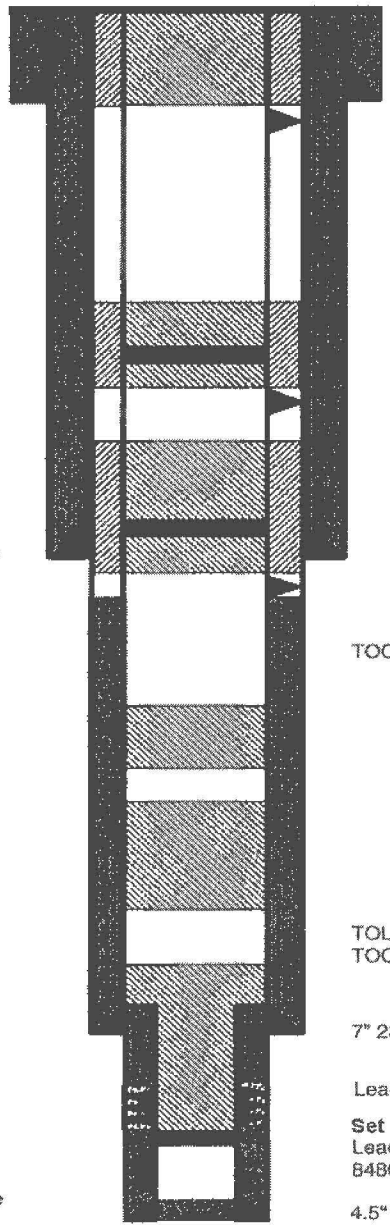
Note: Cemented areas shall be tagged. Class C or similar type cement shall be used to Plug and Abandon the Hovenweep (HWD-1) well. Water based muds, or brines containing a plugging gel, with a density of at least 9.2 lb/gal should be used during plugging operations, and should remain between plugs in the well after cement plug placement.

Hovenweep #1
Proposed P&A
McElmo Dome

300' FSL / 515' FEL Section 9, T-38-N, R-18-W

Montezuma County, CO, API #05-083-06240

Lat: N 37.559551 / Long: W 108.829615



Spud: 11/21/78
Comp: 12/6/83
Elevation: 6877'

17.5" Hole to 40'

13.375", 48# H-40 Casing set @ 50'
Cemented with 75 sxs cement.

Perforate @ 100'

Plug #6: 100' – 0'

Plug #5: 2000'- 1900'

Chinle @ 1950'

Cmt Retainer @ 1950'

Perforate @ 2000'

Plug #4: 2890' - 2662'

Cutler @ 2712'

Cmt Retainer @ 2873'

Perforate @ 2890'

12.25" hole

9.625" 30#,36# K-55 Casing set @ 2873'
Cemented with 800 sxs cement,
Circulated 150 sxs to surface

TOC @ 2900' (CBL)

Hermosa @ 4482'

Plug #3: 4532' - 4432'

Plug #2: 6180' - 5956'

Desert Creek @ 6006'

Paradox Salt @ 6130'

Plug #1: 8430' – 7777'

TOL @ 7827'
TOC @ Liner Top (Calc, 75%)

8.75" hole

7" 23#, 29# K-55, N80, S95 Casing Set @ 8020'
Cemented with 950 sxs cement

Leadville Perforations sqz'd 8326' – 8448'

Leadville @ 8230'

Set CIBP @ 8430'
Leadville Perforations:
8480' – 8534'

6.125" Hole

4.5" 11.6# K-55 Liner set from 7827' to 8581'
Cement with 150 sxs cement

TD 8583'
PBTD 8535'

APPENDIX D LOGGING & TESTING REQUIREMENTS

Logs.
Logs will be conducted according to current UIC guidance. It is the responsibility of the Permittee to obtain and use guidance prior to conducting any well logging required as a condition of this permit.

TYPE OF TEST	DATE DUE
Temperature Log	See Part II MIT Testing requirements below

Tests.
Tests will be conducted according to current UIC guidance. It is the responsibility of the Permittee to obtain and use guidance prior to conducting any well test required as a condition of this permit.

Well Name: Hovenweep (HWD-1)

TYPE OF TEST	DATE DUE
Internal (Part I) Mechanical Integrity Test may be demonstrated with a pressure test using fluid or gas.	Shall be scheduled **within thirty (30) days** after the final permit is issued and performed **within seventy-five (75) days** of the final permit's issuance. The Director may approve an alternate demonstration schedule, if necessary. Both Part I and II Mechanical Integrity Tests shall be performed **at least once every five (5) years** after the last successful demonstration of Mechanical Integrity.
External (Part II) Mechanical Integrity Test shall be demonstrated with a temperature log.	
Fall Off Test and Calibration Data	Shall be performed **within one (1) year** after the effective date of this permit and annually, thereafter. Prior to performing the test the well shall be shut in for **twenty-four (24) hours or a more appropriate timeframe** agreed upon by the EPA Director. The operator shall submit a description of the testing procedures to the EPA Director for approval **at least thirty (30) days** prior to conducting the test.

APPENDIX E OPERATING REQUIREMENTS

MAXIMUM ALLOWABLE INJECTION PRESSURE:
Maximum Allowable Injection Pressure (MAIP) as measured at the surface shall not exceed the pressure(s) listed below:

Well Name: Hovenweep (HWD-1)
Maximum Allowed Injection Pressure: 1000 psi

INJECTION ZONE(S):
Injection is permitted only within the approved injection interval listed below. Injection perforations may be altered provided they remain within the approved injection interval and the Permittee provides notice to the Director in accordance with Part II, Section A.4. Specific injection perforations can be found in APPENDIX A.

Hovenweep (HWD-1)

FORMATION NAME	APPROVED INJECTION INTERVAL (ft)
Leadville-Ouray	8,230 -8,534

FORMATION NAME	PERFORATED INTERVAL (ft)
Leadville-Ouray	8,480 – 8,534

ANNULUS PRESSURE:
The annulus pressure shall be maintained below twenty-five (25) psi as measured at the wellhead. If this pressure cannot be maintained below twenty-five (25) psi, the Permittee shall follow the procedures listed under Part II, Section D.5 of this permit to reduce annulus pressure.

MAXIMUM INJECTION VOLUME:
There is no limitation on the number of barrels per day (bbls/day) of water that shall be injected into this well, provided further that in no case shall injection pressure exceed the limit shown above.

FINAL STATEMENT OF BASIS

Kinder Morgan CO_2 Company LP

HOVENWEEP (HWD-1)
McELMO DOME FIELD, MONTEZUMA COUNTY, COLORADO

UIC PERMIT NUMBER: CO10787-00053

CONTACTS:

U.S. Environmental Protection Agency (EPA)
Region VIII
Attention: Linda M. Bowling
UIC Implementation Section (8P-W-GW)
1595 Wynkoop Street
Denver, Colorado 80202-1129
(303) 312-6254

DESCRIPTION OF FACILITY AND BACKGROUND INFORMATION

On August 1, 2005, an application was received in our office from Kinder Morgan CO_2 Company LP, to "... modify and reissue ("reauthorize to inject for an additional ten [10] years") this permit in accordance with 40 CFR Sections 124.5 and 144.39 recognizing that the permit could be subject to minor modifications for cause."

Kinder Morgan CO_2 Company LP (Kinder Morgan) is involved in the extraction of oil and gas from subsurface reservoirs. Kinder Morgan has also determined that the naturally occurring carbon dioxide (CO_2) can be produced and economically used as an enhanced oil recovery agent.

The CO_2 source field is leased under provisions of standard oil and gas leases from the Bureau of Land Management (BLM) and private parties. Existing production operations (from approximately 30 wells in the Leadville and Ouray Formations) result in the recovery of naturally-occurring gases consisting of 98.37% carbon dioxide (CO_2), 1.38% nitrogen (NO_2) and 0.25% methane (CH_4). These produced gases are piped to a cluster facility where free water is separated out using gravity separation. The liquid and vapor CO_2 are treated with Diethylene Glycol (DEG) and transported to a central facility where the CO_2 is vaporized and the liquid water and DEG are separated. The DEG and the waste stream of produced water are disposed into the Leadville and Ouray Formations.

This permit is being reissued with some changes (modifications) from the existing, expiring UIC Class I permit for the Hovenweep (HWD-1) (CO10787-00053). This permit allows continuation for the non-commercial injection of the process-produced, nonhazardous McElmo Dome and Doe Canyon Fields Leadville Formation waste water into the subject disposal injection well. The Hovenweep (HWD-1) permit number has changed to CO10787-00053.

The following new permit conditions have been included in this 2009 permit renewal.

- **MONITORING DEVICES, PART II.A.3**

  New standard language has been incorporated into this section.

- **MECHANICAL INTEGRITY TESTS, PART II.C.2**

  The Mechanical Integrity Testing (MIT) section has been revised to comply with current requirements presented in 40 CFR 146.8 and EPA Guidance No. 39 – Pressure testing injection wells for Internal (Part I) Mechanical Integrity, 1995. EPA regulation, 40 CFR 146.8, requires that both Internal (Part I) & External (Part II) Mechanical Integrity Tests be performed **once every five (5) years and/or five (5) years** after the last demonstration.

  A Temperature Log will be the method that is used to fulfill Part II requirements. This condition is being incorporated into the permit to fulfill requirements under 40 CFR 146.8. Both Part I (Internal) and Part II (External) initial Mechanical Integrity tests will be performed **within thirty (30) calendar days** after the final renewal permit is issued and **every five (5) years** after the last demonstration.

  Appendix D – Logging and Testing, has been included to summarize the requirements of this permit. It also contains detailed permit conditions.

  A Pressure Fall Off Test is being required to comply with current requirements presented in 40 CFR 146.13(d). This requirement has been reinstated in the 2009 renewal because the Cone of Influence calculation, Drawdown type curves (log-log plot) and explanation submitted in Kinder Morgan's July 13, 2009 email does not meet the provisions under 40 CFR 144.16(b). The log-log plot data does not conclusive show that an open fault is not present in the area. Therefore, Kinder Morgan is no longer authorized to operate with less stringent monitoring, reporting, and/or testing requirements.

- **INJECTION INTERVAL, PART II.D.1**

  Appendix E – Operating Conditions, has been included to summarize working conditions of the well.

- **TUBING-CASING ANNULUS, PART II.D.5**

New Tubing-Casing Annulus standard language has been incorporated into the permit and Appendix E. Kinder Morgan is now required to maintain an annulus pressure of 25 psi or below. Kinder Morgan will use the procedures in Guidance No.35 to address exceedances above 25 psi.

- **INJECTION WELL MONITORING PROGRAM, PART II.E.1**

New standard language has been incorporated into the permit.

- **REPORTING OF RESULTS, PART II.E.4**

New standard language has been incorporated into the permit to meet the requirements of 40 CFR 146.13(c). This requirement has been reinstated in the 2009 renewal because the Cone of Influence calculation, Drawdown type curve (log-log plot), and follow-up submitted July 13, 2009 email from Kinder Morgan does not meet the provisions under 40 CFR 144.16(b). The data does not conclusive show that an open fault is not present in the area. Therefore, Kinder Morgan is no longer authorized to operate with less stringent monitoring, reporting, and/or testing requirements.

- **PLUGGING AND ABANDONMENT, PART II.F**

The permittee's time frame for notifying the Director prior to plugging and abandoning an injection well and converting the well to a non-injection well has been extended from thirty (30) days to forty-five (45) days.

Kinder Morgan has requested to use a new Plug and Abandonment Plan. The new Plug and Abandonment Plan contains more cement and is more protective of USDWs. The plan contains a procedure to seal open conduits, to isolate USDWs, and to reinforce the confining zone.

- **FINANCIAL ASSURANCE, PART II.G**

The existing Surety Performance Bond will serve as demonstration of financial responsibility for plugging and abandonment. The mechanism submitted was in the amount of $58,000 for the Hovenweep (HWD-1) water disposal injection well.

New standard language has been incorporated into this section.

- **WAIVER OF PERMIT REQUIREMENTS, Part III.B.4**

  New standard language has been incorporated into this section to allow Kinder Morgan to apply, under 40 CFR Section 144.16(b), to alter some permit conditions.

- **CONTINUATION OF EXPIRING PERMITS, Part III.E.3**

  New standard language has been incorporated into the permit.

- **INSPECTION AND ENTRY, Part III.E.8**

  New standard language has been incorporated into the permit.

- **OIL SPILL AND CHEMICAL RELEASE REPORTING, PART III.E.11(d)**

  New standard language has been incorporated into the permit.

The Statement of Basis for this permit re-issuance action was prepared with reference to, and considers much of the Fact Sheet, issued with the 1996 permit renewal.

This re-permitting action, under the Safe Drinking Water Act (SDWA), applies only to the "re-issuance" of the Class I UIC permit for the Hovenweep (HWD-1) industrial waste fluids disposal well. The Hovenweep (HWD-1) well is located 300 feet from the south line and 515 from the east line (SE SE SE) of Section 9, Township 38 North, Range 18 West, Montezuma County, Colorado. Issuance or denial of this permit does not preempt any other Federal, State, or local permitting requirements.

Class I well permits shall be effective for a fixed term not to exceed ten (10) years (40 CFR Part 144.36). This permit will expire in ten (10) years from the effective date. This permit contains conditions which state that EPA may again, with due cause, modify, revoke, and reissue, or terminate the permit in accordance with Federal regulations, if and when revisions or amendments to the SDWA are made.

The Mississippian Leadville Limestone is 284 feet thick and occurs at an approximate depth of 8,230 feet to 8,514 feet. The total depth (TD) of the Hovenweep (HWD-1) is 8,583 feet in the Ouray Formation. Plug back total depth (PBTD) is 8,535 feet. Lithology of the Leadville is limestone, often oolitic and fossiliferous, and changing to dolomite in the lower half of the formation.

The Leadville Formation's hydrogeologic parameters include: porosity, 8%; permeability, 2.7 md; pore pressure, 2,500 psi; fracture pressure, 4,330 psi; bottom-hole pressure, 3,220 psi (while injecting @ 3 BPM); bottom-hole temperature, 180 F; and Total Dissolved Solids (TDS), 3,000-100,000 ppm.

The gross permitted injection zone will be from the top of the Leadville at 8,230 feet to 8,534 feet in the Ouray. The Hovenweep has open perforations in the intervals of 8,480 – 8,534 feet. Perforations were squeezed at the completion of the well in the interval of 8,298 – 8,448 feet.

The confining zone is considered to be the Pennsylvanian "red bed" Molas Formation, as described for the Woods #3 (MDW-1] injection well (also in the McElmo Dome Field). The Molas consists of interbedded red siltstone and sandstone, light colored limestone and varicolored shales. The 114-foot thick Molas shales and siltstones have apparent log porosity, but are impermeable. The Molas limestone intervals are tight, with porosity of less than two (2) percent. Additional shale sections between the injection zone and the lowermost possible USDW include: Cutler Formation (1,777 feet thick), Moenkopi Formation (49 feet thick), and the Chinle Formation (706 feet thick). Local hydrogeology and ground water utilization issues are discussed in the Fact Sheet published with the original UIC permit for the Hovenweep (HWD-1), as are the physical setting (stratigraphy, hydrogeology, and structural geology). Casing, tubing, and cement construction detail issues are also discussed in the Fact Sheet.

The Hovenweep (HWD-1) injection well was originally classified as a "Class I well injecting non-hazardous industrial waste" on the basis that the waste stream is being derived from the production and dewatering of CO_2. In addition, injection is into a formation significantly deeper than the lowermost USDW within the one-quarter (1/4) mile area of review for this reissued permit.

This Statement of Basis gives the derivation of the site specific permit conditions and reasons for them on the basis of the Class I direct implementation regulations promulgated in the State of Colorado under the UIC program provisions of the Safe Drinking Water Act (SDWA).