UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8P-W-GW

RE: UIC injection well permit application

Dear Applicant:

Enclosed is a package containing an application form for an Environmental Protection Agency (EPA) Region 8 Underground Injection Control (UIC) Program injection well permit. However, this package contains more than just the UIC permit application form. It also contains information about the EPA's UIC permitting process and requirements, discusses the EPA's role in permitting UIC wells, and provides details about the information that you are required to submit. By following these guidelines, and providing and organizing all the additional necessary information that you submit with your application, the EPA can process your permit application that much more quickly.

The complete permitting process, including the preparation of a draft permit, statement of basis and the notice for public comment, necessarily may take a substantial amount of time and effort. Therefore it is important to realize that you, as applicant, can help expedite processing of your permit by preparing an organized and complete permit application. As with any technical situation, particular circumstances vary and there may be options you may want to explore and discuss. Please contact the Region 8 Ground Water Program Office if you need clarification or additional information at any point during the permitting process. We can be reached by telephone at 1-800-227-8917, or see our website at: http://www.epa.gov/region08/water/.

The EPA's UIC Permitting Process

You may find that the EPA's UIC permitting process differs from other types of permitting programs. Authorized under the Safe Drinking Water Act, the UIC Program is a contamination *prevention* program. As such, we evaluate all proposed injection wells for their ability to *prevent*, not just minimize, contamination of underground sources of drinking water. This requires that we consider all aspects of the proposed injection well operation, including well construction, work overs, proposed injection conditions, geologic setting, and area ground water use and quality. EPA regulations require that the permit's Administrative Record contains data that adequately documents the permitting decisions.

Permit processing delays many times are caused when an applicant supplies no or incomplete supporting information with the permit application. When this information is not supplied with the permit application, we must take time and attempt to gather the information

either directly from you or from other sources such as state agencies, published reports, etc., and gathering this information usually extends the permit processing time.

Step 1. Administrative Review

In this first step, the EPA checks to ensure that your permit application is complete and contains all appropriate attachments. If the EPA finds that the permit application lacks all of the required attachments, we will notify you, in writing, that your application is incomplete, describe the deficiencies, and set a deadline for you to complete your application. Failing to meet the deadline may result in denial of your application.

When assembling your application, please note that you may not be required to complete every attachment. Required attachments may vary depending on the type of proposed well and it's geographic location. To help you determine which attachments apply in your case, please refer to the enclosed Administrative Review Checklist, or contact the Regional UIC Program office at the number listed at the close of this letter. Please note that under EPA regulations, an existing producing well, dry hole, temporarily abandoned or plugged well proposed for injection purposes, and any to-be-drilled new well, is considered by the EPA to be a "NEW WELL."

Step 2. Technical Review

Once your application is complete, the EPA conducts a more thorough technical review and evaluates the technical details concerning your proposed injection well. It is during this stage that the EPA will assess the ability of your proposed well to operate without contaminating underground sources of drinking water (USDWs), and develop the conditions and requirements of the permit. The EPA considers the construction of the proposed injection well, the affected area surrounding the proposed well (Area of Review), geology, hydrology, proposed well operations, and the plugging and abandonment plan. The permit writer will closely review and evaluate the supporting information you provided with your application. In some cases, the permit writer may contact you in order to obtain more complete data and information.

To help you better understand our evaluation of a proposed injection well's ability to prevent contamination of underground sources of drinking water in the permit process, the concept of USDWs will be explained. Congress defined USDWs in order to ensure protection of our nation's present and potential future drinking water sources. A USDW is considered any water-bearing formation that contains less than 10,000 mg/l total dissolved solids (this can include oil-bearing formations), even if it is not currently being used or could not later be used without some form of water treatment. While UIC regulations allow for exemption from USDW protection any aquifer that is not used as a drinking water source and meets certain other limited criteria, an exemption must be explicitly applied for and sufficient justification supplied by the permit applicant. In completing your permit application, identifying all USDWs from the surface downward in the area of the proposed well can help speed your permit's progress.

The following elements are evaluated to determine construction, operating, monitoring, reporting, and well abandonment conditions of a permit:

Geologic Siting: This review focuses on the geology surrounding your proposed injection well, using information and data on USDWs, the injection zone, and confining zone(s) to assess potential impacts to USDWs. The geology will determine how the well is to be constructed or converted, logged, tested, operated, and plugged and abandoned. The EPA assesses the ability of confining zone(s) to prevent movement of fluids into USDWs as well as the influences of faults or lateral stratigraphic changes that may affect protection of USDWs. Therefore, it is important for the applicant to provide appropriate and complete geologic information, including formation depths and water analyses.

Well Construction: This review examines the proposed or existing well construction to assure it is drilled, cased, and cemented to prevent movement of fluid into or between USDWs. All newly drilled injection wells should be cased and cemented to prevent fluid moving into or between USDWs. The requirement for preventing flow between USDWs may be waived for converted wells because it may require the casing be perforated and squeezed with cement, which compromises the integrity of the casing and may pose a threat of USDW contamination. In these cases, measures to prevent fluid movement between USDWs are imposed during the plugging and abandonment of the well. Cement records and cement bond logs typically are used to evaluate injection well construction and should be provided with the application.

Area of Review (AOR): For all "NEW WELL" permit applications, the EPA reviews water wells and ground water usage, and the construction of all wells within an area surrounding the proposed injection well. The EPA evaluates wells within the AOR to ensure that offset wells will not provide conduits for movement of fluids out of the injection zone and into USDWs. Cement records and cement bond logs are used to evaluate offset well construction and should be provided with the application if available. Three options are available to correct a potential problem in a well within the AOR:

i EPA will require corrective action to eliminate the possibility for fluid movement such as repair, recementing, or replugging of the well, or

ii EPA will limit the maximum authorized injection pressure to prevent fluid movement into USDWs in an offset well, or

iii EPA will deny the permit for the injection well.

Operating Conditions, Monitoring and Reporting: The EPA also evaluates and determines the maximum injection pressure, allowed volumes or rates, approved fluid type or sources, and monitoring requirements. The EPA sets permit conditions according to the operation, type of well, and characteristics of the injection zone. The EPA may require a step rate injectivity test to determine the fracture pressure and set the maximum injection pressure. Fracture stimulation data or step rate tests conducted previously on the well or nearby offset wells may be used to help establish the fracture gradient if the test or operation was properly conducted. The EPA sets monitoring frequency requirements and determines which parameters are to be monitored. Monitoring usually include annual fluid analyses that includes specific gravity, well injection pressure, annulus pressure, injection rate and cumulative volume. Copies of EPA reporting forms are included in this package, including the Annual Disposal/Injection Well Monitoring Report, EPA Form 7520-11.

Plugging and Abandonment (P&A): The EPA requires a proposed plugging and abandonment plan to ensure that the plugging operation and placement of plugs will prevent fluid movement into and between USDWs. The EPA reviews proposed plugging plans for their ability to prevent contamination of USDWs, and may end up requiring more plugs than otherwise necessary if the application does not provide information about the geology or water quality. Where there are two formations that contain water with less than 2,000 mg/l TDS difference, they usually are not required to be isolated from each other by plugs. The EPA requires demonstration of financial responsibility and resources to close, plug and abandon the well. The enclosed Guidance Booklet and example forms provide more complete information about how to fulfill your Financial Responsibility (or bonding) requirement.

Our **Technical Review** requires thorough review of the proposed injection well, offset well or wells, and the surrounding geologic and hydrogeologic setting. This is the reason the EPA asks you to submit detailed material with your permit application. If adequate information is not provided with an application, the permit writer must take time to acquire that information from your or gather that information themself, and that can significantly slow the progress of your permit. Also, if not successful getting the needed information, the permit may end up requiring additional well testing and logging, AOR corrective actions, may impose substantially restrictive operating limits, or EPA may deny your permit.

When time is a critical factor, it may be in your best interest to select a well that has plenty of records and information about it's construction, work over history, geology and water quality, and also has good records for offset wells in the area of review. To aid you in completing your application and selecting what information to provide, please refer to the enclosed "Information to Be Submitted for Each Attachment" list. If you have further questions about what information to provide with your application, you may wish to directly contact the UIC Program at the telephone number provided at the end of this letter.

Step 3. Draft Permit Decision

After the thorough Technical Review, the EPA makes a preliminary decision whether injection can occur without threatening USDWs. If protection of USDWs is assured, a Statement of Basis that details the basis for the agency's permit decision and conditions of the permit, and the Draft Permit and accompanying Public Notice are prepared and issued. If not, the EPA will issue a draft Permit Denial and accompanying Public Notice.

Step 4. Public Notification and Opportunity for Public Comment

The EPA prepares a Public Notice that informs the public about the draft Agency decision and their opportunity to comment or request a public hearing, and describes the location and proposed function of the well as well as other facts related to the draft permit decision. The Public Notice is published by the EPA in newspapers in the locale of the proposed operation. The EPA also sends you a copy of the notice along with copies of your draft permit and the Statement of Basis for your review and comments. The public comment period provides for a minimum thirty-day opportunity for public comments on the draft permit before the EPA issues

the final permit decision. If a public hearing is requested, the EPA Regional Administrator will designate a Presiding Officer, and schedule and conduct the public hearing in a location near the proposed operation. The public comment period automatically is extended until the close of the public hearing, and the Presiding Officer may extend the comment period even further.

Step 5. Final Permit Decision

Following the close of the public comment period, the EPA must review and respond to all relevant comments (if any), revise the draft permit if necessary, and issue the final permit decision. The final decision is effective immediately when signed by the Director unless comments were received, in which case the Effective Date is delayed by thirty days to allow commenters their opportunity to appeal the decision to the EPA Administrator through the Environmental Appeals Board in Washington, D.C.

The following documents are enclosed:

- "Dear Applicant" Cover Letter
- UIC Permit Application, EPA Form 7520-6
- UIC Permitting Process Flowchart & "Issuing a UIC Permit"
- Checklist for Administrative Review
- Information to Be Submitted with Application Attachments
- Financial Responsibility (Bonding) Guidance Booklet
- Example Forms for Financial Responsibility Demonstration:
  - Irrevocable Standby Letter of Credit
  - Standby Trust Agreement with Schedule "A"
  - Surety Performance Bond
  - Trust Agreement with Schedule "B"
  - Chief Financial Officer's Letter
- UIC Program Reporting Forms:
  - EPA Form 7520-7 Application to Transfer Permit
  - EPA Form 7520-8 Injection Well Monitoring Report
  - EPA Form 7520-9 Completion Form For Injection Wells
  - EPA Form 7520-10 Completion Report for Brine Disposal, Hydrocarbon Storage or Enhanced Recovery Well
  - EPA Form 7520-11 Annual Disposal/Injection Well Monitoring Report
  - EPA Form 7520-12 Well Rework Record
  - EPA Form 7520-13 Plugging Record
  - EPA Form 7520-14 Plugging and Abandonment Plan
- Copy of Federal UIC Regulations, 40 CFR Part 124 and 144-148 (7-1-02 Edition)
- UIC Program Overview, Second Edition July 23, 2001
- Copy of Region 8 Ground Water Section Guidance No. 34 "*Cement Bond Logging Techniques and Interpretation*"
- Copy of Region 8 Ground Water Program Guidance No. 40 "*Plugging and Abandonment Requirements For Class II Injection Wells*"