Region 4’s Underground Injection Control (UIC) Permitting Process

This document 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 applicants are required to submit. 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.

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 (USDWs). This requires that we consider all aspects of the proposed injection well operation, including well construction, work overs, proposed injection conditions, geologic setting, area ground water use and quality. As an application for a Federal permit, EPA must also apply and consider several Federal laws to the permitting process. In addition, 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 the applicant 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 a submitted permit application form 7520-6[[1]](#footnote-1) (Office of Management and Budget Number 2040-0042) is complete and contains all appropriate attachments as described in the 7520-6 instructions. If the EPA finds that the permit application lacks all the required attachments, EPA notifies the applicant, in writing, that the application is incomplete, describes the deficiencies and sets a deadline for complete of the application.

Failing to meet the deadline may result in denial of an application.

When assembling an application, please note that the applicant may not be required to complete every attachment described in the permit application form 7520-6 instructions. Required attachments may vary depending on the type of proposed well and its geographic location. 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, are considered by the EPA to be a new injection well.

# Step 2. Technical Review

Once an application is complete, the EPA conducts a more thorough technical review and evaluates the technical details concerning the proposed injection well. It is during this stage that the EPA will assess the ability of the proposed well to operate without contaminating USDWs and develop the conditions and requirements of the permit. The EPA considers the construction of the proposed injection well itself, as well as the proposed operating procedures, and proposed plan for the eventual decommissioning of the well (referred to as Plugging and Abandonment) at the end of its productive life. During this step the EPA also considers the affected area surrounding the proposed well (referred to as the Area of Review or AOR) for relevant surface features, geologic setting, hydrology & USDWs and how other wells in the area are constructed. Additionally, the technical review is when the EPA also considers the application through the lens of other applicable Federal laws.

The EPA will closely review and evaluate the supporting information provided with the application. In some cases, the EPA may need to contact the applicant in order to obtain more complete data and information. 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 for detailed material to be submitted with the permit application. If adequate information is not provided with the application, the permit writer must take time to acquire that information from the applicant or gather that information themself, which can significantly slow the progress of the permit review. If permit writers are not successful in finding needed information, an issued permit may end up requiring additional well testing and logging, AOR corrective actions on existing wells, may impose substantially restrictive operating limits, or EPA move to deny issuance of the permit all together.

## 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.

## Operating, Monitoring and Reporting Conditions

The EPA also evaluates and determines the maximum injection pressure, allowed volumes, injection rates, approved fluid type and 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 and when the results of this monitoring are to be reported. Monitoring usually include annual fluid analyses that includes specific gravity, total dissolved solids, pH, well injection pressure, annulus pressure, injection rate and cumulative volume.

## 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 requires a demonstration of financial responsibility and resources to close, plug and abandon the well.

## Identification of USDWs in the AOR

To help 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 currently used as a drinking water source and meets certain other limited criteria, an exemption must be explicitly applied for, and sufficient justification must be supplied by the permit applicant. In completing the permit application, applicants are required to identify all USDWs from the surface downward in the area of the proposed well.

## Geologic Siting

This review focuses on the geology surrounding the 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. In the absence of sufficient geologic information, a permit may include additional well logging or testing requirements, or the application may be denied entirely.

## Review of Wells in the AOR

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 (3) 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 re-plugging 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.

## Other Federal Laws

The following is a list of Federal laws that may apply to the issuance of UIC permits. When any of these laws is applicable, its procedures must be followed. When the applicable law requires consideration or adoption of a particular permit conditions or requires the denial of a permit, those requirements also must be followed.

* **The Wild and Scenic Rivers Act**. Section 7 of the Act prohibits the permitting of any water resources project that would have a direct, adverse effect on the values for which a national wild and scenic river was established.
* **The National Historic Preservation Act of 1966.** Section 106 of the Act require the adoption of measures when feasible to mitigate potential adverse effects of the activity to properties listed or eligible for listing in the National Register of Historic Places. The Act's requirements are to be implemented in cooperation with State Historic Preservation Officers and upon notice to, and when appropriate, in consultation with the Advisory Council on Historic Preservation.
* **The Endangered Species Act.** Section 7 of the Act require the EPA to ensure, in consultation with the Secretary of the Interior or Commerce, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.
* **The Coastal Zone Management Act.** Section 307(c) of the Act and implementing regulations prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the States nonconcurrence).
* **The Fish and Wildlife Coordination Act.** This requires the EPA to consult with the appropriate State agency exercising jurisdiction over wildlife resources to conserve these resources, before issuing a permit proposing or authorizing the impoundment (with certain exemptions), diversion, or other control or modification of any body of water.

# Step 3. Draft Permit Decision

After the thorough Technical Review, the EPA makes a preliminary decision whether injection as described in the application can occur without threatening USDWs. If protection of USDWs is assured, a Statement of Basis that details the basis for the EPA’s permit decision and conditions of the permit, and the Draft Permit and accompanying Public Notice are prepared and issued. If protection of USDWs is not assured, 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 public comment period provides for a minimum 30-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 30 days to allow commenters their opportunity to appeal the decision to the EPA Administrator through the Environmental Appeals Board in Washington, D.C.

1. https://www.epa.gov/sites/default/files/2015-10/documents/7520-6\_0\_508c.pdf [↑](#footnote-ref-1)