

# Introduction to UIC Class VI Permitting

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By:

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# EPA UIC Program

- ▶ The EPA Underground Injection Control (UIC) Program was authorized by the federal Safe Drinking Water Act to protect underground sources of drinking water (USDWs) from endangerment due to underground injection activities.
- ▶ EPA groups injection wells into six classes :
  - ▶ Class I wells used to inject hazardous and non-hazardous wastes into deep, isolated rock formations,
  - ▶ Class II wells used exclusively to inject fluids associated with oil and natural gas production,
  - ▶ Class III wells used to inject fluids to dissolve and extract minerals,
  - ▶ Class IV wells, which are generally shallow, used to inject hazardous or radioactive wastes into or above a geologic formation that contains a USDW,
  - ▶ Class V wells used to inject non-hazardous fluids. These are wells that do not fit into the other well classes and are typically shallow injecting into or above USDWs,
  - ▶ Class VI wells used to inject CO<sub>2</sub> into underground subsurface rock formations for long-term storage, i.e. geologic sequestration.

# UIC Class VI Rule

- The December 10, 2010 final rule creating the new Class VI well class, established minimum technical criteria to protect USDWs from the long-term subsurface storage of CO<sub>2</sub>. These technical criteria cover the following Class VI topics / activities:
  - Site Characterization
  - Area of Review (AoR) Evaluation & Corrective Action
  - Injection Well Construction
  - Class VI Injection Depth Waivers & Aquifer Exemption Expansions
  - Injection Well Operation
  - Testing & Monitoring
  - Recordkeeping & Reporting
  - Well Plugging, Post-Injection Site Care (PISC), & Site Closure (SC)
  - Financial Responsibility
  - Emergency & Remedial Response
  - Public Involvement in Permitting Decisions

# EPA UIC Class VI Guidance Documents



- ▶ To assist Class VI permit applicants in meeting these technical criteria requirements, EPA prepared a series of Class VI guidance documents. <https://www.epa.gov/uic/final-class-vi-guidance-documents>
  - ▶ Site Characterization: **Site Characterization Guidance**
  - ▶ Area of Review (AoR) Evaluation & Corrective Action: **AoR Evaluation & CA; Project Plan Development Guidances**
  - ▶ Injection Well Construction: **Well Construction Guidance**
  - ▶ Class VI Injection Depth Waivers & Aquifer Exemption Expansion: **Reporting, Recordkeeping, and Data Management Guidance**
  - ▶ Injection Well Operation: **Site Characterization; Well Construction; Testing & Monitoring Guidances**
  - ▶ Testing & Monitoring: **Testing & Monitoring; Reporting, Recordkeeping, and Data Management Guidances**

# EPA UIC Class VI Guidance Documents



- ▶ Recordkeeping & Reporting: **Reporting, Recordkeeping, and Data Management Guidances**
- ▶ Well Plugging, Post-Injection Site Care (PISC), & Site Closure (SC): **Well Plugging, Post-Injection Site Care, and Site Closure; Project Plan Development Guidances**
- ▶ Financial Responsibility: **Financial Responsibility Guidance**
- ▶ Emergency and Remedial Response: **Project Plan Development Guidance**
- ▶ Public Involvement in Permitting

Decisions: **Public Participation Requirements for Class VI Injection Wells**

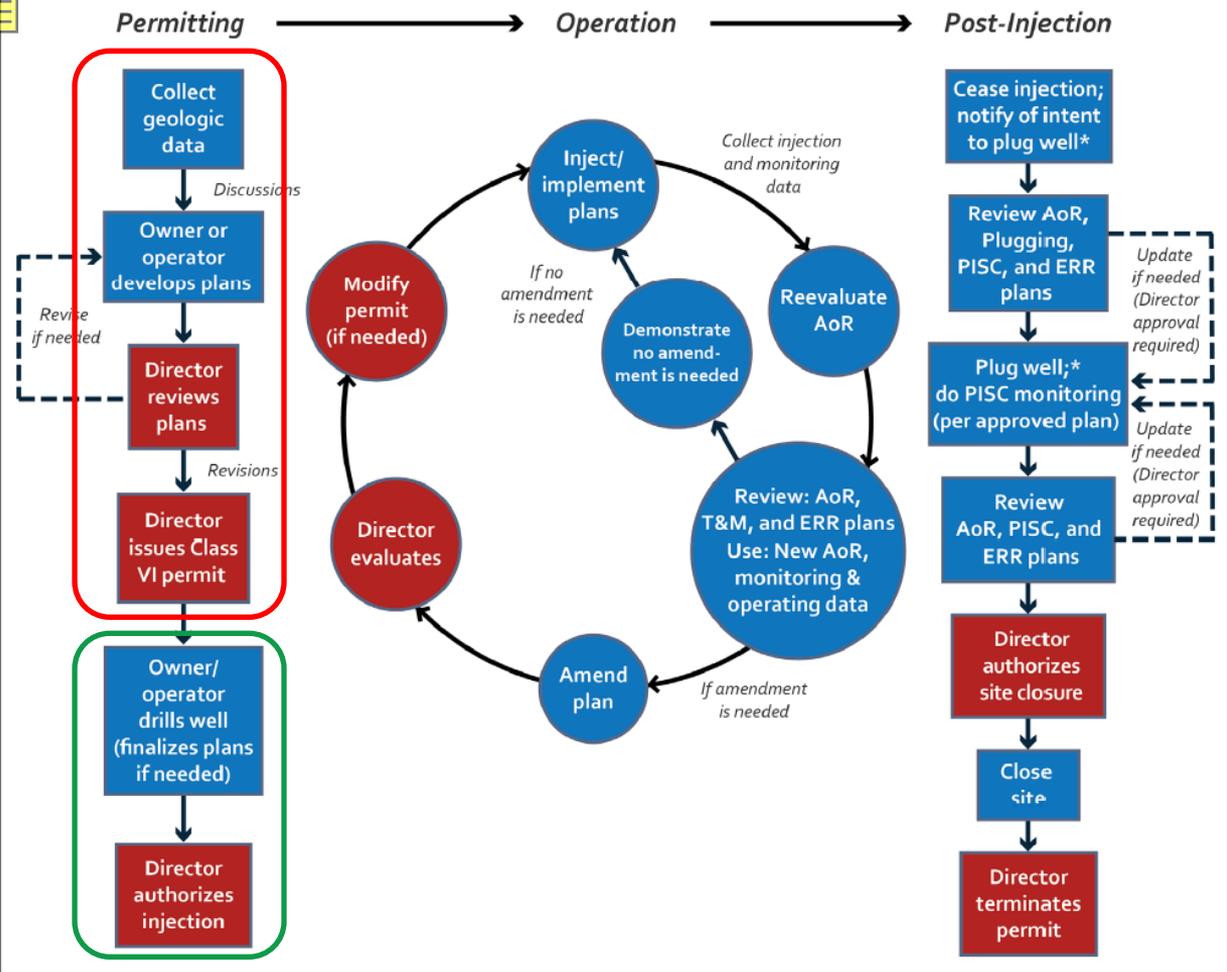
- ▶ Environmental Justice Considerations
- ▶ FAQ for Class VI & Subpart RR Reporting
- ▶ Primacy Manual for State UIC Directors
- ▶ Implementation Manual for UIC Program Directors



# Process for Developing, Approving, and Amending Geologic Sequestration Project Plans

Pre-construction

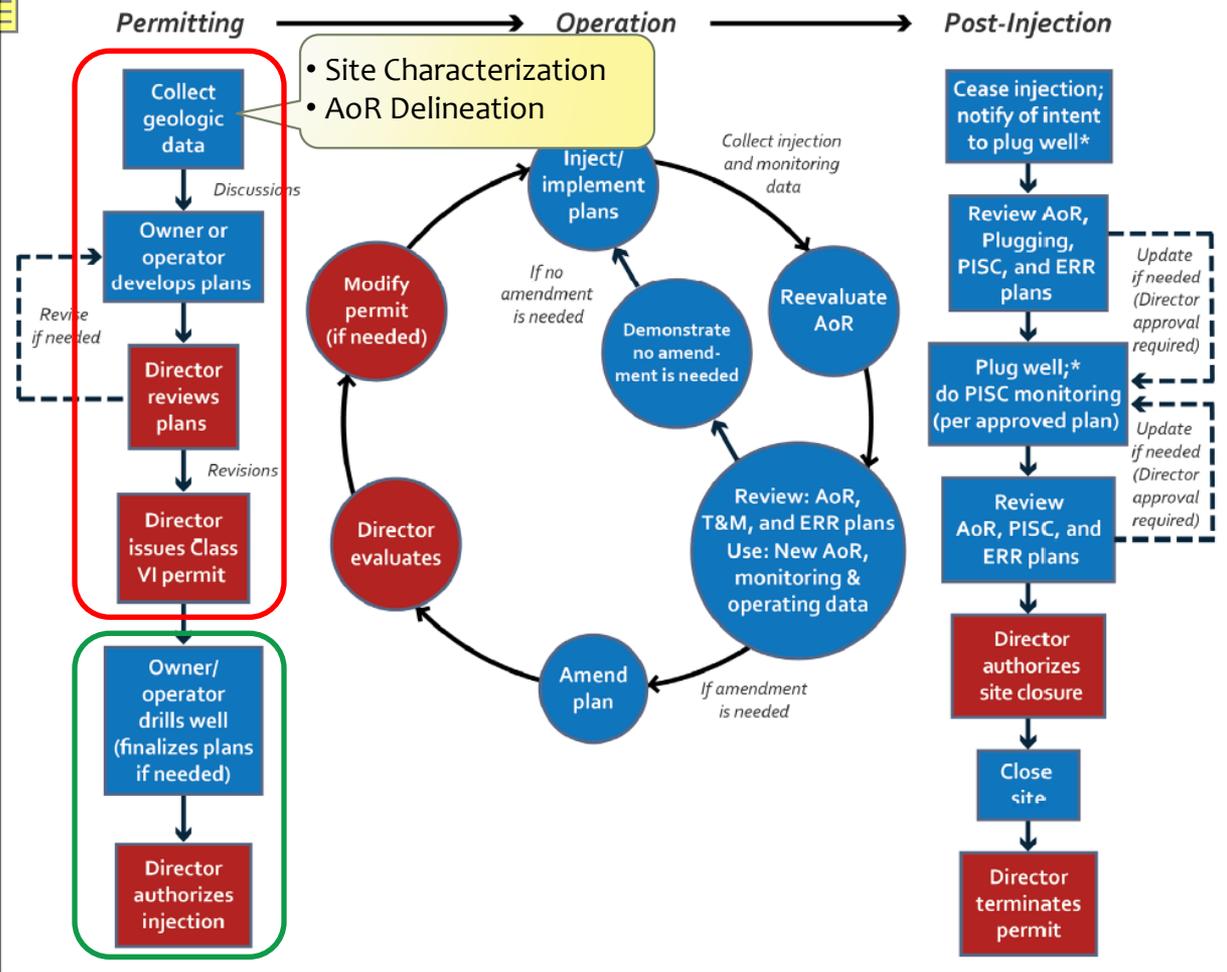
Pre-operation



\*Owners or operators may choose to keep the injection well open as a monitoring well; see the ~~West~~ UIC Program Class VI Well Plugging, PISC, and Site Closure Guidance for additional information.



# Process for Developing, Approving, and Amending Geologic Sequestration Project Plans



Pre-construction

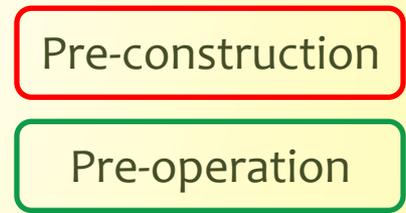
Pre-operation

Key: Director activities Owner/operator activities

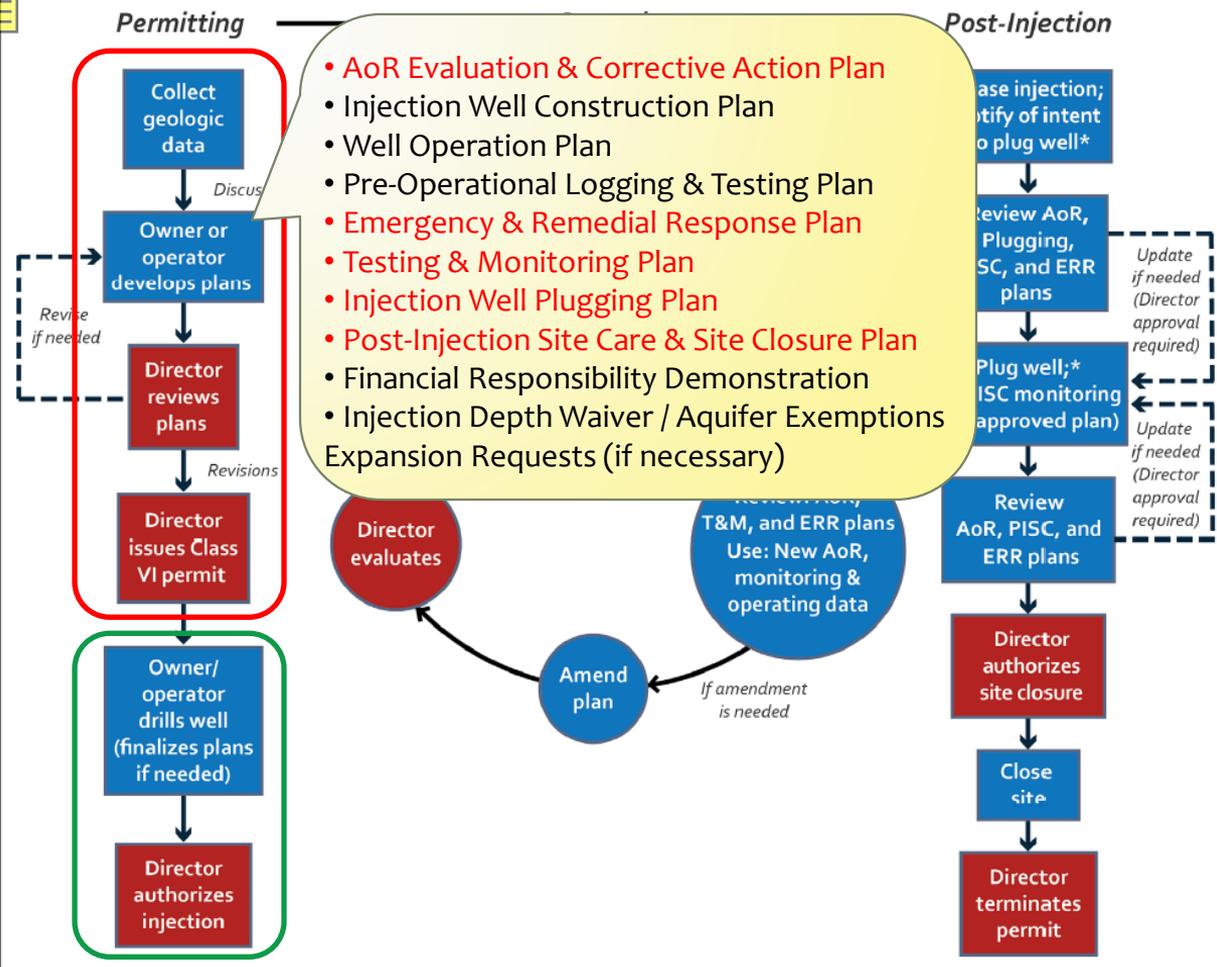
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# Process for Developing, Approving, and Amending Geologic Sequestration Project Plans



- AoR Evaluation & Corrective Action Plan
- Injection Well Construction Plan
- Well Operation Plan
- Pre-Operational Logging & Testing Plan
- Emergency & Remedial Response Plan
- Testing & Monitoring Plan
- Injection Well Plugging Plan
- Post-Injection Site Care & Site Closure Plan
- Financial Responsibility Demonstration
- Injection Depth Waiver / Aquifer Exemptions
- Expansion Requests (if necessary)



Key: Director activities Owner/operator activities

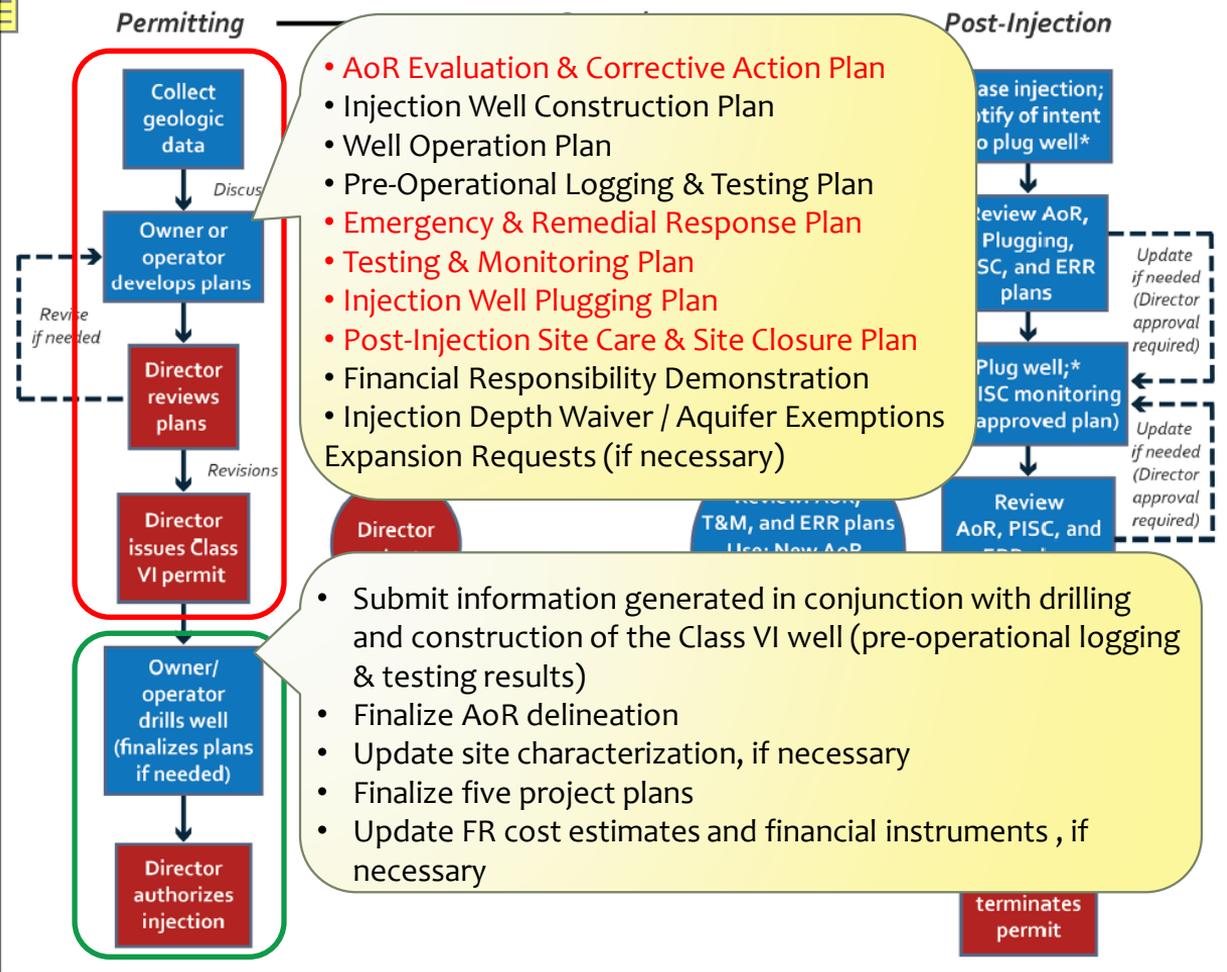
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# Process for Developing, Approving, and Amending Geologic Sequestration Project Plans

Pre-construction

Pre-operation



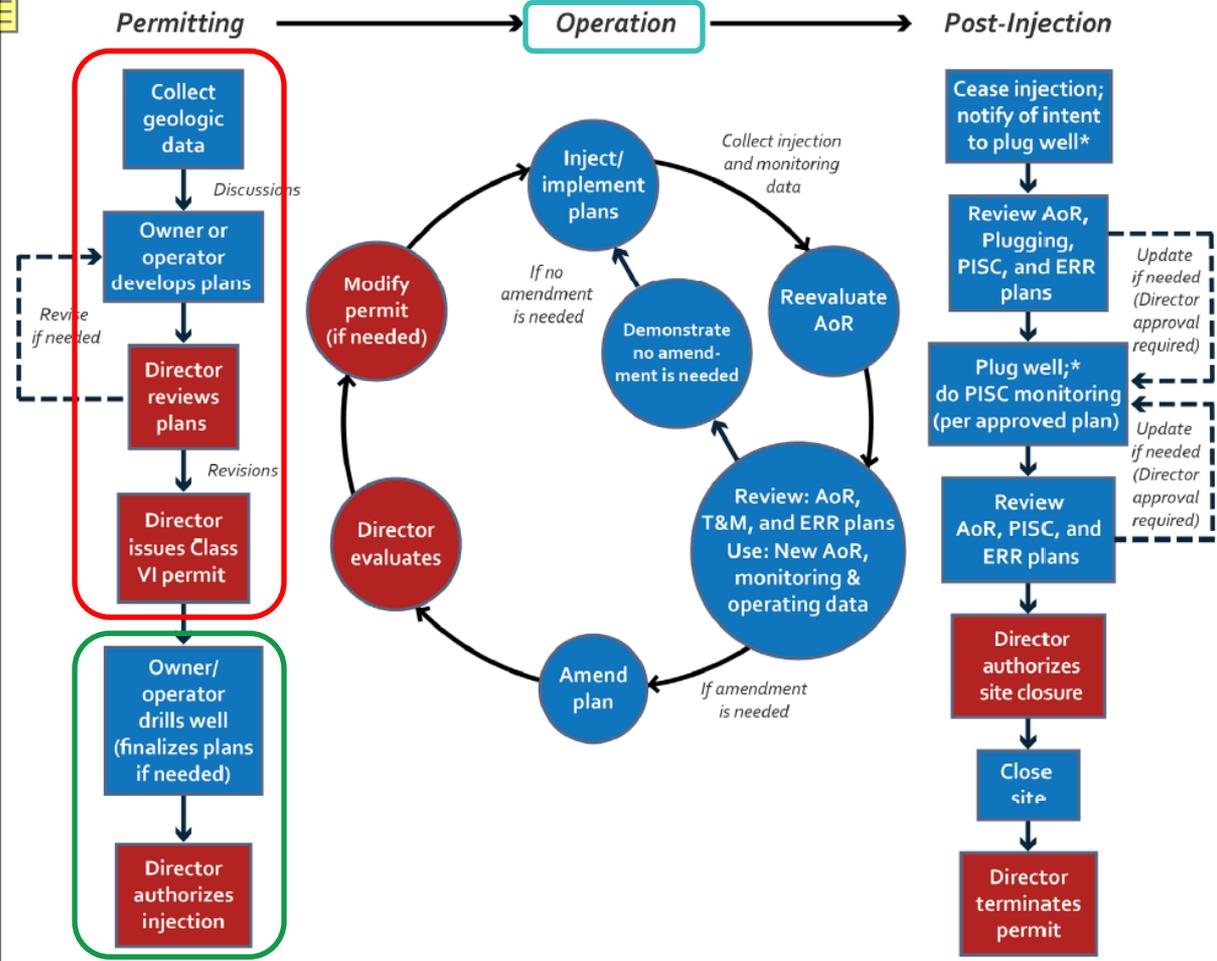
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- Injection Well Plugging Plan
- Post-Injection Site Care & Site Closure Plan
- Financial Responsibility Demonstration
- Injection Depth Waiver / Aquifer Exemptions Expansion Requests (if necessary)

- Submit information generated in conjunction with drilling and construction of the Class VI well (pre-operational logging & testing results)
- Finalize AoR delineation
- Update site characterization, if necessary
- Finalize five project plans
- Update FR cost estimates and financial instruments, if necessary

\*Owners or operators may choose to keep the injection well open as a monitoring well; see the ~~draft~~ UIC Program Class VI Well Plugging, PISC, and Site Closure Guidance for additional information.



# Process for Developing, Approving, and Amending Geologic Sequestration Project Plans



Pre-construction

Pre-operation

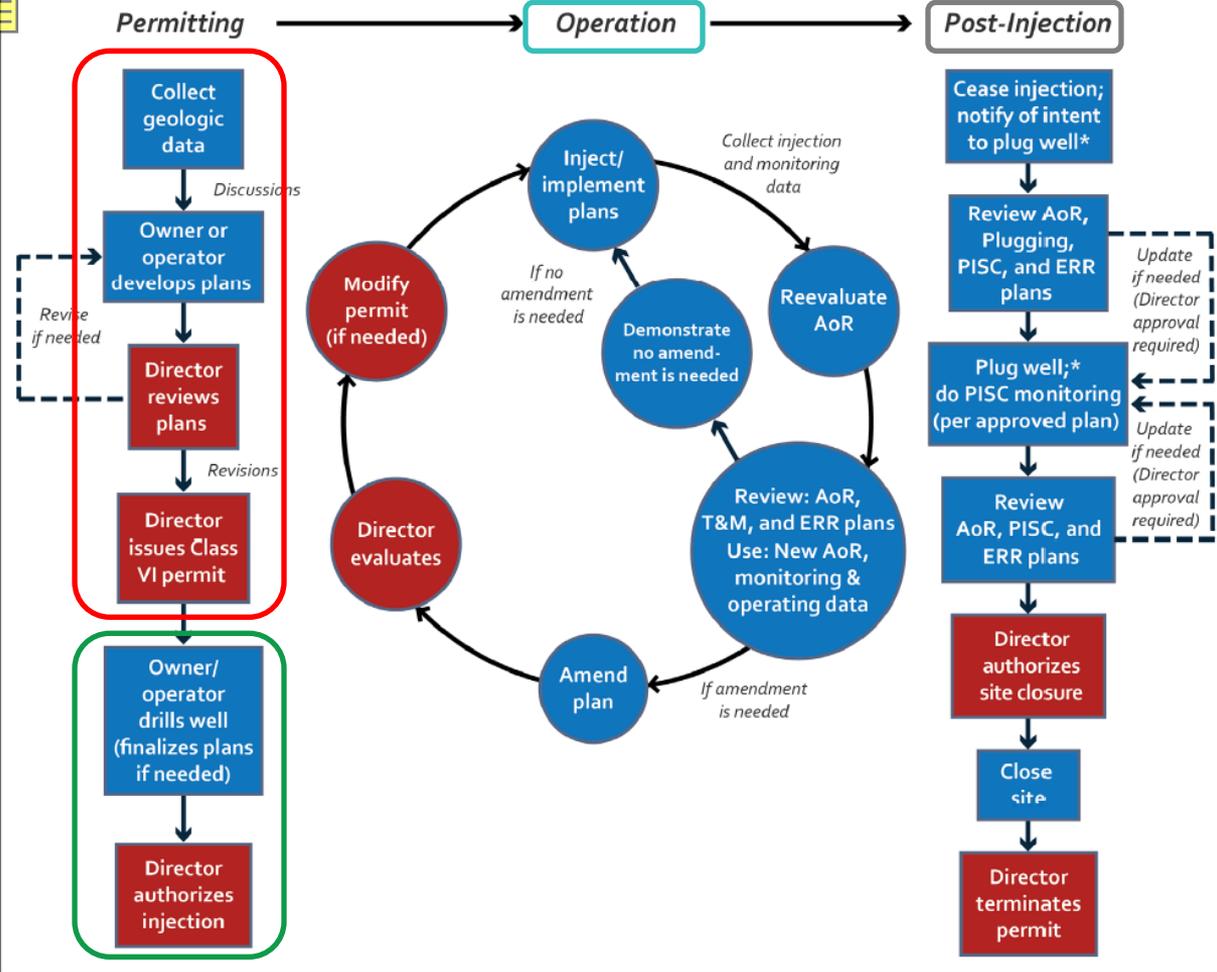
Operation

Key: Director activities Owner/operator activities

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# Process for Developing, Approving, and Amending Geologic Sequestration Project Plans



Key: Director activities Owner/operator activities

\*Owners or operators may choose to keep the injection well open as a monitoring well; see the ~~West~~ UIC Program Class VI Well Plugging, PISC, and Site Closure Guidance for additional information.

- Pre-construction
- Pre-operation
- Operation
- Post-injection

# Geologic Sequestration Data Tool (GSDT)



A US Environmental Protection Agency System  
maintained by the Department of Energy's Pacific  
Northwest National Laboratory

## Geologic Sequestration (GS) Data Tool

This website facilitates electronic reporting as required under the Class VI Rule, including permit application submittals and information associated with Class VI permits.

The GSDT was developed by EPA with assistance from the Pacific Northwest National Laboratory (PNNL), and is housed at PNNL to support compliance with the electronic reporting requirements for Class VI well owners or operators.

New users should use the following link to download the registration form. This form provides instructions for requesting access to the GS Data Tool.

[Download Registration Form](#)

Existing users can log in below.

Username

Password

Login

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GSDT Landing Page:

<https://gsdt.pnnl.gov/share/page/>

GSDT Video Tutorials:

<https://www.epa.gov/uic/geologic-sequestration-data-tool-gsdt-video-tutorials>

# Geologic Sequestration Data Tool (GSDT)



- ▶ The GSDT consists of 10 modules listed in approximately the order in which they are used:

- ▶ Project Information Tracking
- ▶ AoR Evaluation & Corrective Action
- ▶ Project Plans Submission
- ▶ Pre-Operational Testing
- ▶ Financial Responsibility Demonstration
- ▶ Injection Depth Waivers & Aquifer Exemption Expansion
- ▶ Information Request
- ▶ Injection & Post-Injection Phase

- ▶ Reporting
- ▶ Alternative PISC Timeframe Demonstration
- ▶ Non-Endangerment Demonstration

**To assist in populating the GSDT, each module has a User's Guide downloadable from the Welcome tab of each module.**

Class VI UIC Project Information Tracking

Welcome | General Information | Facility and Owner/Operator Information | **Initial Permit Application** | Updated Information | Complete Submission

### Initial Permit Application [40 CFR 146.82(a) or Applicable State Requirements] and Optional Related Information

Use this tab to submit a Class VI permit application. It is recommended that permit applications include both (1) a narrative describing the geologic setting and other general project information, and (2) associated data and other specific permit application components submitted via the separate reporting modules listed below.

For applicants seeking to convert an existing well to Class VI (pursuant to 40 CFR 146.81 or applicable state requirements), the materials submitted on this tab should include a demonstration that the subject well was engineered and constructed to ensure protection of USDWs.

Materials that are submitted with the other reporting tools do not need to be repeated in the narrative file, but the narrative should clearly reference these other submissions to ensure that all the Class VI Rule requirements are met.

**1. Upload a Class VI permit application narrative (refer to the outline below for further instructions):**

[Download narrative outline](#)



**2. Check the boxes to confirm that you have submitted the following permit application components in the reporting modules listed below:**

Proposed project plans, submitted with the Project Plan Submission module:

- An Area of Review (AoR) and Corrective Action Plan
- A Testing and Monitoring Plan
- A Well Plugging Plan
- A Post-Injection Site Care (PISC) and Site Closure Plan
- An Emergency and Remedial Response Plan

Computational modeling information, submitted with the Area of Review Computational Modeling module

A financial responsibility demonstration, submitted with the Financial Responsibility Demonstration module

A proposed pre-operational logging and testing program, submitted with the Pre-Operational Testing module

An optional alternative PISC timeframe demonstration, submitted with the Alternative PISC Timeframe Demonstration module



Submitted in the AoR Evaluation & CA module

Submitted in the Project Plans Submission module



Welcome

General  
InformationFacility and Owner/  
Operator InformationInitial Permit  
ApplicationUpdated  
InformationComplete  
Submission

Use this tab to complete your submission and send the information to the permitting authority.

**You will need to complete all of the other tabs before the submission is accepted. Click "Validate Required Fields" to check if any fields have been left blank.**

Validate Required Fields

**Please select your name from the list below.**

To make a submission, you must have completed an EPA Electronic Signature Agreement (ESA). If you have not done this, you are not authorized to make submissions. Please contact EPA if you need to gain authorization to make submissions, or if you have already signed an ESA but your name does not appear below.

Authorized submission made by:

No Authorized Signatures Provided

Comments regarding this submission (optional):

**By clicking on the "Submit Information" button, you indicate that you agree with the following statement:**

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.

For confirmation a read-only copy of your submission will be emailed to: [CandaceCCadyConsulting@gmail.com](mailto:CandaceCCadyConsulting@gmail.com)

**If you have any questions, please contact your permitting authority.**

Submit Information

