

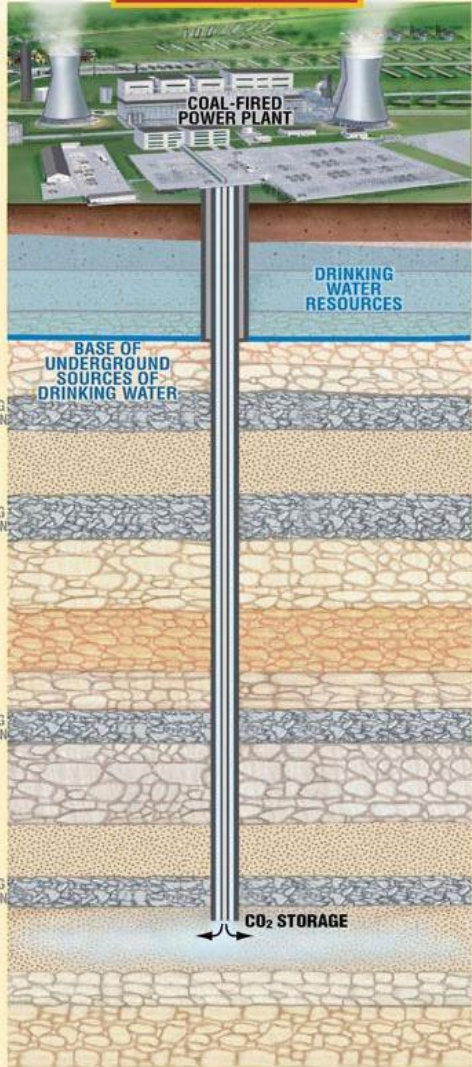


# UIC Class VI Program

June 21, 2023



Class VI wells-  
Inject CO<sub>2</sub> for  
long-term storage to  
reduce emissions  
to atmosphere



Not drawn to scale

# SDWA and the UIC Program

- The Safe Drinking Water Act (SDWA) was passed and amended by Congress.
  - Protects public health by regulating the nation's public drinking water supply.
  - Both surface and underground drinking water sources are protected.
- EPA is authorized under SDWA to develop minimum federal regulations for state, territory, and tribal Underground Injection Control (UIC) programs to protect underground sources of drinking water (USDWs) by preventing contaminants related to underground injection from entering USDWs.
  - USDWs are aquifers or parts of aquifers that currently are, or in the future could be, a drinking water source.
  - The UIC program protects USDWs by regulating well injection of "fluids" (that include fluids, gases, and slurry) into the subsurface for disposal or storage.
  - Fluids include water, wastewater, brines produced during oil and gas production, or carbon dioxide (CO<sub>2</sub>) in the case of geologic sequestration.

# UIC Program Activities and Well Classes

## UIC Injection Well Regulations Cover:

- Technical aspects (from site evaluation through operations to closure).
- Permitting and site inspections.
- Reporting requirements and compliance.



## Six UIC Well Classes for Different Types of Fluids

Class I: Hazardous and nonhazardous wastes

Class IV: Shallow hazardous and radioactive (banned)

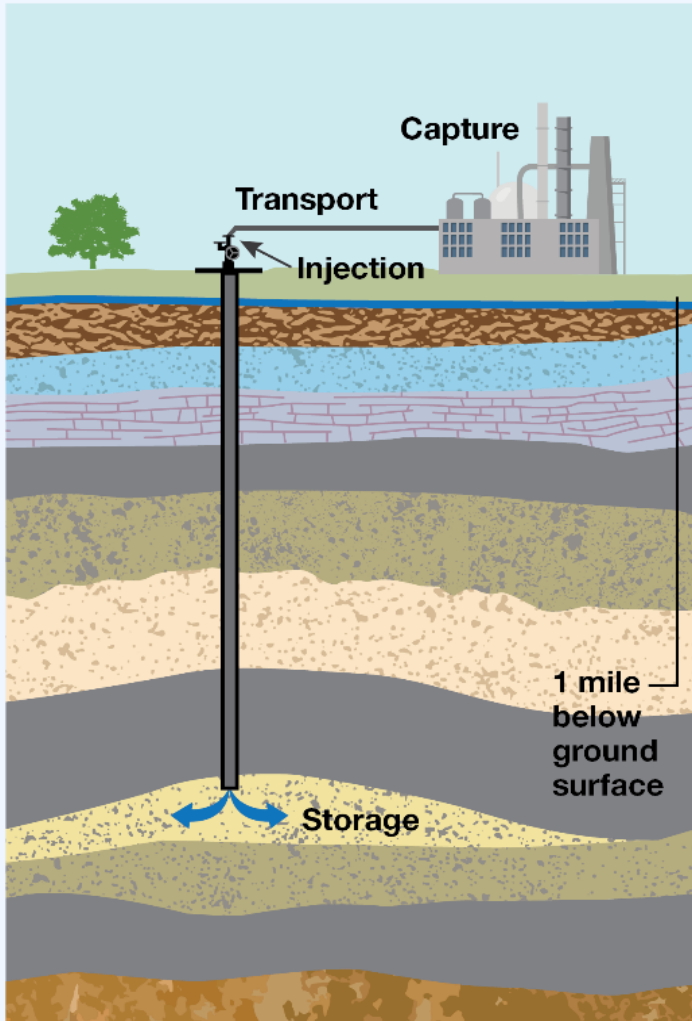
Class II: Fluids from oil and gas production

Class V: Nonhazardous wastes into or above USDWs (e.g., stormwater)

Class III: Fluids to dissolve and extract minerals

**Class VI: Geologic sequestration (GS) of carbon dioxide (CO<sub>2</sub>)**

# Geologic Sequestration and UIC Class VI Regulations



## What is Geologic Sequestration of CO<sub>2</sub>?

- GS is the practice of injecting and storing CO<sub>2</sub> underground into deep rock formations. This process is also referred to as carbon capture and sequestration.
- Goals is to reduce CO<sub>2</sub> emissions to combat climate change.

## UIC Regulations Cover a GS Project from Start to Finish

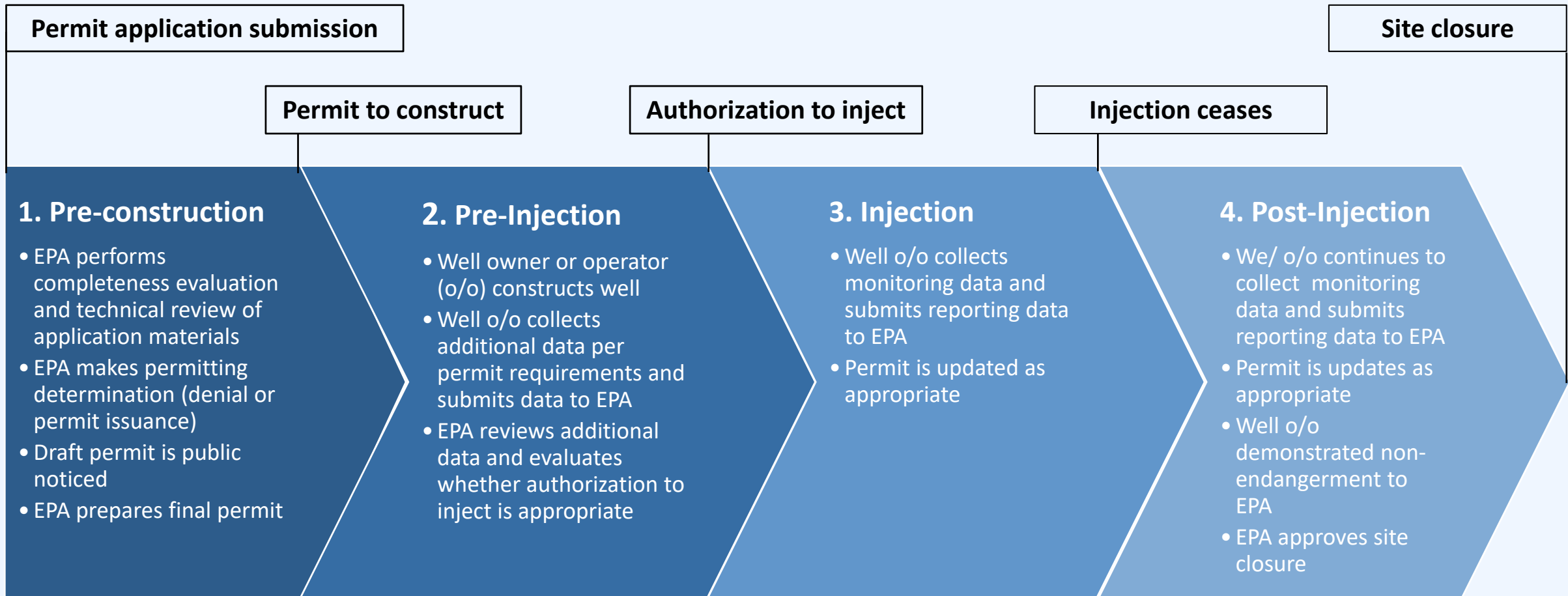
- Siting (selection of location)
- Permitting
- Well Construction
- Operations
- Well and Site Closure

**UIC regulations are designed to protect USDWs by preventing movement of CO<sub>2</sub> out of the injection formation.**

**Protective aspects of UIC Class VI regulations include:**

- Multiple safeguards to protect USDWs (described later in this presentation).
- Development of written plans for operating a GS project based on EPA technical guidance.
- Adaptable and evolving - revisions made to plans if new data indicate the need.
- Tracking the movement of the "plume" of CO<sub>2</sub> and any other potential changes in the subsurface.

# Class VI Permitting Process



# Geologic Sequestration Data Tool (GSDT)

- System acts as a guide to permit application
- Class VI permit application templates
- GSDT system user guides
- EPA GSDT team available to answer questions at [GSDataTool@epa.gov](mailto:GSDataTool@epa.gov)

The screenshot shows the 'Class VI UIC Project Information Tracking' web application. At the top, there is a navigation bar with tabs: 'Welcome', 'General Information', 'Facility and Owner/Operator Information', 'Initial Permit Application', 'Updated Information', and 'Complete Submission'. Below the navigation bar is a blue header with the GSDT logo and text: 'A US Environmental Protection Agency System maintained by the Department of Energy's Pacific Northwest National Laboratory'. The main content area is titled 'PROJECT INFORMATION TRACKING' and contains the following text:

This submission is for:

Project ID:	No Project ID Provided
Project Name:	No Project Name Provided
Current Project Phase:	UnspecifiedPhase

**NOTE:** If you have not previously made a submission using this tool it is important to learn what information is required for each of the different data entry fields by reading the [Project Information Tracking User Guide](#) (click link to view or download).

Note that references to EPA's Class VI Rule in the code of federal regulations (CFR) are provided within the tabs of this module. States with Class VI primacy have requirements that are at least as stringent as EPA's (and therefore require the information requested in these tabs). If your well is in a primacy state, consult your permitting authority about any additional required submittals.

Click on a tab name at the top of the window, or use the "Next Tab" button at the bottom to navigate through the reporting tool. Information can be saved and submitted later using the "Save" or "Save Changes and Exit" buttons. No new information will be submitted until you certify that the submission is complete in the "Complete Submission" tab.

If you have questions, contact your permitting authority or consult the UIC Program Class VI guidance documents, available online at: <https://www.epa.gov/uic/class-vi-guidance-documents>.

A copy of the Federal Class VI Rule is available online at: <http://www.gpo.gov/fdsys/pkg/FR-2010-12-10/pdf/2010-29954.pdf>.







**When you are ready to submit your information to the permitting authority, use the "Complete Submission" tab.**

# EPA UIC Class VI Guidance Documents

Targeted to Permit Applicants	Targeted to Permitting Authorities
<ul style="list-style-type: none"><li>▪ Well Site Characterization</li><li>▪ Area of Review and Corrective Action Construction</li><li>▪ Testing and Monitoring</li><li>▪ Project Plan Development</li><li>▪ Well Construction</li><li>▪ Financial Responsibility Requirements</li><li>▪ Reporting, Record-Keeping and Data Management</li><li>▪ Well Plugging, PISC, Site Closure</li></ul>	<ul style="list-style-type: none"><li>▪ Implementation Manual for UIC Program Directors</li><li>▪ Primacy Manual for State Directors</li><li>▪ Key Principles in EPA's Class VI Rule Related to Transition of Class II Enhanced Oil or Gas Recovery Wells to Class VI</li></ul>

# Class VI Tools

## Tools Available on EPA's Class VI Website:

-  [Class VI Permit Application Outline](#)
-  [GSDT Video Tutorials](#)
-  [Class VI Permit Application Templates](#)
-  [GS Rules and Tools Crosswalk \(co-led by EPA and DOE\)](#)
-  [Class VI Permit Application Completeness Checklist](#)
-  [Class VI Guidance Documents](#)

## Tools Available to State Permitting Authorities (on FedTalent):

-  [Class VI Implementation Training Series](#)

### Class VI Permit Application Outline

This document provides an overview of the items and the associated activities an applicant may complete during the development of an application to inject carbon dioxide (CO<sub>2</sub>) for geologic sequestration (GS) under the UIC Class VI program. It functions as a detailed index to multiple EPA Class VI guidance documents that steer the development of the information needed for a complete Class VI application. Please note, the permit application items and activities listed herein reflect EPA's *recommendations* for complying with the federal Class VI rule requirements. It should also be noted that the elements listed below are not inclusive of every activity nor are they at the detail that is needed to meet the permit application requirements of the Federal Class VI Rule and demonstrate that underground sources of drinking water (USDWs) will not be endangered. Prospective permit applicants are encouraged to consult early with their UIC permitting authority about the specific needs for their project and review the [Class VI Rule](#) and the [EPA guidance documents](#), which are available on EPA's web site in order to gain a full understanding of the Class VI permit application process.

Item	Activity and Purpose	Guidance Reference
<p>Characterize the geologic setting of the proposed GS site to demonstrate that the Class VI well will be sited in an area with a suitable geologic system, consisting of an injection zone with sufficient capacity to receive the CO<sub>2</sub> and a confining zone that is free of transmissive faults or fractures. This information will satisfy the requirements of 40 CFR 146.82(a)(2),(3),(5), and (6). For additional information, see the <a href="#">Class VI Well Geologic Site Characterization Guidance</a>.</p>		
<ul style="list-style-type: none"> <li>• <b>Regional geology and geologic structure</b></li> </ul>	Summarize information on lithology, the sequence of geologic units (i.e., the injection and confining zones and USDWs), the thicknesses and lateral extent of formations, and correlation of units near the project site to place the GS project in a regional context.	Sections 2.1, 2.3.1, and 2.3.10 of the Geologic Site Characterization Guidance
<ul style="list-style-type: none"> <li>• <b>Faults and fractures</b></li> </ul>	Identify and characterize faults and fractures to demonstrate that there are no transmissive faults or fractures in the confining zone(s) so that injection at proposed maximum pressures and volumes can occur without initiating or propagating fractures in the confining zone(s).	Sections 2.1, 2.2, and 2.3.2 of the Geologic Site Characterization Guidance
<ul style="list-style-type: none"> <li>• <b>Injection and confining zone characteristics</b></li> </ul>	Provide information about the depth, extent, porosity, permeability, and capillary pressure of the injection and confining zones to show that the site can confine CO <sub>2</sub> ; support estimations of CO <sub>2</sub> storage capacity and injectivity; and support the development of a site-specific area of review (AoR) delineation model.	Sections 2.3.3, 2.3.4, and 2.3.5 of the Geologic Site Characterization Guidance
<ul style="list-style-type: none"> <li>• <b>Hydrologic and hydrogeologic information</b></li> </ul>	Describe the relationship between the proposed injection formation and any USDWs, springs, and water wells within the AoR to support an understanding of the water resources near the proposed well.	Section 2.3.8 of the Geologic Site Characterization Guidance
<ul style="list-style-type: none"> <li>• <b>Geochemical data</b></li> </ul>	Provide water chemistry data on all water-bearing formations to identify USDWs, confirm that the injection zone is not a USDW, and establish baseline water quality in any formations for which injection and post-injection phase ground water monitoring is planned for comparison with future monitoring results. Provide geochemical information on solids and fluids to identify potential interactions that could affect injectivity or mobilize trace elements; assess the compatibility of the CO <sub>2</sub> stream with fluids and minerals in the injection and confining zones; and inform CO <sub>2</sub> storage capacity estimates.	Sections 2.3.4 and 2.3.9 of the Geologic Site Characterization Guidance

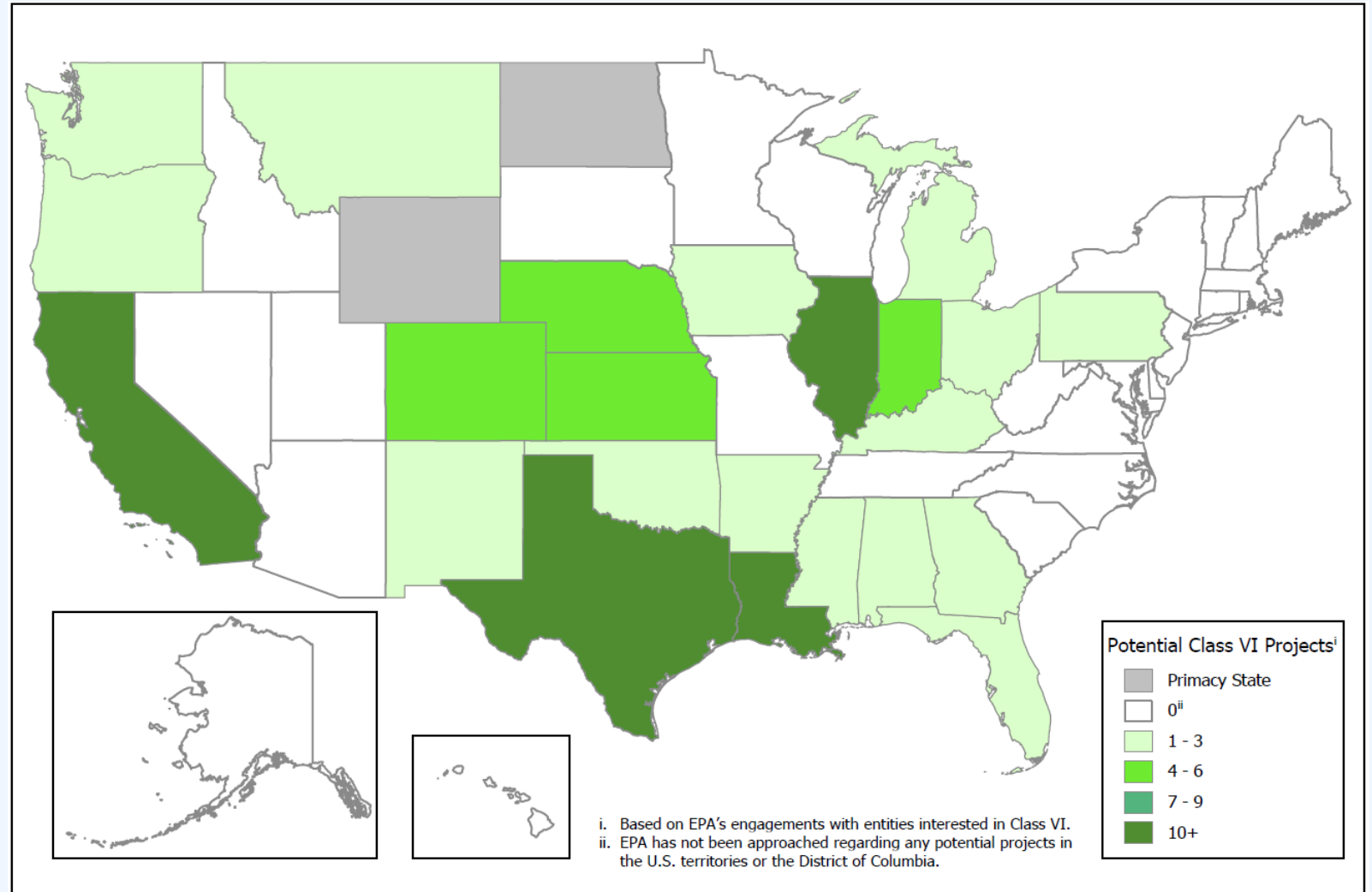
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<https://www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-carbon-dioxide>



# Class VI Permitting Landscape

- Table of Class VI Wells Permitted by EPA and applications received by EPA on our website at: <https://www.epa.gov/uic/class-vi-wells-permitted-epa>
- As of June 13, 2023:
  - 2 active Class VI permits
  - 101 Class VI permit applications under technical review



# UIC Primacy

- Primary enforcement authority, often called primacy, refers to state, territory, or tribal responsibilities associated with implementing EPA approved UIC programs.
- SDWA (Section 1422) provides that states may apply to EPA to administer the UIC Program in their state and requires EPA to approve such applications that meet EPA's regulatory requirements for obtaining primacy.
- States may submit primacy applications for Class VI under SDWA Section 1422
- EPA approval of a primacy application is signed by the Administrator and must be published in the Federal Register.
- Upon approval of a primacy application, EPA maintains oversight authorities, including enforcement.

# Authority to Regulate Class VI Wells

- States must make a satisfactory showing of either:
  1. Development of a new state §1422 UIC Program for Class VI wells
  2. Revision of an existing state §1422 UIC Program to include Class VI wells
- Either a state's new program or program revision must be at least as stringent as the federal requirements of 40 CFR Parts 124, 144-146
- Until and unless a state has Class VI primacy through a rulemaking published in the Federal Register, EPA administers the UIC Class VI Program in the state

# Pre-Application Engagement

- EPA encourages states interested in Class VI primacy to contact EPA for pre-application discussions
  - Ensures complete applications
  - Aids in understanding requirements
  - Speeds up review and approval process
- Complete regulatory comparison crosswalk



# New Class VI Primacy Program: Six Core Application Elements

1. Letter from the Governor
2. Complete program description
3. Attorney General's statement
4. Memorandum of Agreement (MOA) with EPA Regional Administrator (RA)
5. Copy of all applicable statutes and regulations
6. Demonstration of compliance with public participation requirements

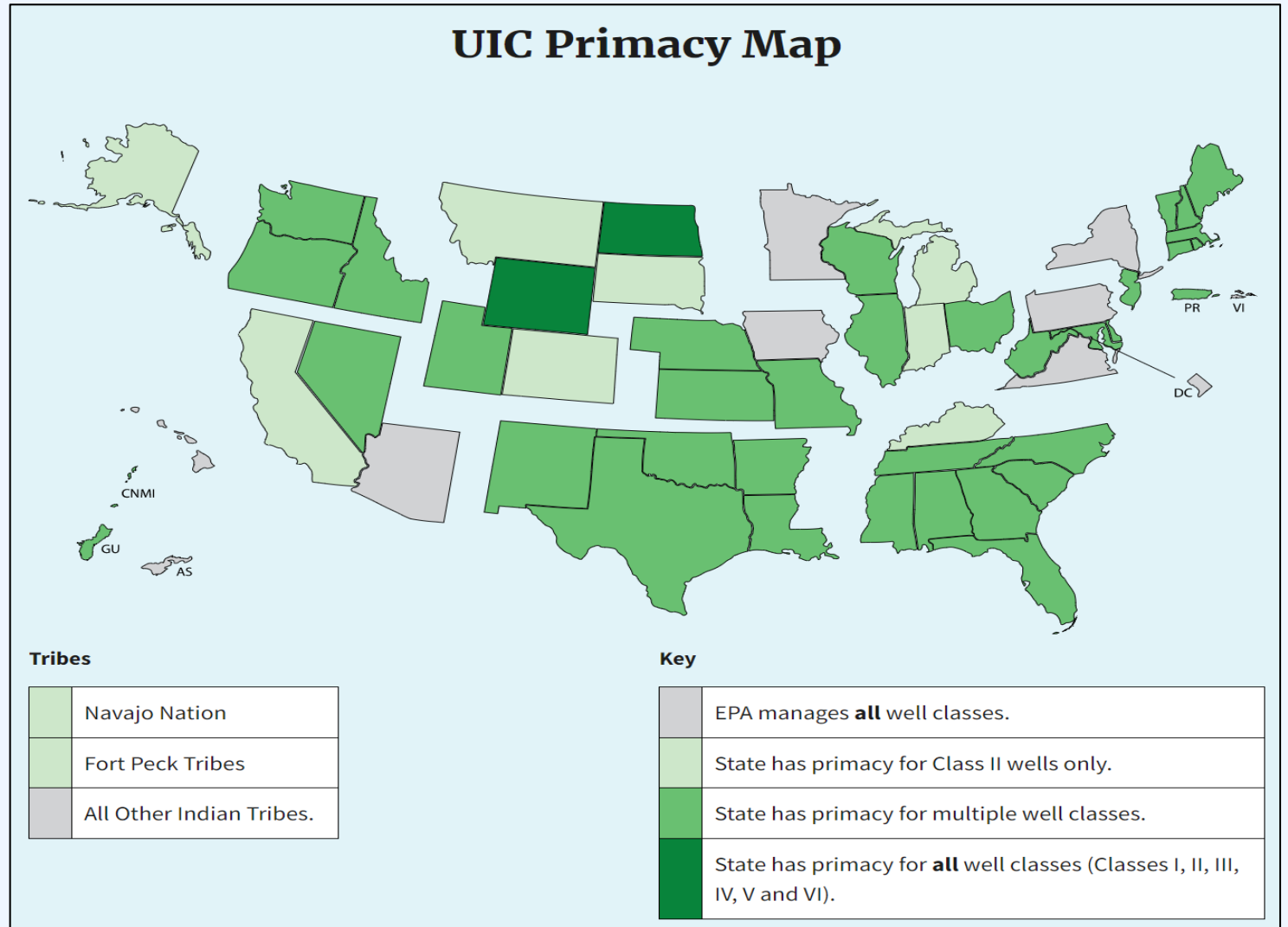
- Class VI specific requirements can be found at 75 FR 77230 (<http://federalregister.gov/a/2010-29954>)



# Class VI Primacy Landscape

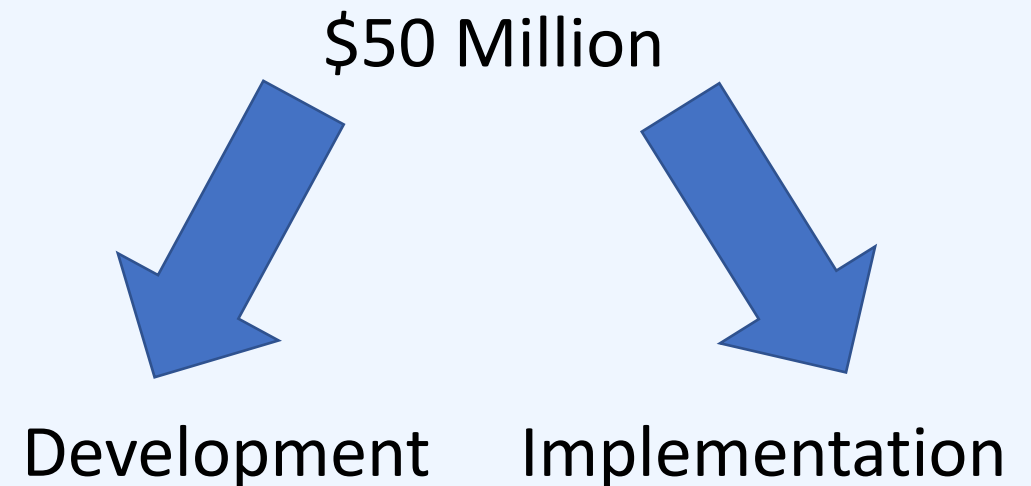
- ❑ 2 states (ND and WY) have primacy for Class VI
- ❑ 1 state (LA) proposed approval on public notice – closes July 3, 2023
- ❑ EPA is working with three states on Class VI primacy applications (AZ, WV, TX)
- ❑ See EPA's UIC Primacy page on EPA's website for updates:

<https://www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program-0>



# UIC Class VI Grant for States

- The Bipartisan Infrastructure Law authorized \$50 million grant program for States to develop and implement Class VI primacy programs.
- On January 18, 2023, EPA Administrator Michael Regan sent a letter to state governors and tribal leaders requesting Letters of Intent (LOI) to confirm state and tribe interest in participating in the BIL Class VI UIC grant program.
- EPA received 25 Letters of Intent.
- EPA is currently working on developing the grant framework. EPA intends to award the grant in a one-time distribution.



# Additional Information

## For more information on the UIC program, please visit:

- Class VI Permitting Report to Congress, released on October 31, 2022. Available on EPA's website at: <https://www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-carbon-dioxide#report>
- General UIC Webpage: <https://www.epa.gov/uic>
- Class VI Webpage: <https://www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-carbon-dioxide>
- UIC Grants Webpage: <https://www.epa.gov/uic/underground-injection-control-grants>