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Class VI Carbon Sequestration Wells: Permitting and State Program Primacy

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SUMMARY

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Class VI Carbon Sequestration Wells: Permitting and State Program Primacy

The U.S. Environmental Protection Agency (EPA) regulates wells used for underground injection of carbon dioxide, known as Class VI wells. The Safe Drinking Water Act (SDWA), administered by EPA, prohibits underground injection of fluids without a permit, including underground injection of carbon dioxide for geologic sequestration. Under SDWA, EPA is authorized to delegate primary enforcement authority, or *primacy*, for underground injection control (UIC) programs to individual states that meet minimum UIC program requirements. As the number of carbon capture and sequestration (CCS) projects using deep well injection has increased in the United States in recent years, Class VI permitting and state program primacy have been topics of interest to Congress.

EPA has established minimum permitting requirements for Class VI injection wells and for state UIC programs. Requirements are specified for well siting and construction, operation and maintenance, monitoring and testing, reporting and recordkeeping, site closure, financial responsibility, and post-injection site care. The minimum contents of a permit are established in regulation, but each Class VI permit is developed and approved based on the site-specific characteristics of the injection well project and is designed to address potential leakage or endangerment of underground sources of drinking water.

Currently, there are at least 8 federal EPA-permitted Class VI projects with at least 13 permitted wells operating in 5 U.S. states. According to EPA, 142 Class VI permit applications are currently pending review by the agency. Additional permits are under review by states with delegated authority for state Class VI UIC programs.

Class VI permits are required to include information about the project and underground formations, demonstrate site suitability, and provide financial assurances. Permits must also include six required plans that provide detail on how the owner or operator will conduct injection well activities throughout the project lifecycle of the project. When reviewing permit applications, the permitting authority (either EPA or a state) typically conducts five stages of review: completion review, technical review, draft permit, public comment, and final permit. The technical review, which involves evaluation of information and plans in the application package, is the longest and most complex step in the permitting process. Once the permit is in place, the permitting authority is responsible for ensuring the permit requirements continue to be met.

EPA has approved UIC Class VI program primacy for six states: Arizona, Louisiana, North Dakota, Texas, West Virginia, and Wyoming. When granted primacy for a class of UIC wells, a state administers that UIC program through enforcement of state laws and regulations in lieu of EPA regulations. EPA retains oversight authority over all state UIC programs under federal law. EPA UIC regulations set out the specific requirements for state programs in permitting, compliance evaluation, enforcement, and information sharing. A state must demonstrate that it has the legal authorities and processes in place to administer the Class VI program. A memorandum of agreement between a state and EPA, which is submitted along with other required documents, typically serves as the foundation of a state's specific responsibilities and commitments in administering the Class VI program.

Congress has appropriated funding in recent years to EPA for implementation of federal and state Class VI programs. On top of regular annual appropriations in several fiscal years for Class VI activities, the Infrastructure Investment and Jobs Act (IIJA; P.L. 117-58) provided $50 million in supplemental appropriations to EPA for grants to states that have or are working toward Class VI primacy and $25 million to EPA for Class VI program administration. As Congress continues to debate policy on Class VI well permitting and state primacy, several issues may arise regarding Class VI wells, including EPA appropriations, legislation, and EPA oversight. These issues may include

- the levels of EPA resources needed to process and oversee Class VI permits and state primacy applications;
- state resources and capacity to administer UIC Class VI programs;
- whether EPA's Class VI regulations should be amended; and
- whether Congress should address stakeholder concerns about public participation in the permit and primacy process, and concerns about the potential environmental and community impacts of carbon sequestration through Class VI wells.

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Introduction

Several industries in the United States are expanding the process of injecting captured carbon dioxide (CO_2) through deep wells into underground geologic formations with the objective of reducing CO_2 levels in the atmosphere. As one option for mitigating the potential impacts of climate change, this carbon capture and sequestration (CCS) process could reduce the amount of CO_2—a greenhouse gas—emitted from power plants and other large industrial facilities. The U.S. Environmental Protection Agency (EPA) issues permits for CO_2 injection wells, known as Class VI wells, used for injection and geologic sequestration of CO_2. In some cases, EPA delegates authority to states, known as program *primacy*, to administer underground injection programs and issue Class VI permits.

In recent years, Class VI permitting and state program delegation has been a topic of interest to Congress. In 2022, in response to a directive in the Consolidated Appropriations Act, 2021 (P.L. 116-260) directing EPA to provide recommendations to "improve Class VI permitting procedures," EPA provided a report to Congress on Class VI permitting.[1] For FY2026, Congress provided targeted appropriations for Class VI well activities in the Commerce, Justice, Science; Energy and Water Development; and Interior and Environment Appropriations Act, 2026 (P.L. 119-74). Some Members have continued to express interest in Class VI well permitting and primacy issues, including the status of applications, EPA review processes, public participation in applications, and options for increasing the numbers of approved well permits and state program primacy applications.

This report discusses the statutory and regulatory framework for permitting Class VI wells; describes Class VI permit application requirements and the permit review process; describes state primacy requirements and the primacy review process; and highlights selected policy issues for Congress.

Other environmental regulations and permit requirements may apply to projects injecting CO_2, depending on the scope and purpose of the project, such as requirements under the Clean Air Act and Clean Water Act administered by EPA. EPA also regulates injection of CO_2 for oil production (in a process known as enhanced oil recovery) through Class II Underground Injection Control (UIC) wells.[2] These regulations and permits are beyond the scope of this report. For more information on CO_2 injection and sequestration, including the federal statutory and regulatory framework, and general policy issues, see CRS Report R46192, *Injection and Geologic Sequestration of Carbon Dioxide: Federal Role and Issues for Congress*, by Angela C. Jones.

Class VI Injection Wells

As part of the CCS process, CO_2 is first captured from a stationary source, such as a coal-fired power plant or chemical production facility. The CO_2 is then injected into subsurface geologic formations for *geologic sequestration*, the long-term containment of a fluid (including a gas, liquid, or supercritical CO_2 stream) in subsurface geologic formations.[3]

[1] U.S. Environmental Protection Agency (EPA), *EPA Report to Congress: Class VI Permitting*, October 2022, https://www.epa.gov/system/files/documents/2022-11/EPA%20Class%20VI%20Permitting%20Report%20to%20Congress.pdf (hereinafter, *EPA Report to Congress*).

[2] Through multiple injection cycles into the underground formation, injection of carbon dioxide (CO_2) for enhanced oil recovery (EOR) results in incidental underground storage of some of the injected CO_2.

[3] CO_2 for injection is initially captured as a gas and then is compressed into a supercritical fluid, a relatively dense fluid (continued...)

The CO_2 is injected through Class VI wells, typically injecting fluid a half mile or more below the earth's surface. Geologic formations used for injecting CO_2 include, for example, large deep saline reservoirs (underground basins containing salty fluids) and oil and gas reservoirs no longer in production.

The Safe Drinking Water Act (SDWA), administered by EPA, provides authorities for regulating the underground injection of fluids.[4] SDWA prohibits any underground injection activity, except when authorized by a permit or rule, to prevent endangerment of underground sources of drinking water (USDWs).[5] As part of EPA's UIC program, the agency has promulgated regulations and established minimum federal requirements for injection wells, including for Class VI wells for the purpose of long-term geologic sequestration.[6]

SDWA also authorizes EPA to delegate primary enforcement authority—the aforementioned primacy—for UIC programs to states (see "State UIC Class VI Program Primacy" below). As directed by SDWA, EPA has established minimum requirements for state UIC programs and permitting for injection wells.[7] EPA has delegated primacy for state UIC Class VI programs to six states to date.

Class VI Well Permits

Federal requirements for injection well permits, including Class VI well permits, are codified in UIC regulations at 40 C.F.R. §§144-146. Class VI permits are issued by EPA, or in certain cases, states that have been granted authority for the Class VI well program (discussed in detail later in this report). Minimum requirements are specified for well siting and construction, operation and maintenance, monitoring and testing, reporting and recordkeeping, site closure, financial responsibility, and post-injection site care. The well owner or operator must seek a permit for each individual Class VI well.[8]

Each UIC Class VI permit is specific to the characteristics of the individual injection site and operation. Site-specific permitting is necessary to address the risks of CO_2 injection at high pressures, such as leaks into the atmosphere, underground leaks, or movement of formation water into USDWs that could affect drinking water quality.

Class VI permit requirements and standards are generally more stringent than requirements for other well classes. EPA based the regulation and permitting requirements of Class VI wells on several risk factors specific to this type of injection activity. These risk factors include the large

with both gas-like and liquid-like properties. An emerging technology that captures CO_2 directly from the atmosphere—called *direct air capture*—could also provide a source of CO_2 for geologic sequestration. For more information on carbon capture and direct air capture, see CRS In Focus IF11501, *Carbon Capture Versus Direct Air Capture*, by Ashley J. Lawson.

[4] Safe Drinking Water Act (SDWA) Part C, "Protection of Underground Sources of Drinking Water" (42 U.S.C. §§300h-300h-9).

[5] SDWA §1421; 42 U.S.C. §300h. EPA defines *underground source of drinking water* as an "aquifer or its portion which supplies any public water system or which contains a sufficient quantity of ground water to supply a public water system; and currently supplies drinking water for human consumption; or contains fewer than 10,000 mg/l total dissolved solids; and which is not an exempted aquifer" (40 C.F.R. §146.3).

[6] EPA has established six "classes" of underground injection wells, based on the types of fluids injected; 40 C.F.R. §§144-146; EPA, "Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO_2) Geologic Sequestration Wells; Final Rule," 75 *Federal Register* 77230-77303, December 10, 2010, p. 77245 (hereinafter, EPA, "Federal Requirements").

[7] 40 C.F.R. §§144-146.

[8] SDWA regulations for some other UIC well classes allow wells to be permitted in groups, known as "area permits."

volumes of CO_2 expected to be injected through wells, the mobility of CO_2 within subsurface formations, and the corrosive properties of CO_2 in the presence of water that can affect well materials.[9]

To assist states and owners/operators with the permitting process, EPA has issued 11 technical guidance documents on Class VI wells.[10] These documents are not legally enforceable, but they provide additional information on site characterization, area of review, construction, reporting and recordkeeping, site closure, financial responsibility, and other permit elements.

Class VI Permit Phases

During the Class VI well permit application process, the owner or operator works with the permitting authority, either EPA or a state, that has primacy for the Class VI UIC program. EPA identifies four phases of permitting for a Class VI project:[11]

1. **Pre-construction.** The permitting authority reviews geologic, underground formation, hydrogeologic, engineering, and financial information about a proposed Class VI project to confirm site suitability. The permitting authority then develops a draft permit.
2. **Pre-operation.** Following well testing and submission of additional site information, the permitting authority confirms the adequacy of well construction and makes a determination regarding authorization to inject CO_2.
3. **Injection.** After granting an authorization to inject, the permitting authority confirms that the well and the project are operating in compliance with the permit and that USDWs are not endangered.
4. **Post-injection.** After injection is complete, the well is plugged, and the site closed, the permitting authority verifies that the project continues to be protective of USDWs and that the injection and monitoring wells at the site will not endanger USDWs after site closure.

Class VI permits extend for the operating life of the facility and a 50-year post-injection site care period.[12] The duration of a Class VI well injection project varies depending on the amount of CO_2 captured for storage and the capacity of the underground formation, but current projects estimate a 10- to 15-year timeframe for injection. Permitting authorities are required to review Class VI permits at least once every five years.[13]

Elements of a Class VI Permit

For EPA-issued Class VI permits, 40 C.F.R. Parts 144 and 146 set out specific requirements for the permit application and approval process. While the minimum contents of a permit are established in federal regulation, the site-specific permit conditions, technical standards, and other requirements in each permit are based on the permitting authority's evaluation of the potential risks to USDWs and the necessary conditions and standards required for the project to prevent

[9] EPA, "Federal Requirements," p. 77234.

[10] EPA, "Final Class VI Guidance Documents," updated April 9, 2026, https://www.epa.gov/uic/class-vi-guidance-documents.

[11] *EPA Report to Congress*. For more details on permitting requirements and guidelines, see EPA, "Final Class VI Guidance Documents."

[12] 40 C.F.R. §144.36.

[13] 40 C.F.R. §144.36.

and manage potential endangerment of USDWs. Permits are updated based on site or project circumstances. States must have equivalent requirements if administering their own UIC Class VI programs and issuing Class VI permits (see "State UIC Class VI Program Primacy").

General Project Information and Permit Conditions

Class VI permit applicants are required to include general project information and to meet the permit conditions applicable to all UIC permits, as well as Class VI-specific permit criteria and standards.[14] Injection project information includes

- basic facility and siting information;
- detailed information on the CO_2 stream;
- geochemical data on subsurface formations, including relevant USDWs;
- detailed information on the geologic structure and hydrogeologic properties of the storage site and overlaying formation; and
- the history of seismic activity at the site.[15]

Class VI permit applications are also required to

- identify the area of review for the project that accounts for the physical and chemical properties of CO_2;
- demonstrate that the injection site is in a suitable geologic formation for geologic sequestration;
- document that the materials used for well construction are adequate to prevent movement of fluids into or between USDWs and are suitable for long-term contact with CO_2 for the life of the project;[16] and
- include the owner's or operator's financial assurances in the form of financial responsibility instruments to cover corrective action, injection, well plugging, post-injection site care, and any emergency and remedial response that meets the regulatory requirements of those actions.[17]

For more information on Class VI well standards and permitting requirements, see CRS Report R46192, *Injection and Geologic Sequestration of Carbon Dioxide: Federal Role and Issues for Congress*, Appendix C.

Required Plans

Class VI regulations require that permit application packages include several plans that provide detailed information on how the owner or operator will conduct injection well activities from construction through closure.[18] These plans are finalized and approved by the permitting authority as part of the permitting process. The following plans are required in a permit application:

- Testing and Monitoring Plan
- Injection Well Plugging Plan

[14] 40 C.F.R. §144.51; 40 C.F.R. §§144.82-146.95.

[15] 40 C.F.R. §144.82.

[16] 40 C.F.R. §144.83; §144.84; §144.86.

[17] 40 C.F.R. §144.85.

[18] 40 C.F.R. §144.82.

- Site Closure Plan and Post-Injection Site Care Plan
- Corrective Action Plan
- Emergency and Remedial Response Plan
- Quality Assurance Surveillance Plan

Optional Injection Depth Waiver

By regulation, Class VI wells are defined as wells that are used for the geologic sequestration of CO_2 "*beneath the lowermost formation containing a USDW*" (emphasis added).[19] In some cases, the USDWs may be deep in the formation. In these cases, during the permitting process, well owners or operators may seek a waiver to allow injection into non-USDWs above or between USDWs. Class VI regulations include specific requirements for approval of a depth waiver, such as the information to be provided to the state or EPA, consultations with state Public Water System Directors and tribes, public notice, and approval or concurrence by the EPA Regional Administrator.[20]

Class VI Permitting Process

Class VI permit regulations require that an owner or operator submitting a permit application package meet specific requirements and follow certain processes. Once an applicant submits a permit application to EPA, that application is reviewed by staff in the EPA regional office covering that state. While EPA has stated that its objective is to complete the permit review process within two years, review times may vary due to differences in the initial completeness of the application, timing of revisions by the applicant, the public comment process, agency review capacity, and other factors.[21]

EPA's Class VI permit application review process includes five steps, listed below.[22]

1. **Completeness Review**—determination by EPA that the permit application package meets requirements for completeness and necessary information.
2. **Technical Review**—detailed review of the application by EPA to ensure the project will not endanger USDWs.
3. **Draft Permit**—preparation of the draft permit by EPA specifying conditions of well construction and operation.
4. **Public Comment**—opportunity for the public to review and comment on the draft permit through written comments to EPA or requests for a hearing conducted by EPA.
5. **Final Permit**—preparation of final permit and authorization to construct or convert the injection well, construct monitoring wells, and perform required testing.

[19] 40 C.F.R. §144.6(f).

[20] 40 C.F.R. §144.95. State programs with delegated authority may choose whether to offer injection waivers to owners or operators as part of a UIC Class VI program. 40 C.F.R. §146.95(d) requires that the relevant EPA regional administrator concur with the approval of an injection depth waiver for a project.

[21] *EPA Report to Congress*.

[22] *EPA Report to Congress*. For more details on permitting requirements and guidelines, see EPA, "Final Class VI Guidance Documents."

Once construction and testing are completed and approved, the final phase includes an authorization from EPA to inject. At this point, the operator is permitted to begin injecting CO_2.

The technical review is the longest and most complex step in the permitting process. During this step, EPA reviews the detailed siting, construction, operation, injection, and closure information submitted, as well as each of the draft plans required in the application package.

During the review and drafting steps, EPA typically works with the applicant to seek clarification on permit elements and identify additional information required. The permitting authority may issue a formal Request for Additional Information (RAI). Applicants are expected to respond to an RAI within 30 days or provide an alternative timeline for a response.

Permit Compliance and Enforcement

Once the permit is in place, the permitting authority is responsible for ensuring that the owner or operator continues to meet the permit conditions and requirements. The permitting authority reviews testing, monitoring, and verification data reported by the owner and operator to evaluate compliance and enforce permit conditions in place to prevent endangerment of USDWs. The permitting authority may also conduct on-site inspections to observe well testing and operation, review records, or evaluate procedures being taken to bring the facility into compliance, among other purposes. Potential permit violations that may lead to compliance or enforcement actions from the permitting authority include, among others, a loss of a well's mechanical integrity; failure to follow monitoring, testing, or reporting requirements; or movement of CO_2 or formation fluids out of the designated injection zone.

Public Participation

Class VI permit application review processes are subject to the general public participation requirements under SDWA.[23] These regulations apply to EPA issuance of UIC permits. They outline minimum requirements for public information, public notice, and public consultation. Public participation activities may include providing notice in the media, holding hearings, responding to public comments, and involving stakeholders.

While the above general public participation requirements exist, EPA has not issued specific regulatory requirements for public participation for the Class VI permit application process. EPA guidance on public participation in Class VI permitting, issued in 2010, anticipated "high levels" of public interest in geologic sequestration.[24] The guidance encouraged UIC programs and owners and operators to provide information on Class VI permits early in the process and to involve a broad range of stakeholders.[25]

In its 2022 report to Congress on Class VI well permitting, EPA identified several stakeholder concerns regarding environmental justice in the permitting process, including concerns about project siting and public involvement. EPA stated that the agency intended to expand the amount of information available to the public about Class VI well permit applications and "explore

[23] 40 C.F.R. Part 25. 40 C.F.R. §§124.10-124.11 requires the permitting authority to provide public notice of the permit application, hold a public hearing if it is determined to be of significant public interest, and consider public comments in making permit decisions.

[24] EPA, "Underground Injection Control (UIC) Class VI Program, Public Participation Considerations for Geologic Sequestration Projects Fact Sheet," EPA 816-F-10-072, December 2010, https://www.epa.gov/uic/quick-reference-guides-class-vi-program-implementation (hereinafter, EPA, "Public Participation Considerations for Geologic Sequestration Projects Fact Sheet").

[25] EPA, "Public Participation Considerations for Geologic Sequestration Projects Fact Sheet."

additional ways in which EPA Class VI permitting can consider the specific needs of any EJ communities located near a proposed Class VI project."[26]

In August 2023, EPA issued a memorandum and accompanying guidance that outlined expectations for how agency staff should consider environmental justice in permitting and review of state applications for UIC Class VI program authority. EPA rescinded the guidance in August 2026, as part of a larger review of Office of Water guidance documents.[27]

Class VI Well Permits Issued

As of September 2026, EPA had issued at least 23 Class VI individual well permits for injection of CO_2, including permits for wells that were never constructed and permits initially issued by EPA and subsequently transferred to state authority.[28] Currently, at least 13 EPA-permitted Class VI wells are in operation at 8 projects in California, Colorado, Illinois, Indiana, and Kansas.[29]

In addition to EPA-permitted wells, some states with Class VI permitting authority have issued their own permits. For example, North Dakota has issued at least eight Class VI permits for three facilities for injection of CO_2. Wyoming has issued at least three Class VI permits, including the Frontier Carbon Solutions project for a storage hub that would store CO_2 from various capture projects.[30] Louisiana has issued at least one Class VI permit.[31]

According to EPA, as of September 2026, Class VI permit applications were pending for 44 projects (including 142 individual wells).[32] See **Figure 1** for details on EPA permit applications and Class VI well locations.

[26] *EPA Report to Congress*.

[27] EPA, Memorandum from Radhika Fox, EPA Assistant Administrator, to EPA Regional Water Division Directors, Regions 1-X, "Environmental Justice Guidance for UIC Class VI Permitting and Primacy," August 17, 2023.

[28] EPA, "Underground Injection Control (UIC) Class VI Permit Tracker," accessed September 14, 2026, https://awsedap.epa.gov/public/single/?appid=8c074297-7f9e-4217-82f0-fb05f54f28e7&sheet=51312158-636f-48d5-8fe6-a21703ca33a9&theme=theme-colorbrewer&bookmark=6218ffed-bb6e-42e4-a4f1-52d87e036a1b&opt=ctxmenu (hereinafter, EPA, "Class VI Permit Tracker"). In 2015, EPA issued four Class VI permits associated with the FutureGen project in Illinois, but the project was canceled before well construction. In 2025, EPA issued at least six Class VI permits for facilities in Texas prior to the state being granted primacy for its Class VI program in December 2025.

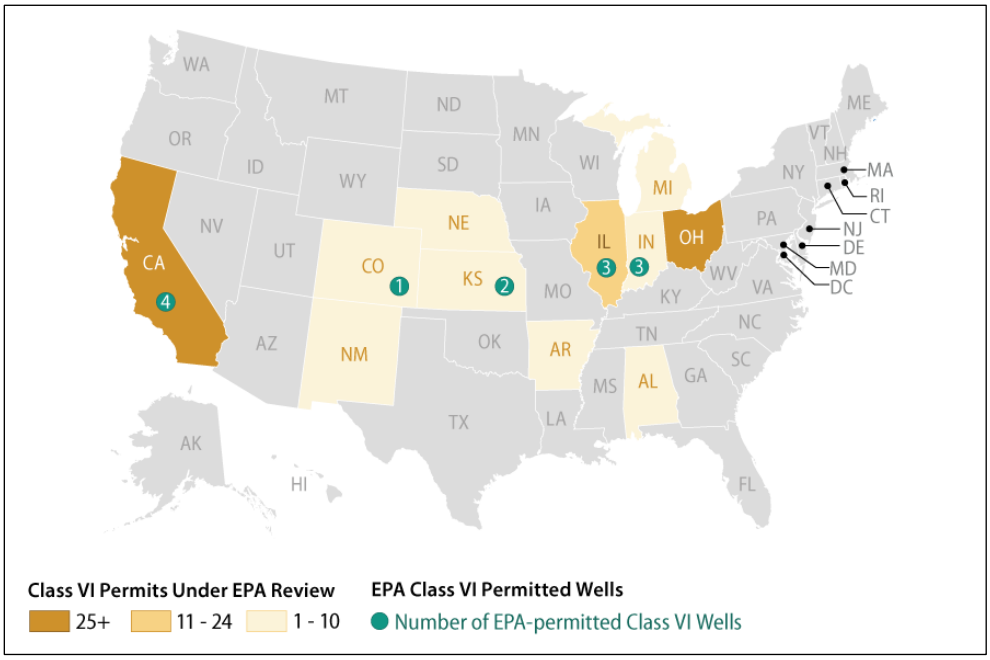
[29] EPA, "Class VI Permit Tracker," accessed September 14, 2026.

[30] North Dakota Department of Mineral Resources, "Class VI—Geologic Sequestration Wells," accessed August 6, 2026, https://www.dmr.nd.gov/dmr/oilgas/ClassVI; Wyoming Department of Environmental Quality, "Class VI," accessed August 6, 2026, https://deq.wyoming.gov/water-quality/groundwater/uic/class-vi/.

[31] Louisiana Department of Conservation and Energy, "Class VI Carbon Sequestration Program," accessed August 6, 2026, https://www.denr.louisiana.gov/page/permits-and-applications#permit. In 2025, Louisiana paused all new permit approvals as the state considered various environmental and legal issues.

[32] EPA, "Class VI Permit Tracker," accessed September 14, 2026.

Figure 1. EPA Class VI Well Permits Issued and Under Review



Source: CRS graphic based on U.S. Environmental Protection Agency (EPA), "Underground Injection Control (UIC) Class VI Permit Tracker," accessed September 14, 2026, https://awsedap.epa.gov/public/single/?appid=8c074297-7f9e-4217-82f0-fb05f54f28e7&sheet=51312158-636f-48d5-8fe6-a21703ca33a9&theme=theme-colorbrewer&bookmark=6218ffed-bb6e-42e4-a4f1-52d87e036a1b&opt=ctxmenu.

Note: Figure includes permits issued and under review by EPA as of September 14, 2026. Figure does not include permits that may be under review by states with UIC Class VI program primacy, as these are managed by individual states rather than EPA.

State UIC Class VI Program Primacy[33]

SDWA authorizes EPA to delegate primary enforcement authority for UIC programs, known as *primacy*, to individual states.[34] EPA grants a state primacy through a federal rulemaking process for one or more classes of wells. To be delegated Class VI program primacy, states must adopt laws and regulations at least as stringent as EPA regulations and must meet other statutory and regulatory requirements. UIC regulations allow states to apply for primacy either for the Class VI program only, or for multiple UIC well programs at once.

If granted primacy for a UIC program, such as a Class VI well program, a state administers the program through enforcement of state laws and regulations in lieu of EPA regulations. The state administers the UIC program and is responsible for day-to-day program responsibilities, including issuing permits and enforcing permit requirements and standards. Under SDWA, EPA retains oversight of states with primacy to ensure that the state programs comply with federal regulatory requirements.

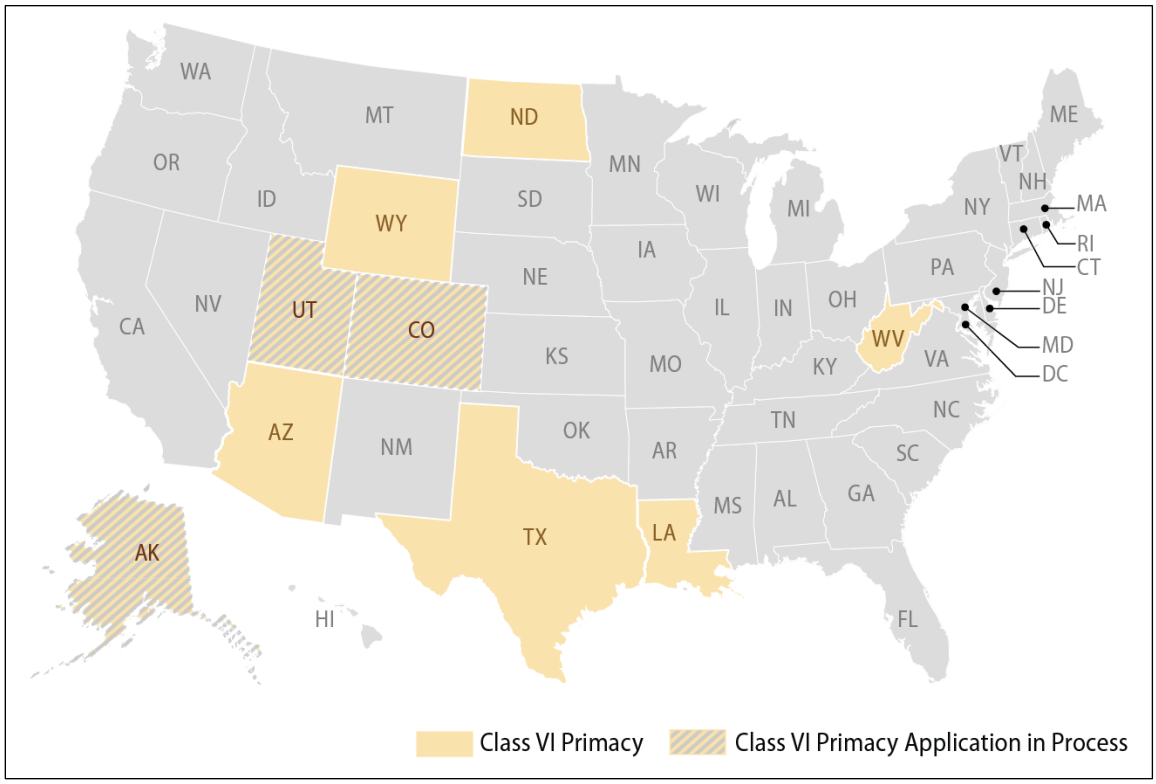
[33] This report focuses on requirements for new UIC Class VI programs. Applications for revisions of existing UIC programs may require the state to submit less information, as outlined in EPA, "Final Class VI Guidance Documents."

[34] SDWA §1421; 42 U.S.C. §300h.

States with UIC Class VI Program Primacy

EPA has delegated primacy for Class VI wells to six states: North Dakota (in 2018), Wyoming (2020), Louisiana (2023), West Virginia (2025), Arizona (2025), and Texas (2025).[35] In 2025, Louisiana paused all new permit approvals as the state considered various environmental and legal issues, as well as a lack of resources to process the more than 30 applications that were pending in the state.[36] In addition, Alaska, Colorado, and Utah are in the process of applying for primacy or revising their underground injection program applications to include Class VI authority.[37] See **Figure 2** for a map of states that have been granted UIC Class VI program primacy or are in the application process. As Class VI wells require specific types of geologic conditions and underground formations to receive and store injected CO_2, some states may not have suitable sites for Class VI wells. These states would not apply for Class VI program primacy.

Figure 2. States with Underground Injection Control (UIC) Class VI Program Primacy and Applications in Process



Source: CRS graphic based on U.S. Environmental Protection Agency (EPA), "Primary Enforcement Authority for the Underground Injection Control Program," accessed August 6, 2026, https://www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program; and EPA press releases.

[35] EPA, "Primary Enforcement Authority for the Underground Injection Control Program," accessed August 6, 2026, https://www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program.

[36] State of Louisiana, Executive Order Number JML 25-119, "CO_2 Capture and Storage Limits and Moratorium," October 15, 2025, https://gov.louisiana.gov/assets/ExecutiveOrders/2025/Department-Directive-Order-No-B-2025-01-combined.pdf.

[37] EPA, "Primary Enforcement Authority for the Underground Injection Control Program," accessed August 6, 2026.

UIC Class VI Program Primacy Requirements

As directed in Section 1421 of SDWA, EPA has established minimum requirements for state UIC programs. If a state seeks primacy for its UIC program, Section 1422 of SDWA requires the state to submit an application "showing satisfactorily" to EPA that, after reasonable notice and public hearings, the state will implement a program that meets the minimum requirements of Section 1421.

EPA UIC regulations promulgated at 40 C.F.R. Part 145 set out the specific requirements for state programs for permitting, compliance evaluation, enforcement, and information sharing. The regulations set out the process and requirements for state applications to EPA for primacy, as well as the procedures EPA follows in evaluating primacy applications.

Class VI regulations require the state to demonstrate that it has the authorities and processes in place to administer the Class VI program, including

- legal authority to implement all permit requirements;
- necessary procedures for the state's compliance evaluation program;
- necessary administrative, civil, and criminal enforcement penalty remedies;
- state Class VI UIC regulations for permitting, inspection, operation, monitoring and recordkeeping, and other requirements at least as stringent as federal Class VI regulations; and
- statewide jurisdiction over underground injection projects.[38]

States seeking primacy are required to submit a detailed description of their UIC program that includes information on

- the structure and processes of the program;
- staffing and expertise;
- schedule and priorities for issuing Class VI permits;
- expected number of permits to be issued; and
- the state's compliance tracking and enforcement program.[39]

A state seeking primacy must submit copies of its UIC statutes and regulations to EPA and must demonstrate that these laws and regulations are at least as stringent as federal UIC requirements.

Other documents required to be included in a primacy application package include

- a letter from the governor of the state requesting program approval;
- a state attorney general statement indicating that the state has adequate legal authority to carry out the UIC program;
- a memorandum of agreement (MOA) between the state and the EPA Regional Administrator that includes provisions on program administration, implementation, and enforcement; and
- documentation of the state's public participation activities prior to submission of the program application.[40]

[38] 40 C.F.R. §145.

[39] 40 C.F.R. §145.

[40] 40 C.F.R. §145.

The MOA typically serves as the foundation of the state's specific responsibilities and commitments in administering the UIC program.

Primacy Application Process

Once a state submits a Class VI primacy application, EPA assesses the completeness of the application and evaluates the contents of the application against federal regulatory requirements. Specifically, EPA examines the stringency and equivalency of the state's regulations in protection of USDWs. According to EPA, the agency maintains a goal of completing the review in 30 days.[41]

In reviewing applications, EPA seeks to ensure that the state's UIC Class VI regulations are at least as strict as federal regulations and that they contain the same necessary requirements for well permitting, construction, operation, recordkeeping, site closure, and other requirements established in federal Class VI regulations. The typical UIC primacy application process involves a series of communications and discussions among state agencies and the relevant EPA regional office during review and evaluation. During the review process, EPA may request additional information or clarification from the state.

Class VI regulations require that, once EPA determines that a new Class VI primacy application is complete, the agency must hold a public hearing announced through notice in the *Federal Register* and provide information on the availability of the application to the public for review and comment.[42]

Once the application is approved, EPA promulgates a rulemaking finalizing the decision to award primacy to the state for the UIC program. The regulations require that EPA must approve, disapprove, or approve in part the UIC program through a rule published in the *Federal Register*.[43] The six approved state Class VI primacy rules are available in the *Federal Register* and codified in 40 C.F.R. Part 147.[44]

The timing from EPA receiving a complete primacy application package to approval has varied. For example, with the first state to apply, North Dakota, the review process took four years. EPA approved Wyoming's primacy in eight months.[45]

Enforcement and EPA Oversight

Once granted primacy, the state is responsible for the day-to-day administration of the program, such as issuing permits, monitoring compliance with state regulations, and leading enforcement actions in the event of violations. Under SDWA, however, EPA retains oversight and enforcement authority over all delegated UIC programs. The MOA between the state and EPA typically

[41] EPA, *Geologic Sequestration of Carbon Dioxide: Underground Injection Control (UIC) Program Directors Class VI Primacy Manual for State Directors*, April 2014, https://www.epa.gov/sites/default/files/2015-07/documents/epa816b14003.pdf. EPA standard operating procedures for Class VI primacy application review include a goal of a 30-day time frame for determining the completeness of the application, but this is not a statutory deadline.

[42] 40 C.F.R. §145.31.

[43] 40 C.F.R. §145.31.

[44] EPA, "State of North Dakota Underground Injection Control Program; Class VI Primacy Approval," 83 *Federal Register* 17758-17761, April 24, 2018, and 40 C.F.R. §147.1751 (North Dakota); EPA, "Wyoming Underground Injection Control Program; Class VI Primacy," 85 *Federal Register* 64053-64056, October 2020, and 40 C.F.R. §147.2550 (Wyoming); EPA, "State of Louisiana Underground Injection Control Program; Class VI Primacy," 89 *Federal Register* 703-712, January 5, 2024 (Louisiana), rule signed on December 28, 2023.

[45] EPA, "Class VI Permit Tracker," accessed September 14, 2026.

includes provisions specifying that EPA will conduct periodic performance evaluations of the state program to ensure that minimum federal requirements are being met.

UIC Grants for States

In recent years, Congress has appropriated funding for EPA to provide grants to states for implementation of new and existing UIC programs, including Class VI programs. For example, for FY2026, Congress appropriated $12.3 million for UIC grants (including all well classes).[46] Congress has provided specific funding for Class VI grants—in 2021, the Infrastructure Investment and Jobs Act (IIJA; P.L. 117-58) directed EPA to establish a specific UIC Class VI grant program for states. Division J of the act provided $50 million in supplemental appropriations to EPA for grants to states that have or are working toward Class VI primacy. States may use these funds for Class VI primacy applications, program revisions, or existing Class VI program implementation activities.[47] Twenty-three states and two tribes submitted letters of intent to participate in the grant program. EPA allocated $1.93 million to each of these states and tribes, for a total of $48.25 million.[48]

Public Participation

UIC regulations at 40 C.F.R. Section 145 establish requirements for public participation in the state primacy application process. During EPA's primacy application review, requirements include public notice of a state's intent to adopt a UIC program, a public comment period, and a public hearing, among other requirements.[49] The regulations also require that a state with primacy provides for public participation in the state enforcement process.[50]

EPA has addressed public participation and environmental justice during the rulemaking process for state UIC Class VI program approval, including for Louisiana and West Virginia. In the final 2024 rule granting Louisiana Class VI primacy, EPA stated that it worked with the state to incorporate the Class VI environmental justice guidance into Louisiana's permitting process and program description, including public participation and environmental justice considerations in environmental review.[51] As noted earlier, however, EPA has since rescinded that guidance. Without this guidance, states with Class VI primacy may differ in considering public participation and environmental justice issues not specifically required in regulation when applying for primacy and implementation of Class VI programs. States may choose to go beyond federal minimum requirements.

Issues for Congress

In the 119th Congress, some Members have demonstrated interest in Class VI permitting and primacy by introducing legislation specific to Class VI programs, providing targeted

[46] P.L. 119-74.

[47] EPA, *Underground Injection Control (UIC) Class VI Wells Grant Program: Grant Implementation Document*, May 7, 2025, https://www.epa.gov/system/files/documents/2025-05/uic-class-vi-primacy-grant-implementation-document_5-7-25.pdf.

[48] EPA, *Underground Injection Control (UIC) Class VI Wells Grant Program: Grant Implementation Document*.

[49] 40 C.F.R. §145.31.

[50] 40 C.F.R. §145.13.

[51] EPA, "State of Louisiana Underground Injection Control Program; Class VI Primacy," 89 *Federal Register* 703, January 5, 2024, https://www.federalregister.gov/documents/2024/01/05/2024-00044/state-of-louisiana-underground-injection-control-program-class-vi-primacy.

appropriations to EPA, and discussing Class VI well issues in hearings.[52] For example, the Primacy Certainty Act of 2025 (H.R. 4880/S. 2505) would amend SDWA to require EPA to issue a determination on a state's Class VI primacy application within 180 days, among other provisions. More recently, in the Joint Explanatory Statement accompanying the Consolidated Commerce, Justice, Science; Energy and Water Development; and Interior and Environment Appropriations Act, 2026 (P.L. 119-74), Division C, Title II, Congress provided $5 million for FY2026 for EPA to "help develop expertise and capacity at the Agency … to expeditiously review and process Class VI permits and primacy applications from States and Tribes."[53]

As Congress continues debate on Class VI well permitting and state primacy, Members could consider several policy issues related to EPA appropriations, legislation, and oversight. While the issues outlined below focus on policies specifically related to Class VI wells, policy support for CCS project deployment, such as research funding and federal tax credits, are part of broader climate change policy discussions in Congress. For more information on policy considerations for Class VI wells and CCS as a climate change mitigation option, see CRS Report R44902, *Carbon Capture and Sequestration (CCS) in the United States*.

EPA Funding and Resources

As discussed earlier in this report, for the past several fiscal years, Congress has supported state UIC well programs through regular annual appropriations to EPA for grants to states to be used for UIC program implementation and for EPA Class VI permit activities. Congress has also provided targeted appropriations for state grants and EPA programs to support Class VI permit and primacy activities. EPA is currently reviewing at least 142 Class VI permit applications. Congress may consider how the level of EPA UIC Class VI program resources aligns with some Members' interest in increasing the number and duration of Class VI permit and primacy approvals, as part of supporting CCS projects generally.

As noted earlier in this report, six states currently have Class VI primacy. In 2023, in response to a request from EPA, 23 states and 2 tribes communicated an intent to pursue Class VI primacy, including four states that have been granted primacy since that time. Some Members argue that EPA would need sufficient staffing and resources at the headquarters and regional office level to manage the significant increase in primacy applications for review. For example, in the Joint Explanatory Statement accompanying P.L. 119-74, the Appropriations Committees noted the need for additional EPA resources and capacity to conduct Class VI permitting and primacy activities.[54] Congress also appropriated $1.8 million for FY2026 for Class VI regulation education and training.[55]

If more states were to be granted primacy, there could be a long-term decrease in the number of Class VI permit applications under federal EPA review as these delegated states took on permitting and enforcement responsibility. One consideration for Congress, however, is potential

[52] CRS searched Congress.gov with the term "Class VI" to identify relevant legislation in the 119th Congress. In November 2023, the Senate Committee on Energy and Natural Resources held a hearing on general carbon capture and sequestration (CCS) topics that included discussions of Class VI permitting and primacy.

[53] U.S. Congress, House Committee on Rules, Joint Explanatory Statement to accompany H.R. 4754, "Title II—Environmental Protection Agency," p. 47, https://rules.house.gov/bill/119/PIH-FY2026-CJS-EnergyWater-Interior.

[54] U.S. Congress, House Committee on Rules, Joint Explanatory Statement to accompany H.R. 4754, "Title II—Environmental Protection Agency," pp. 47-48, https://rules.house.gov/bill/119/PIH-FY2026-CJS-EnergyWater-Interior.

[55] U.S. Congress, House Committee on Rules, Joint Explanatory Statement to accompany H.R. 4754, "Title II—Environmental Protection Agency," p. 48, https://rules.house.gov/bill/119/PIH-FY2026-CJS-EnergyWater-Interior.

limits on states that would be able to be granted primacy and thus be able to review and enforce Class VI permits. States differ in their capacity and expertise to administer all the elements of a Class VI program. For example, some states have regulated deep oil and natural-gas-related wells for decades, while other states with smaller numbers or different types of UIC wells have relied on EPA to administer programs. States without experience regulating wells for oil and gas production or complex wells may need additional time and resources to establish state regulations and develop all the program elements needed to administer a state UIC program, or may not develop the capacity to manage the program without EPA assistance. Even some experienced oil and gas states with primacy have faced barriers to implementing Class VI programs. For example, Louisiana, a state with a relatively high number of potential Class VI projects, has been unable to process the large volume of applications and paused permit reviews.[56]

Potential Amendments to the 2010 Class VI Rule

Another consideration for policymakers involves potential amendments to the 2010 Class VI rule that established specific regulations and standards for Class VI wells and permitting. For example, Congress could consider whether to direct EPA to amend the 2010 Class VI rule based on new information available since it was promulgated. Some stakeholders support EPA promulgating revisions to the rule. They note that the rule has been in place for over a decade and that requirements such as monitoring standards, modeling the area subject to the injection permit requirements, financial assurances, and individual well permits should be revised to reflect more recent technology and conditions.[57]

In the preamble to the 2010 rule, EPA stated its intention to review the rule every six years.[58] In its 2022 report to Congress, however, EPA stated that it would need additional data from more projects before amending the Class VI rule.[59] As the first permits for an operating facility were issued in 2017, and injection is expected to continue for approximately 10 years for that facility, no Class VI well project has completed its permit cycle from construction and injection through post-injection site care, which occurs once injection and well closure is complete.

Pollution and Public Participation Concerns

As described earlier in this report, some stakeholders have raised concerns about the environmental and community impacts of carbon capture and sequestration projects in general and with specific Class VI well projects. Congress may consider exploring these concerns, particularly in the context of other policy objectives related to climate change or energy policy.

Although there are a limited number of active Class VI wells permitted by EPA, fluid migration within underground formations near well sites has led EPA to take compliance actions and has increased concern among some local communities. In September 2024, Archer Daniels Midland Company (ADM) paused injection at its Decatur, IL, Class VI well site when fluid migration was detected.[60] In 2025, EPA issued an administrative order to ADM for violating the monitoring

[56] Louisiana Department of Conservation and Energy, "Class VI Carbon Sequestration Program," https://www.dce.louisiana.gov/page/Class-VI.

[57] *EPA Report to Congress*.

[58] EPA, "Federal Requirements," p. 77241.

[59] *EPA Report to Congress*.

[60] Archer Daniels Midland Company (ADM), "ADM Statement," press release, August 29, 2025, https://www.adm.com/globalassets/standalone-pages/carbon-capture-and-storage/adm-statement—8.29.25.pdf.

requirements of a well permit.[61] At the site, fluid had migrated into an unauthorized zone of the underground formation, associated with the location and condition of the site monitoring wells.[62] The order directs ADM to undertake compliance actions, such as implementing response plans for failure of well integrity, evaluating fluid migration, and reporting and documentation.[63] ADM resumed injection in August 2025.[64]

As discussed earlier in this report, EPA has promulgated regulations on public participation and issued guidance (now rescinded) on consideration of environmental justice in Class VI permitting and primacy processes. In earlier state program primacy application processes, some community groups had raised objections to Class VI projects as well as the UIC public participation process.[65] With the rescission of the 2023 Class VI environmental justice guidance and implementation of other Trump Administration policies, the current role of public participation and environmental justice considerations in Class VI well permitting and state programs is less clear. Further, in 2025, President Trump issued multiple executive orders (EOs) that revoked prior environmental-justice-related EOs and changed direction to EPA and other executive branch agencies regarding consideration of environmental justice in agency activities and programs, including elimination of programs focused on environmental justice or diversity, equity, and inclusion.[66]

Congress could choose to take no action on these issues. Alternatively, Congress could consider oversight actions related to how EPA is implementing relevant public participation regulations and guidance, including actions detailed in the agency's 2022 report to Congress on Class VI permitting. Congress also could consider legislation that would direct EPA to develop programs or regulatory actions related to the public health and environmental concerns expressed by stakeholders or codify actions that had been included in EPA's 2023 environmental justice guidance for Class VI wells.

Other issues associated with Class VI permits and state primacy have been the subject of ongoing legal action that may affect future permitting and primacy decisions, such as the legal standing of environmental groups challenging permit and primacy approvals and whether state liability laws

[61] EPA, "EPA Orders Archer Daniels Midland to Ensure Environmental Compliance of Carbon Sequestration Well in Decatur, IL," press release, August 13, 2025.

[62] EPA, "EPA Orders Archer Daniels Midland to Ensure Environmental Compliance of Carbon Sequestration Well in Decatur, IL."

[63] EPA, "EPA Orders Archer Daniels Midland to Ensure Environmental Compliance of Carbon Sequestration Well in Decatur, IL."

[64] ADM, "ADM Statement."

[65] For example, see "Allen Parish Policy Jury Reignites Opposition to Carbon Capture Activity," KALB5, October 6, 2025, https://www.kalb.com/2025/10/07/allen-parish-police-jury-reignites-opposition-carbon-capture-activity/; West Virginia Highlands Conservancy, "Carbon Dioxide Injection Program Approved Over Citizen Objections," February 6, 2025, https://www.wvhighlands.org/article/carbon-dioxide-injection-program-approved-over-citizen-objections/; "EPA Grants Louisiana Primacy to Permit CCS Wells, Despite EJ Concerns," InsideEPA.com, December 29, 2023, https://insideepa.com/daily-news/epa-grants-louisiana-primacy-permit-ccs-wells-despite-ej-concerns; Letter from the Louisiana Wildlife Federation to Lisa Pham, EPA Region 6 Groundwater/UIC Section, July 29, 2023, https://lawildlifefed.org/wp-content/uploads/LWF-Comment-on-Primacy-La-Class-VI-wells-FINAL.pdf; and Letter from Earthjustice to Michael S. Regan, EPA Administrator, July 3, 2023, https://earthjustice.org/wp-content/uploads/2023/07/comments-on-epas-proposed-approval-of-la-class-vi-primacy-application_2023jul03.pdf.

[66] Executive Order (EO) 14148, "Initial Recissions of Harmful Executive Orders and Actions," 90 *Federal Register* 8237, January 28, 2025; EO 14151, "Ending Radical and Wasteful Government DEI Programs and Preferencing," 90 *Federal Register* 8339, January 20, 2025; EO 14173, "Ending Illegal Discrimination and Restoring Merit-Based Opportunity," 90 *Federal Register* 8633, January 31, 2025.

for well owners and operators meet federal minimum Class VI program standards. Analysis of these legal issues is beyond the scope of this report.[67]

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