CARBON CAPTURE COALITION

Recommendations for Improving the UIC Class VI Regulatory Program

Background on the Class VI Program

Congress granted the Environmental Protection Agency (EPA) regulatory authority over both underground injection activities and the protection of underground sources of drinking water (USDWs) as part of the Safe Drinking Water Act (SDWA) in the 1970s. Subsequently, the EPA promulgated the Underground Injection Control (UIC) Program and set minimum standards for state programs seeking primary enforcement authority (primacy) over individual well classes within the UIC program. The main goal of the UIC program is the protection of USDWs.[1]

EPA currently regulates six well classes for injecting fluids into the subsurface. Two of these pertain to the secure geologic storage of carbon dioxide (CO_2): Class II and Class VI. Class II wells address the underground storage of fluids, including CO_2, associated with oil and gas production. They are a mature commercial practice in the United States, with approximately 180,000 Class II wells in operation, and 41 states with Class II primacy across the United States today.[2]

Made necessary by the growth and interest in the deployment of carbon capture and storage technologies, regulations governing the Class VI injection well program were promulgated in 2010 to specifically regulate "wells used for geologic sequestration" of CO_2. Suitable geologic storage locations are deep (typically over a mile underground), geologic formations occurring between impermeable rock layers where subsurface pressures are great enough to keep the injected CO_2 in a dense phase. Well-characterized and properly operated geologic sequestration projects ensure that CO_2 is safely and permanently contained in the target storage formation(s) and are protective of USDWs.

When Class VI regulations were first promulgated in 2010, the EPA expressly committed to an adaptive rulemaking approach that included plans to review its rulemaking and data on geologic sequestration **every six years** to determine if modifications were appropriate or necessary. However, the agency has not undertaken any additional rulemaking since the rules' initial promulgation. During this period, technology and industry best practices, as well as experience with the Class VI permitting process, have advanced significantly. The regulations contain the most requirements for compliance compared with the other five well classes.[3]

Reforms to the Class VI program are necessary to scale geologic storage

[1] Class VI - Wells used for Geologic Sequestration of Carbon Dioxide | US EPA.
[2] As of July 2026.
[3] Class VI Carbon Sequestration Wells: Permitting and State Program Primacy.

The geology of the United States offers vast potential to permanently and securely store captured CO_2 deep underground in appropriate subsurface formations, and today, the majority of the more than 350 announced and operating domestic carbon management projects across the nation intend to use Class VI wells for CO_2 storage. This interest is reflected in the number of permitted and pending well applications: the EPA alone has issued permits for 18 Class VI wells across 10 permitted Class VI projects; an additional 88 individual well permit applications for 25 different projects remain in queue within the EPA's jurisdiction.[4,5] Additionally, the number of states or Tribal Nations awarded or seeking primacy over Class VI wells continues to grow; today, six states have been granted Class VI primacy, and another nine states and one Tribal Nation are pursuing.[6,7]

At the outset, it was recognized that the UIC Class VI regulations exceed those of other UIC well classes. While maintaining the safety and security of USDWs is of paramount importance, the inflexible nature of the regulations and, in some cases, duplication of requirements within the regulations that impede alignment with industry best practices, have resulted in challenges to obtaining permits and unnecessary delays in project deployment, without any material benefit to human health and safety. In practice, this has meant that individual EPA permit approvals take approximately two to four years to receive a final permit to construct a Class VI well. Additionally, the process for states to receive Class VI primacy has generally taken several years.

As regulators at EPA headquarters and within regional offices, as well as project proponents, have become familiar with Class VI regulations and gained real world experience applying them to project deployment, both regulators and developers have begun discussing needed updates to those regulations and the policies governing their implementation. Recognizing the need to deploy carbon capture and storage technologies to help decarbonize and grow the economy, the Carbon Capture Coalition (the Coalition) convened a Class VI Work Group to identify needed updates to the UIC Class VI Program regulations and implementation, and to subsequently request that EPA undertake rulemaking to update the Class VI regulations. **We agree that targeted improvements, as proposed below, can help expedite Class VI permit review while maintaining program rigor.**

Purpose of the Coalition's Class VI Recommendations

These recommendations are intended to improve the efficiency of the Class VI permitting program and reduce the administrative burden for applicants and regulators without compromising the technical rigor necessary to protect USDWs. These

[4] See EPA Class VI tracker.
[5] This does not include approved or pending wells in those states with Class VI primacy rather only includes the approved or pending wells within EPA's jurisdiction.
[6] Six states have primacy over Class VI wells: North Dakota, Wyoming, Louisiana, West Virginia, Arizona, and Texas (as of 7/2026).
[7] Nine states are in the process of applying for primacy with the EPA: Alabama, Alaska, Arkansas, Colorado, Indiana, Mississippi, Nebraska, Oklahoma, and Utah (as of 7/2026).

recommendations are organized into two categories: improvements to the implementation of Class VI regulations and targeted regulatory revisions.

Taken together, these recommendations would enable the efficient, orderly, and responsible permitting of Class VI wells and state primacy programs while maintaining the safety of USDWs and permanence of geologically sequestered CO_2. This list is not meant to be exhaustive; rather, it focuses on those changes that will yield the greatest benefit by reducing permitting timelines and administrative burden while preserving public participation, public safety, and environmental protection.

Recommendations

A. Implementation

If fully implemented, the following recommendations will ensure that the EPA carries out existing Class VI regulations in a time- and resource-efficient manner while maintaining the highest safety standards for the protection of USDWs.

1. **Ensure adequate resources at EPA to administer the Class VI program.**

Ensure EPA has the resources, staffing, technology, and training to efficiently and robustly review a growing number of UIC Class VI permits and state primacy application reviews to support carbon management deployment.

Over the last several years, the Coalition and its allied effort, Carbon Capture Impact, have been instrumental in securing robust, sustained funding for the Class VI program through annual appropriations and one-time funding in the Infrastructure Investment and Jobs Act (IIJA).

However, ensuring the continued success of the UIC Class VI program is not a one-time exercise. Congress must allocate sufficient resources to the EPA and primacy states to support the permit review process and enable staff to conduct appropriate and timely reviews.

Sustained funding and sufficient resources enable the growth, retention, and training of a workforce knowledgeable about the unique considerations for Class VI wells. With robust, sustained resources, EPA can adopt innovative technologies to enhance planning, mapping, and data sharing with the public and among federal agencies, contributing to faster implementation, more sustainable outcomes, and better overall projects.

2. **Implement a transparent and timely review timeframe for permit and primacy applications.**

EPA should implement a 12-month review and decision timeline for both state primacy applications and individual well permit applications.

Uncertainty surrounding permitting timelines affects commercial negotiations among emitters, CO_2 transporters, and geologic sequestration developers. This uncertainty introduces complexities that may ultimately prevent projects from reaching a final investment decision (FID), a crucial point in project development where developers and investors formally commit to construct the project. While EPA has recently committed to a 1-year review schedule for individual well permits in letters to project developers, many projects have been waiting in the queue for several years, and it remains unclear how the agency and its regions will bring pending projects into line with these timeframes.

EPA should establish clear review schedules that are shared with project developers, including issuing completeness determinations within 30 days of receiving an application and issuing final permit decisions within 12 months for primacy determinations and individual well permit applications. Doing so will provide predictability for project developers and impacted stakeholders and ensure projects move toward FID as efficiently as possible while maintaining the rigor of review.

These timelines would be separate from the issuance of a permit to inject, which requires its own review period.

3. **Enable interagency coordination to allow for timely decisions on the applicability of federal laws.**

EPA should establish a memorandum of understanding with applicable federal agencies to determine the applicability of Federal laws to the proposed Class VI project at the outset of the project review period.

The use of Memoranda of Understanding (MOUs) to coordinate the review of permit applications with multi-agency jurisdiction is a well-established practice that enables coordinated project review. Under an MOU, EPA would act as the lead agency, responsible for managing the review process and coordinating interagency efforts to avoid duplication of processes, improve predictability for applicants, and advance permit decisions in a timely manner without sacrificing the technical rigor of the review. As part of the Class VI permit application process, the applicant will provide information for EPA to determine the applicability of the Federal laws under § 40 CFR 144.4*,* which may include the Endangered Species Act, the Wild and Scenic Rivers Act, the Coastal Zone Management Act, the National Historic Preservation Act of 1966, and any executive orders. This exercise should be completed during the completeness review phase and focus on the Class VI well(s).

4. **Ensure consistent implementation of UIC Class VI requirements across all EPA Regions.**

EPA regions should work to harmonize the review practices of Class VI well permits to give developers clarity on application expectations, review procedures, and well design standards across regions.

Varying interpretations of the UIC Class VI regulations between regional offices and headquarters create uncertainty, delays, and cost overruns. Specifically, the Coalition has been made aware by project developers of conflicting interpretations across regions regarding material, data, and monitoring requirements. As such, we are pleased to see the EPA working with regional offices to develop guidance with an eye toward standardizing the review process across regions. Forthcoming guidance should establish a common interpretation of the UIC Class VI regulations and ensure their uniform application across regions, recognizing that some variation may occur across geographies. Standardization of Class VI requirements will help eliminate delays caused by a patchwork approach.

B. Regulations

Enacting a robust and consistent regulatory framework for carbon management through targeted changes to the Class VI regulations.

1. **Allow area permits under UIC class VI regulations.**

EPA should allow the issuance of area permits under the UIC Class VI well program to encourage a more holistic approach to site planning, rather than requiring separate, specific permits for each individual well associated with a project.

Area permits are currently not allowed in the UIC Class VI program, despite their use in other underground injection well classes regulated by the EPA. [8,9] Additionally, EPA's Class VI guidance documents conflict with the regulations, as EPA recommends that the monitoring system be designed to address all injection wells together in a unified plan, even though the injection wells themselves are permitted separately.[10] This duplicative approach creates inefficiencies for multi-well projects, given that many, if not most, project applications involve multiple UIC Class VI injection wells in close proximity and are intended to geologically sequester CO_2 within the same storage reservoir. Allowing area permits will align with UIC program requirements and streamline development, thereby supporting safer, more adaptive project development and execution that considers how the CO_2 and pressure front behave in a given area, not just in a single well.

2. **Allow project proponents to provide evidence to support minor permit modifications.**

[8] See § 40 CFR 144.33(a)(5).
[9] Area permits are permitted for well classes II, III, and V, despite the relevant injectates presenting similar or higher risk levels as compared to class VI.
[10] Per the UIC Program Class VI Well Testing and Monitoring Guidance.

Within the Class VI program, EPA should allow project operators to demonstrate that permit modifications are minor, enabling continual refinement of the permit to reflect new data, as intended by the regulation.

EPA acknowledges in guidance documents that site characterization of Class VI projects is not a one-time exercise and recommends that owners or operators consider adjusting portions of their project plans as additional data becomes available during site characterization and operations. Updating project plans as new data becomes available improves understanding of the conditions of the target geology, ultimately serving to decrease risk to USDWs.

However, Class VI regulations treat many changes to project plans as major permit modifications, creating significant uncertainty for project developers regarding the status of their permits. This uncertainty could serve as a disincentive to continuously update and refine project plans. Therefore, the Coalition recommends that the regulations be revised to allow project developers to demonstrate to regulators that permit modifications that do not increase risk to USDWs may be deemed minor. Importantly, this regulatory change would not alter the EPA Director's final decision-making authority on any permit modification or revocation.

3. **Establish emergency response plan requirements.**

Regulations should establish baseline requirements for emergency and remedial response plans, including on-site personnel training, coordination with emergency responders, and pre-injection tabletop drills.

Establishing baseline requirements for what should be included in emergency and remedial response plans will help to prepare local agencies and first responders to respond in the unlikely event of an incident involving the Class VI well. Additionally, strong emergency and remedial response plans will help build public confidence and support for CO_2 geologic sequestration projects. The emergency and remedial response plan must be shared with relevant authorities to ensure preparedness in the unlikely event of an incident.

4. **Align the UIC Class VI financial strength test requirements with those under the Resource Conservation and Recovery Act (RCRA)**.

Regulations should allow operators to maximize financial efficiencies while maintaining strong financial assurance requirements.

The Coalition believes maintaining strong financial assurance requirements is key to ensuring that project proponents and operators have the financial resources to properly manage and close geologic storage sites and remedy any potential liabilities. Under UIC Class VI regulations, an owner or operator may use trust funds, surety bonds, letters of credit, insurance, escrow accounts, self-insurance, or any other instrument satisfactory to the Director that is sufficient to cover the costs of corrective action, injection well

plugging, post-injection site care, emergency and remedial response, and endangerment to USDWs.

While self-insurance is an allowable instrument under UIC Class VI, the regulations impose a burdensome financial strength test requirement that exceeds even the financial strength test under the Resource Conservation and Recovery Act (RCRA), which addresses the handling of chemicals with far more inherent risk than CO_2. For example, RCRA's two-pronged financial assurance test is deemed sufficient for companies handling radioactive waste.[11] Aligning the UIC Class VI financial strength test with the dual financial strength test pathways provided under RCRA would reduce financial inefficiency and avoid counterparty downgrade risk while maintaining strong financial assurance protections.

5. **Ensure required relevant subsurface data are directly related to the safety of USDWs.**

Project developers and the EPA would benefit from adding express language requiring that the information requested by the Director be relevant to the protection of USDWs and/or the performance of the UIC Class VI well(s) at appropriate subsurface intervals.

Requiring information unrelated to subsurface integrity can result in significant project delays without reducing risk to USDWs. To maximize efficiency in the permitting process, the Coalition recommends adding express language requiring that the information requested by the Director be relevant to the performance of the UIC Class VI wells at the appropriate subsurface intervals.

6. **Ensure operators have flexibility in choosing appropriate site-specific testing and monitoring methods.**

Regulations should ensure operators have sufficient flexibility to utilize the most appropriate site-specific tools and methods to deliver the information required to satisfy UIC Class VI requirements.

Currently, owners or operators of Class VI wells must run detailed logs, surveys, and tests to determine or verify characteristics of the target formation to ensure conformance with injection well construction requirements and establish baseline data. As written, however, the Class VI regulations mandate the tests that owners or operators must use to provide regulators with necessary information. Some

[11] Operators can comply with RCRA's financial assurance requirements by self-guaranteeing closure and post-closure operations by passing one of two corporate financial tests: net working capital test or bond rating test.

of the testing methods currently mandated are outdated, provide redundant information, or increase the risk to well integrity.[12]

A similar approach is taken for the monitoring methods used to track the extent of the CO_2 plume and pressure front. For example, the EPA requires the use of direct methods to track the presence or absence of elevated pressure within the injection zone. However, direct methods in the injection zone create additional penetrations that could serve as leakage pathways and, according to EPA guidance documents, provide measurements only at discrete locations, making these additional penetrations of limited value in most cases. In guidance, EPA recognizes that owners or operators may need to deploy a suite of complementary monitoring techniques to track the CO_2 plume and pressure front.

With this in mind, EPA UIC Class VI rules should be performance-based rather than prescriptive to enable owners, operators, and EPA to use fit-for-purpose, site-specific testing and logging and monitoring methods that will be reflective of best management practices and allow for the integration of emerging technologies while supplying information that meets or exceeds current testing and monitoring requirements.

7. **Allow aquifer exemptions for Class VI Wells.**

Currently, the salinity of an underground aquifer is used as a determinant of whether that aquifer can be used as part of the UIC program under any well class – except Class VI. In practice, this means that even if other diagnostic parameters would preclude its use for drinking water, it can still not be used for injection of CO_2.

The Coalition recommends allowing project developers to seek an aquifer exemption under UIC Class VI regulations. Not only would this harmonize the Class VI regulations with other well classes, but it would also create additional geologic storage opportunities in the United States.[13] Additionally, the Senate Environment and Public Works (EPW) Committee recently passed the Water Resources Development Act of 2026 (WRDA) out of committee, which includes an exemption for non-potable aquifers under Class VI.

For every other type of injection (e.g., disposal of hazardous and non-hazardous industrial waste and waste from oil and gas activities), the UIC program has a test in place to determine whether certain parts of brackish aquifers are truly usable for drinking water or other purposes, including agriculture. If an aquifer is determined to be unsuitable for use as a source of drinking water, it may be designated as an exempted aquifer because it is not—and not expected to become—a source of potable drinking water.

Of note, in promulgating the Class VI regulations, EPA did not provide a scientific or technical basis for disallowing the designation of exempted aquifers for Class VI

[12] See § 146.87.

[13] Aquifer exemptions will be necessary to scale geologic storage in particular regions, including the intermountain West, and mineralization in basaltic formations in the Pacific Northwest.

injection. Instead, current regulations allow only for the expansion of existing Class II enhanced oil recovery or enhanced gas recovery to receive aquifer exemptions. Recognizing the lack of a scientific basis for this distinction, harmonizing Class VI regulations with other well classes (I–V) by allowing CO_2 injection into aquifers unsuitable for drinking water or agricultural purposes would provide much-needed flexibility for geologic CO_2 sequestration.

8. **Add atmospheric CO_2 to the carbon dioxide stream definition.**

EPA should ensure that regulations allow for sequestration pathways that are consistent with evolving industry applications of carbon management technologies.

Recognizing the number of planned and under-construction direct air capture (DAC) facilities across the nation, the definition of carbon dioxide stream within the Class VI regulations should be amended to include CO_2 captured from the atmosphere.

9. **Update UIC Class VI guidance documents and state regulations to reflect any changes in regulations.**

Class VI guidance documents must be updated to provide current recommended practices to developers and regulators. Additionally, states must adopt regulatory revisions to ensure consistency with any federal rulemaking.

The UIC Class VI guidance documents provide applicants with guidance on developing comprehensive project plans and aid regulators in evaluating applications. The considerable experience gained by both EPA and applicants since the guidance documents were first issued underscores the need to review and revise them to ensure consistency with current science and best practices. Additionally, in accordance with common practice at the EPA, changes to the regulations will require updated guidance documents. This could be accomplished in several ways, but one suggestion to ensure that any updates are responsive to industry concerns is to open a request for information about what, specifically, stakeholders would like updated in any new guidance. Additionally, pursuant to existing requirements, states shall revise their Class VI regulations to ensure consistency with any revisions adopted as part of federal rulemaking.[14]

[14] Guidance for primacy states on updating state programs is contained within § 145.32 *Procedures for revision of State programs*.