



Geologic Sequestration of Carbon Dioxide – UIC Quick Reference Guide

Additional Considerations for UIC
Program Directors on Interstate
Coordination Requirements for the
Class VI Injection Well Permitting
Process

June 2011

Office of Water (4606M)
June 2011
<http://water.epa.gov/drink>
EPA 816-R-11-003

I. INTRODUCTION

In December 2010, EPA promulgated *Federal Requirements Under the Underground Injection Control (UIC) for Carbon Dioxide Geologic Sequestration (GS) Wells* (75 FR 77230, December 10, 2010), referred to in this UIC Quick Reference Guide as the GS Rule. The GS Rule establishes new federal requirements for the underground injection of carbon dioxide for the purpose of long-term storage, or geologic sequestration. While the elements of the final rule are based on the existing regulatory framework of EPA's UIC Program, the requirements are tailored to address the unique nature of CO₂ injection for GS including: the relative buoyancy of carbon dioxide, its corrosivity in the presence of water, the potential presence of impurities in captured carbon dioxide, its mobility within subsurface formations, and large injection volumes anticipated at full scale deployment. The rule establishes a new well class (Class VI) to ensure the protection of underground sources of drinking water (USDWs) from injection related activities. The Class VI requirements are also designed to promote transparency and national consistency in permitting of GS projects.

Based on injection volumes anticipated at GS projects, EPA anticipates that a Class VI GS project Area of Review (AoR) will be larger than those delineated for other UIC well classes and may transect State, Tribal, and Territorial boundaries. In order to ensure transparency, coordination, and information sharing on Class VI permits among States, Tribes, and Territories, the final rule requires Class VI well permit applicants to identify all States, Tribes, and Territories located within the delineated AoR for a Class VI injection well during the Class VI injection well permit application process [40 CFR 146.82(a)(2)].

This information is subsequently used by UIC Program Directors. Pursuant to requirements at 40 CFR 146.82(b), the UIC Program Director must notify, in writing, any States, Tribes, or Territories identified by the permit applicant as being within the AoR of a Class VI project. The procedure whereby the UIC Program Director conducts such a notification is established during the primacy application period and is included in the program description pursuant to requirements at 40 CFR 145.23(f)(13).

Notification of specific agencies at the State, Tribal, and Territorial level (by the UIC Program Director) regarding the receipt of a Class VI injection well permit application should afford such entities an opportunity to provide input on any relevant activities in the permit application review process. This process under 40 CFR 146.82 is separate from, but complementary to, the public notification requirements at 40 CFR 124.

While the rule only requires UIC Program Directors to notify States, Tribes, and Territories within the AoR, EPA encourages, but does not require, Directors to communicate with environmental and public health authorities to ensure that they are aware of Class VI projects. These measures will help to ensure USDW protection and foster communication to facilitate effective Class VI project management, especially where multiple injection projects, in separate jurisdictions, might overlap.

EPA recommends that UIC Program Directors create some form of Class VI injection well permitting and oversight process where various agencies across different jurisdictions agree to

govern future UIC Program interaction and coordination in an organized, predetermined manner. The Agency encourages UIC Program Directors to consider using a Memorandum of Understanding (MOU) for these purposes.

To support UIC Program Directors in implementing the notification requirements, Section II identifies the permit information that UIC Directors may consider sharing with other agencies. Section III highlights the benefits of establishing a formal workgroup to promote coordination and communication between agencies and across jurisdictional boundaries and includes recommendations on the timing of conducting coordination activities. Section IV provides several examples of interstate agreements that may serve as analogues to the interstate coordination and communication process for Class VI GS projects.

II. SHARED INFORMATION

The minimum amount of Class VI injection well permit information that the UIC Program Director must share with any States, Tribes or Territories located within the delineated AoR of a GS project includes: the location of the proposed Class VI well (specifically, the latitude and longitude, if known; township, section, and range; county; and State); and, the name of the applicant with attendant contact information and State, Tribal or Territorial contact information [40 CFR 146.2(b)]. UIC Program Directors may also attach detailed information on the proposed project site and the plans for the project, along with notification of any public hearings scheduled on the proposed Class VI injection well pursuant to requirements at 40 CFR 124. Appendix 1 of this Quick Reference Guide includes a sample notification letter that a UIC Program Director may elect to use when notifying States, Tribes, and Territories of a Class VI GS project requiring cross-jurisdictional coordination pursuant to requirements at 40 CFR 146.82(a)(2) and 40 CFR 146.82(b).

As part of the permit application process, the GS rule requires owners or operators to develop a series of project-specific plans, including an AoR and Corrective Action Plan [40 CFR 146.82(a)(13) and 40 CFR 146.84], a Testing and Monitoring Plan [40 CFR 146.82(a)(15) and 40 CFR 146.90], an Injection Well Plugging Plan [40 CFR 146.82(a)(16) and 40 CFR 146.92(b)], a Post-Injection Site Care and Site Closure Plan [40 CFR 146.82(a)(17) and 40 CFR 146.93(a)], an Emergency and Remedial Response Plan [40 CFR 146.82(a)(19) and 40 CFR 146.94(a)]; and, some owners or operators will also develop a supplemental report for coordination on waiver applications [40 CFR 146.95(b)(2)]. It is possible that the approval of these plans (and the supplemental report) as parts of a Class VI injection well permit application review and their subsequent implementation may involve interstate coordination. For example, carbon dioxide plume and pressure monitoring under the testing and monitoring plan and emergency and remedial response planning and implementation may affect areas that cross jurisdictional boundaries. UIC Program Directors may consider discussing the information provided in these required plans with agencies located within the delineated AoR.

The Class VI injection well permit is a living document. The GS Rule requires periodic reviews of the delineated AoR and the project plans, along with permit reviews over the lifetime of the project [40 CFR 146.84(e), 40 CFR 146.90(j), 40 CFR 146.92(c), 40 CFR

146.93(a), and 40 CFR 146.94(d)]. Such reviews may result in permit modifications as monitoring data and modeling assumptions change over time. At a minimum, any Class VI injection well permit modifications should also involve exchange of information with other State agencies identified in the permit application.

III. CONSIDERATIONS FOR COORDINATION AND COMMUNICATION

UIC Program Directors should encourage the development of formal agreements among all identified government entities potentially affected by a permitted Class VI injection well. The content of the interagency agreement will depend on the information provided in each Class VI permit application and the affected entities identified. EPA recommends that formal agreements take into account public water supplies located within the delineated AoR for a GS project, anticipated future development within the project AoR, applicable State laws on carbon capture and storage (CCS), emergency and remedial response planning activities for Class VI injection wells, and other project-specific considerations.

Communication with and coordination among government agencies in various States, Tribes, or Territories should begin as soon as the UIC Program permitting authority becomes aware of the planned GS project. However, it must begin once a permit application is submitted [40 CFR 146.82(a)(2) and 40 CFR 146.82(b)]. EPA recommends that coordination continue throughout the entire post-injection site care (PISC) period until the project no longer poses a risk to underground sources of drinking water (USDWs) and the site is closed pursuant to requirements at 40 CFR 146.93.

The GS Rule requires regular project plan updates (discussed in Section II), to account for changes in monitoring parameters or frequencies, or changes in the delineated AoR. These plan reviews and subsequent amendments to the plans result in Class VI injection well permit modifications, and provide additional opportunities for interagency or interstate coordination and discussions on the operation of the GS project. Any interagency or interstate agreement should include a schedule for continued coordination, e.g., through regular meetings of an appointed workgroup or when initiated by interested parties.

IV. EXAMPLE AGREEMENTS

EPA evaluated several existing interagency agreements to inform the final requirements of the GS rule and this document. Because agencies typically do not operate across State lines and other UIC injection well classes do not typically have AoRs as large as those anticipated for GS projects, this discussion is limited in scope. In most cases, EPA found that interstate coordination for other purposes has taken the form of a legal division of responsibilities and rights, or a commission. These are generally composed of representatives from the agencies involved, along with other potentially neutral parties.

Others relied upon a Memorandum of Understanding (MOU). Inter-Tribal agreements are usually enacted as compacts and have the force of law on issues of interest under the agreement.

In the cases of a legal division of rights and responsibilities, there are well-documented agreements that outline exactly what each party may or may not do. Examples of these include the coal bed methane discharge agreements between Montana and Wyoming into waters such as the Belle Fourche, Tongue and Big Horn Rivers. These agreements undergo frequent litigation and are not recommended (Brown, 2009).

In the example agreements discussed below, the program participants indicated that establishing an oversight workgroup of interested parties to facilitate interagency or interstate coordination is beneficial. EPA recommends that, as any agreement or workgroup is developed for Class VI injection wells or GS projects, consideration be given to ensure that all interested parties located within the AoR have an opportunity to participate in the Class VI permit review and approval process, as well as the periodic revisions throughout the lifetime of the project. Involvement of a range of interested parties may be best facilitated through the development and use of a shared database or another method of data exchange. An agreement may include a provision that allows for or formalizes data sharing methodologies to be used to disseminate information.

A. MOU between the Shoshone-Bannock Tribes, IDEQ and EPA Region 10

The most basic example provided here is a simple memorandum of understanding (MOU) that can be used to outline an agreement among parties, such as the agreement between the Shoshone-Bannock Tribes, the Idaho Department of Environmental Quality (IDEQ), and US EPA Region 10 (Idaho DEQ, 2008). In this case, the MOU was developed to allow the parties to coordinate water quality consultation efforts to restore, improve, and protect water quality and to establish a process by which the Tribes and IDEQ could cooperate, but could independently administer agreed upon and adopted water quality standards and certification programs.

An MOU may encourage staff-level relationships and more open communication. It designates meetings to be held, as needed, for information sharing and discussions. This particular MOU required the signatory parties to address matters more informally and collegially, and provided an avenue for contentious issues to be brought before progressively higher levels of management for resolution.

B. Regional Greenhouse Gas Initiative (RGGI)

The RGGI is an agreement, as delineated by an MOU and two subsequent amendments, among ten northeastern states to jointly limit emissions of carbon dioxide from large electric power plants (RGGI, 2011). The RGGI is implemented through RGGI, Inc., a 501(c)(3) non-profit corporation created to support development and implementation of the initiative. RGGI, Inc.'s exclusive purpose is to provide administrative and technical services to support the development and implementation of each participating state's carbon dioxide Budget Trading Program. The corporation has no regulatory or enforcement authority, so sovereign authority remains with each participating state. RGGI, Inc.'s activities include:

- Developing and maintaining a data system reporting data from emissions sources subject to RGGI and tracking carbon dioxide allowances;
- Implementing a platform for the auction of carbon dioxide allowances;
- Monitoring the market trading of carbon dioxide allowances;
- Providing technical assistance to participating states in reviewing emissions offset project applications; and
- Providing technical assistance to participating states in evaluating proposed changes to RGGI programs.

The amendments allowed RGGI to delete and replace certain sections of the original agreement (Amendment 1) and add a State to the initiative (Amendment 2). The initiative promotes commitments to emissions caps and scheduled reductions that might not otherwise occur if States did not agree to coordinate on this issue through the MOU.

C. Chippewa agreement with the State of Minnesota

An example of a multi-tribal government agreement occurred in November of 1988 when the three Chippewa Bands of Boise Forte, Grand Portage and Fond du Lac entered into a negotiated agreement with the State of Minnesota (GLIFWC, 1995). The agreement was an out-of-court settlement of litigation begun in 1985 when the Grand Portage Band of Chippewa and two of its members filed a civil action in the United States District Court, District of Minnesota, Fourth Division. The suit was based on tribal government rights reserved in the Treaties of 1854 and 1866.

A negotiated agreement of this kind allowed the interested parties (tribal and state governments) to address modern concerns using an older treaty as a foundation. Because the negotiation was based on a legal document, the agreement was ratified by the court.

V. REFERENCES

- Brown, Matthew. 2009. *Judge overturns Montana water rules for gas drilling*. The Billings Gazette. October 14. Available on the Internet at: http://billingsgazette.com/news/state-and-regional/montana/article_4c7d8f6c-b8d3-11de-a581-001cc4c002e0.html.
- GLIFWC. 1995. *A Guide to Understanding Chippewa Treaty Rights: Minnesota Edition*. Great Lakes Indian Fish and Wildlife Commission. July. Available on the Internet at: <http://ncseonline.org/nae/docs/chippewa.html#sta>.
- Idaho DEQ. 2008. *Memorandum of Understanding for Water Quality Standards Between the Shoshone-Bannock Tribes and the Idaho Department of Environmental Quality and the U.S. Environmental Protection Agency Region 10*. State of Idaho Department of Environmental Quality. September. Available on the Internet at: http://www.deq.idaho.gov/rules/mous/water_deq_epa_sho_ban_wq_standards.pdf.
- RGGI. 2011. *Program Design*. Regional Greenhouse Gas Initiative. Most recently visited on April 12, 2011. Available on the Internet at: <http://www.rggi.org/design>.

Appendix 1: Template of Letter for Initial Contact

[Today's Date]

Insert Name of UIC Class VI Program Director
Insert Return Address

To: *Insert Name of Agency Director to be Notified*

The *Insert Name of UIC Class VI Program Agency* has recently received a Class VI injection well permit application in which the applicant determined that the Area of Review (AoR) for the project as defined by 40 CFR 146.82(b) is predicted to cross jurisdictional boundaries, including *Insert Name of Neighboring State/Tribe/Territory*. While the protective requirements of Subpart H of 40 CFR 146 are designed to prevent endangerment of underground sources of drinking water, *Insert Name of UIC Class VI Program Agency* is informing you of this recently submitted permit application and affording you the opportunity to be involved in activities relevant to potentially permitting this Class VI injection well as required by 40 CFR 146.82(b).

The proposed Class VI well is located at: *Insert Specific Well(s) Location(s)(e.g. Section 2 in Township 5, County, State).*

The permit applicant is: *Insert Name of Owner/Operator.*

The applicant is located at: *Insert Address of Owner/Operator.*

The applicant can be contacted at: *Insert Owner/Operator phone number and/or e-mail.*

Additional information can be found by contacting: *Insert State contact name, title, phone number and/or e-mail.*

In addition, we will be conducting a public hearing(s) on the permit application. Public hearing(s) will take place:

Insert Date, Time, and place of public hearings.

Insert Name of UIC Class VI Program Agency requests that we undertake a joint effort with *Insert Name of Neighboring State/Tribe/Territory*, along with other interested parties who have been contacted, to address any potential effects of this proposed Class VI injection well within your jurisdiction. These coordinated efforts will ensure the continued protection of underground sources of drinking water.

At this time, we invite you to review the contents of the Class VI injection well permit application, attend any public hearings held in the near future, and engage with us in discussions of the potential effects of this proposed well on the environment and public health of your jurisdiction throughout the permit application review and approval process, and additionally throughout the operation of the injection well.

Sincerely,

Insert Name of UIC Class VI Program Director