Geologic Sequestration Data Tool (GSDT)

Background

Under the Class VI Rule at [40 CFR 146.91(e)](#), owners or operators of Class VI wells must submit geologic sequestration (GS) project information directly to EPA in an electronic format approved by EPA. **This requirement applies regardless of whether the project is located in a state with primary enforcement responsibility (primacy) for Class VI wells.**

EPA's Geologic Sequestration Data Tool (GSDT) is a centralized, web-based system that receives, stores, and manages Class VI data, to:

- Fulfill the requirement at 40 CFR 146.91(e);
- Facilitate data access, sharing, and technical evaluations of submitted materials;
- Develop and manage a comprehensive administrative record, consisting of all documents and communications supporting permitting decisions; and
- Ensure continuity over the potentially long lifespans of Class VI projects.

The GSDT provides a national, transparent, comprehensive, and cost-saving solution for Class VI data and records management.

Class VI Users and Data

The GSDT is currently designed for two main groups of users; permit applicants/owners or operators and permitting authorities.

Owners or Operators

The Class VI Rule requires owners or operators to submit certain types of information during each phase of a GS project:

- The **pre-construction phase**, prior to well construction or conversion;
- The **pre-injection phase**, prior to operation;
- The **injection phase**, during which CO_2 injection operations occur; and
- The **post-injection phase**, including post-injection site care (PISC) and site closure.

Beginning with the permit application and continuing through the life of the project, owners or operators must submit materials related to:

- **Site characterization** and pre-injection logging and testing;
- **Area of Review (AoR)** modeling and corrective action;
- **Well construction** and operation;
- **Financial responsibility** demonstrations;
- **Testing and monitoring** during the injection and post-injection phases;
- **Well plugging and site closure**, including non-endangerment demonstrations; and
- **Emergency and remedial response**.
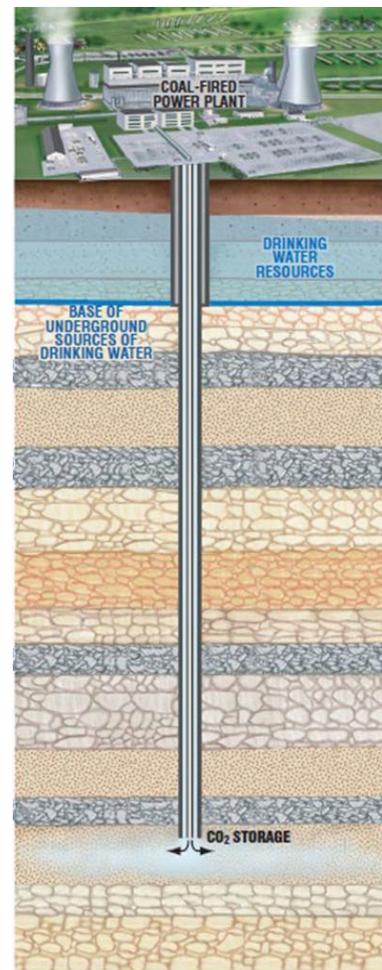
Class VI well schematic.

If applicable, owners or operators may also submit information related to alternative post-injection site care (PISC) timeframe demonstrations, injection depth waivers, and/or aquifer exemption expansion requests. Each of these categories of information must be evaluated both individually and in the context of the other types of submissions.

Permitting Authorities

Permitting authorities—primacy states and EPA regional offices—also generate information when permitting, managing, and overseeing Class VI projects. These materials may include:

- **Permitting documents**, including permit conditions and docket support materials;
- **Reports** generated during technical evaluation of materials submitted by permit applicants/owners or operators;
- **Communications** with owners or operators, such as responses to Notices of Deficiency (NODs) or Requests for Additional Information (RAIs);
- **Public participation/outreach materials**, including comment/response documents; and
- **Compliance-related materials**, including inspection and violation records.

GSDT User Access

All users access the GSDT at https://gsdt.pnnl.gov/, where they are directed to separate areas for owners or operators and permitting authorities.
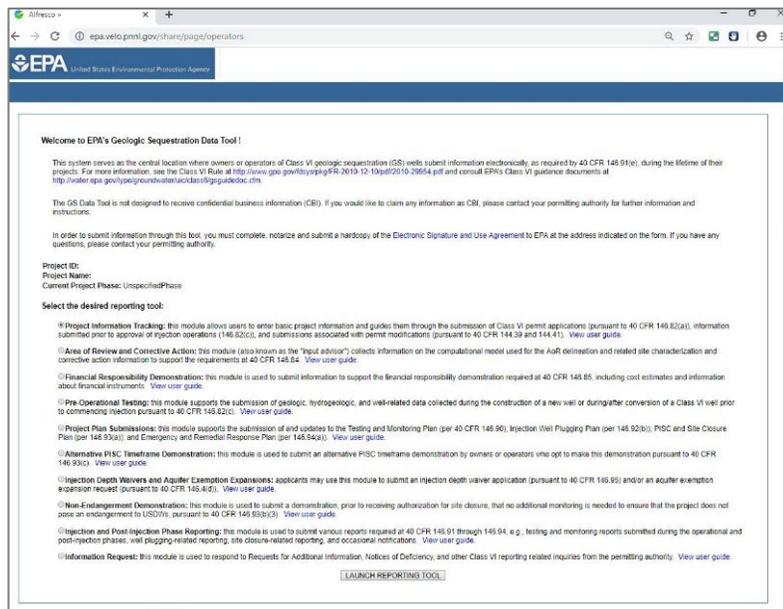
Example project landing page.

Owners or operators have access limited to their project site, which allows them to submit information. This group of users submits information via a series of topic-specific modules, accessed from a central landing page for their projects (see image at left).

Permitting authorities have full access, which allows them to access all the files and other information submitted via the modules. They can also use the tool to conduct technical evaluations, manage communications, and store all information related to a project. The GSDT allows permitting authorities to review and manipulate information while preserving the integrity of the original submitted data.

GSDT Modules

All information submitted by permit applicant/owner or operator users is submitted via a series of modules that are designed to address certain components of Class VI data (AoR modeling, financial responsibility, etc.). Permit applicants/owners or operators can submit data using the following modules (see images on the following page):

- Project information tracking;
- AoR and corrective action;
- Financial responsibility demonstration;
- Pre-operational testing;
- Project plan submissions;
- Alternative PISC timeframe demonstration;
- Injection depth waivers and aquifer exemption expansions;
- Non-endangerment demonstration;
- Injection and post-injection phase reporting; and
- Information requests.

Depending on the topic and the type of data that must be submitted, some modules (such as the AoR and corrective action module) consist of fairly detailed proscriptive workflows to collect highly technical information. Others (such as the project plan submissions module) allow the user a great deal of flexibility in uploading required files and supplemental materials.
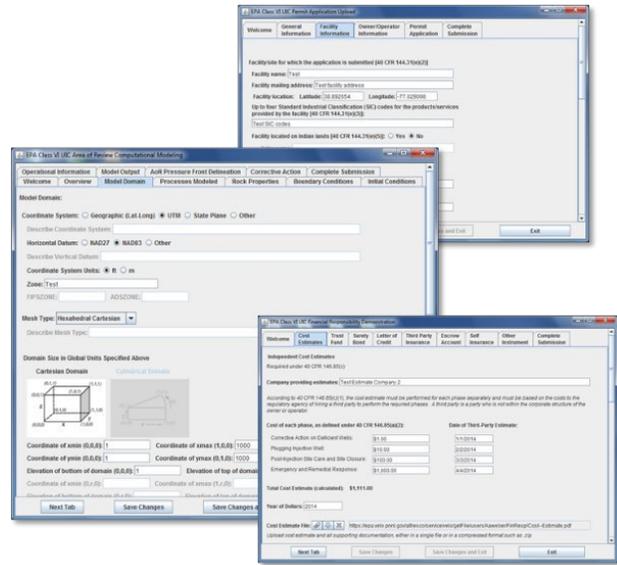

Examples of GSDT modules.

Permitting Authority Capabilities

Permitting authority users have multiple options for viewing, downloading, and sharing files. When submissions are made, the designated permit writer(s) for a project will receive an email with a summary of the submission. The summary highlights any changes since the previous submission and includes links to uploaded files.

The version control features of the GSDT allow permitting authorities to more easily identify the most current version of a submitted file. Also, because all submissions are made through the tool, the tool supports the development of a comprehensive administrative record for a permitting decision.
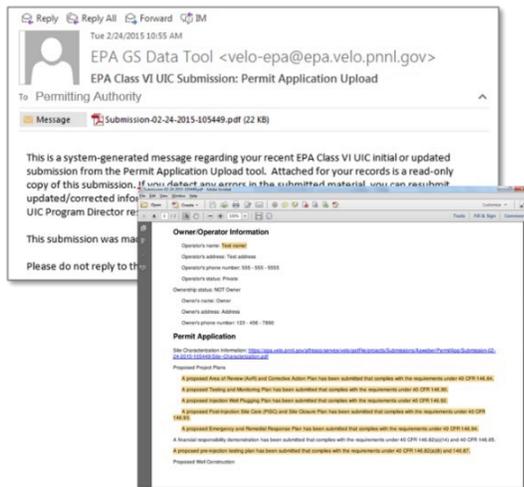
Automatic email notifications and versioning capabilities for permitting authorities.
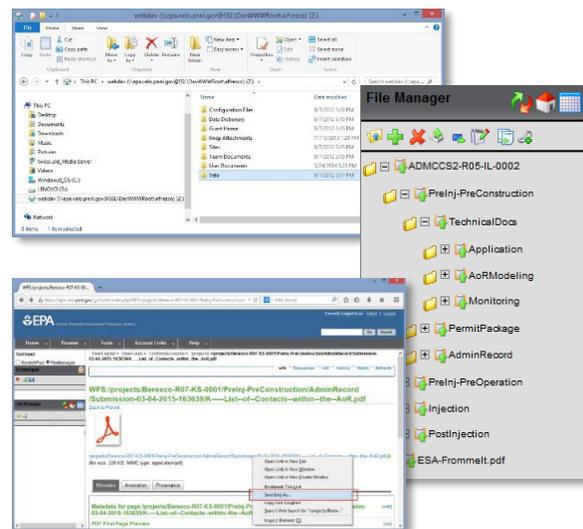
Examples of options for accessing files.