

Carbon Sequestration and Storage Underground Injection Control Class VI Well

Topical Session: Energy Sector Technology Transitions and Emissions
The Association of Air Pollution Control Agencies

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Wednesday, April 27, 2022

Overview

- ❖ Underground Injection Control Program
 - ❖ Class I through VI well definitions
- ❖ Primacy
- ❖ Carbon Sequestration – UIC Class VI Well and Subpart RR
 - ❖ Application For a Class VI Well
 - ❖ Monitoring, Reporting and Verification Subpart RR

deep injection below USDW

shallow injection into USDW

mostly below USDW

(a) Class I Wells

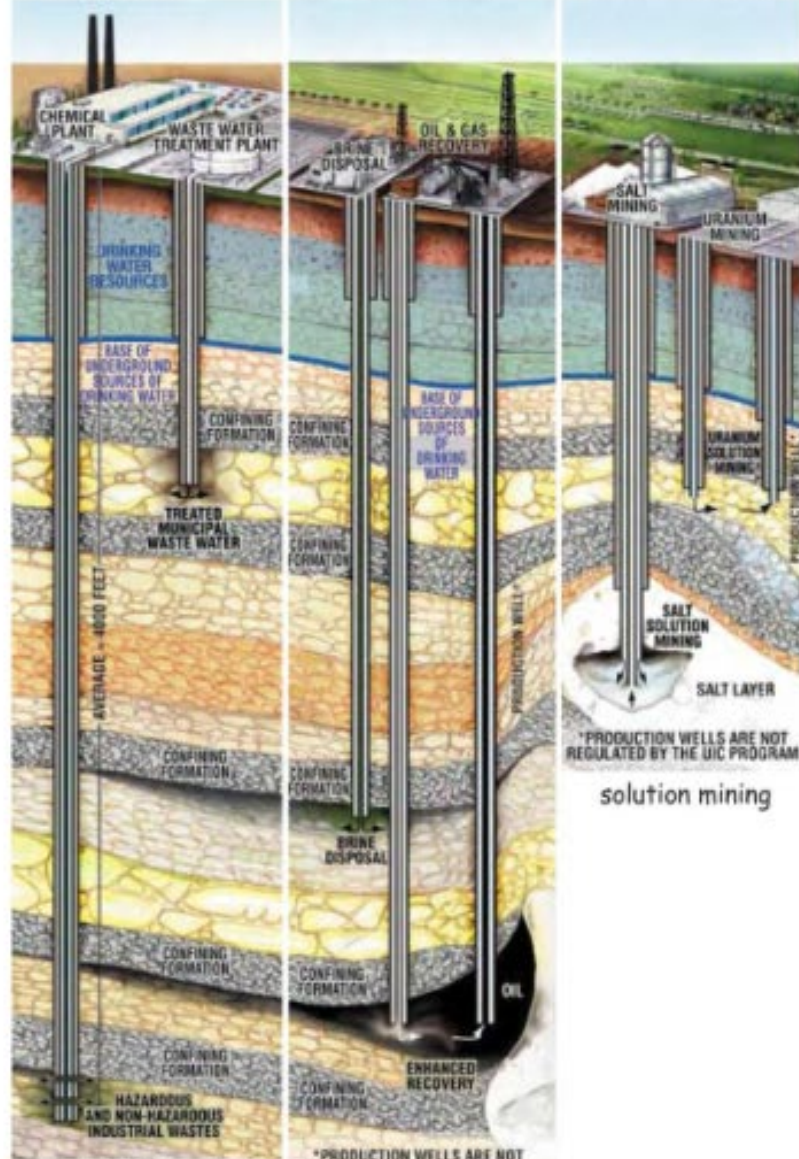
(b) Class II Wells

(c) Class III Wells

(d) Class IV Wells

(e) Class V Wells

(f) Class VI Wells



industrial wastes

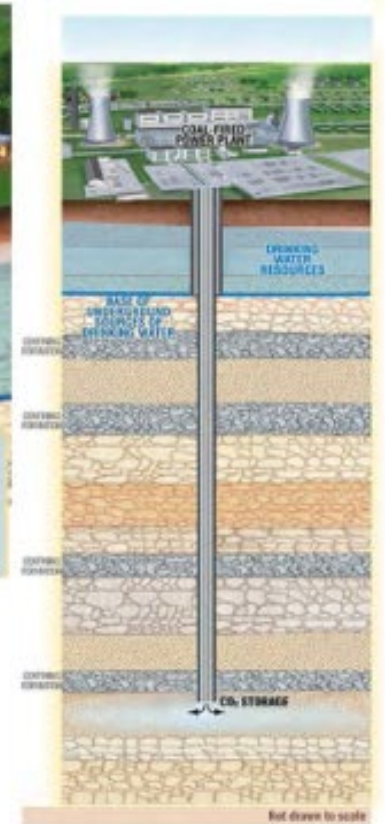
oil/gas operations



disposal of hazardous & radioactive fluids



disposal of non-hazardous fluids



geologic carbon sequestration

modified from EPA diagrams

Wyoming Primacy

Wyoming received primacy of UIC Class I through V wells in 1983.

- ❖ Class I, III, and V are under 1422 of the Safe Drinking Water Act and are under the regulatory authority of the Wyoming Department of Environmental Quality
- ❖ Class II wells are under Section 1425 of the Safe Drinking Water Act and are under the regulatory authority of the Wyoming Oil and Gas Conservation Commission

Primacy of UIC Class VI wells was issued in September 2020.

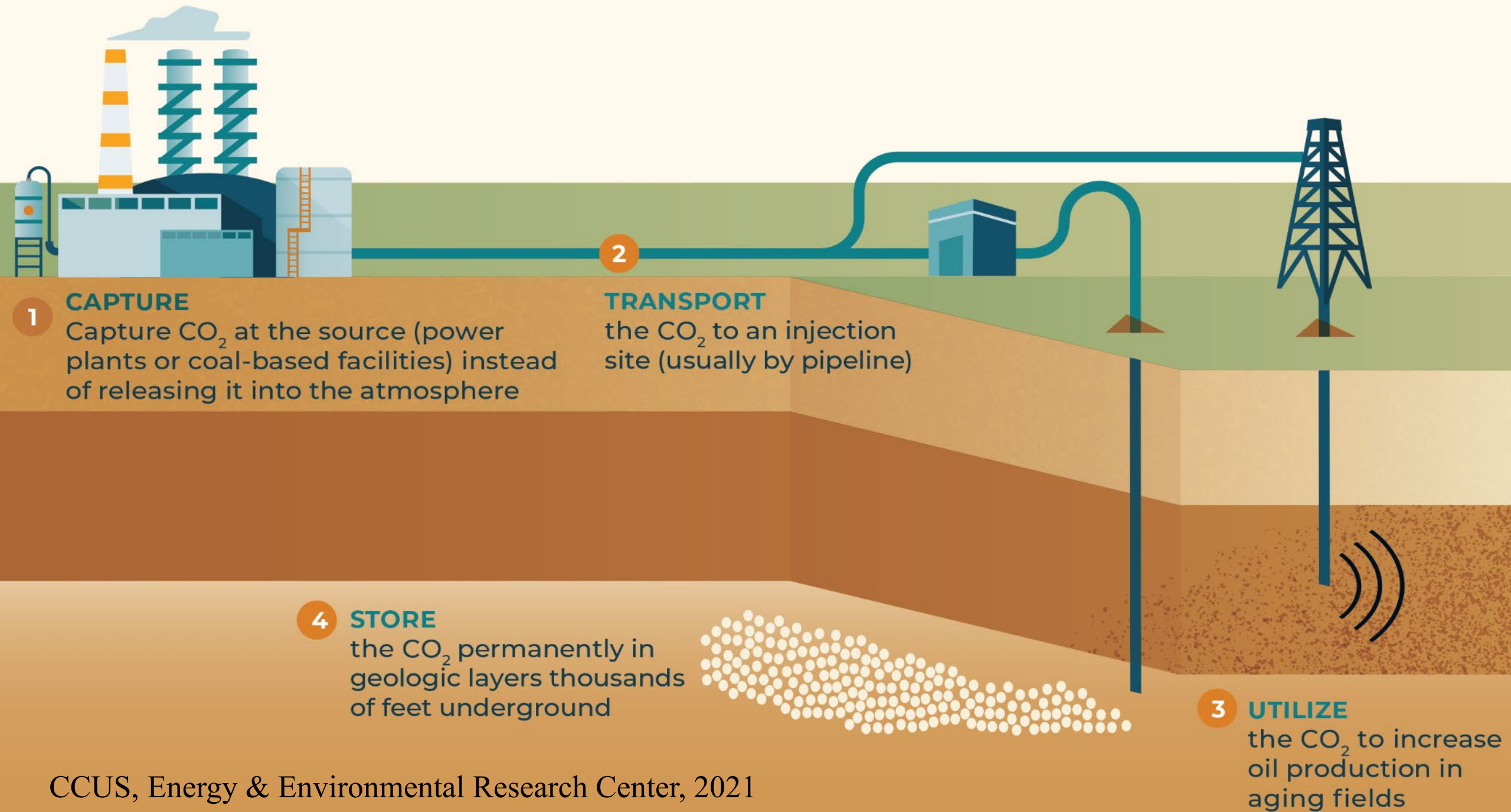
- ❖ Second state to receive primacy of Class VI wells

Wyoming Statutes and Regulations

- ❖ W.S. § 30-5-501 – Clarifying that vis-à-vis storage rights, production rights are dominant but cannot interfere with storage
- ❖ W.S. § 30-5-502 – Providing a certification procedure for CO₂ incidentally stored during EOR
- ❖ W.S. § 34-1-152 – Specifying who owns the pore space
- ❖ W.S. § 34-1-153 – Specifying that the injector, not the owner of pore space, is generally liable
- ❖ W.S. § 35-11-313 – Establishes permitting procedures and requirements
- ❖ W.S. § 35-11-315 – Unitization of storage interests
- ❖ W.S. § 35-11-320 – Mechanism for post-closure monitoring, reporting, and verification via the Special Revenue Account
- ❖ Water Quality Rules, Chapter 24 – Class VI Injection Wells and Facilities, Underground Injection Control Program
- ❖ Water Quality Rules, Chapter 29 – Special Revenue Account (Pending)

Title

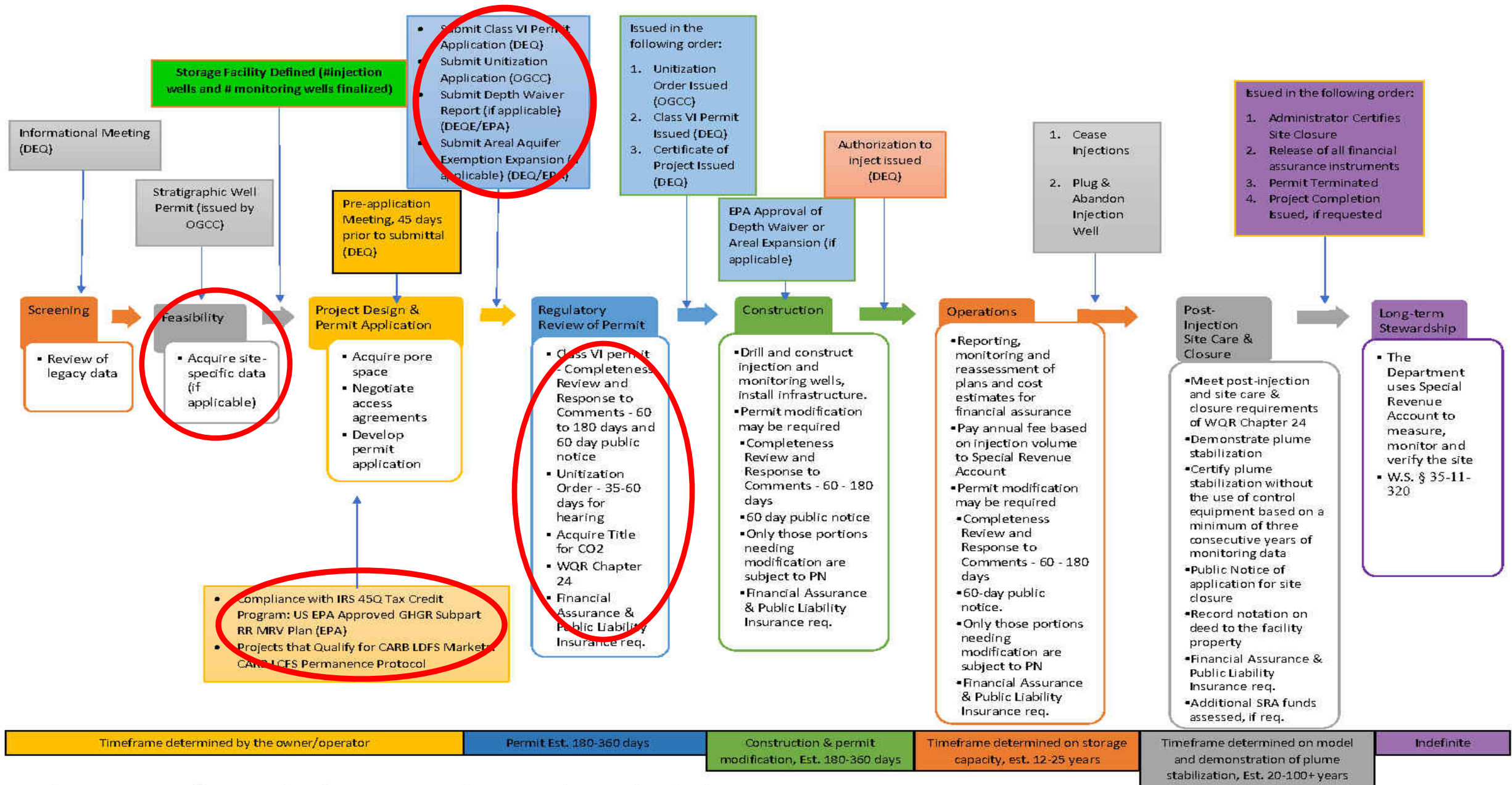
- ❖ SF0047 Carbon Storage and Sequestration Liability:
- ❖ An ACT relating to geologic sequestration of carbon dioxide; clarifying ownership of carbon dioxide injected into geologic sequestration sites; specifying the transfer of title and liability of injected carbon dioxide.
- ❖ Governor Signed March 21, 2022
- ❖ W.S. § 35-11-318 – title to sequestered and injected carbon dioxide
- ❖ W.S. § 35-11-319 – Certificate of project completion; release; transfer of title and custody



UIC Class VI Requirements

- ❖ The UIC Class VI requirements are focused on ensuring protection of underground sources of drinking water where carbon dioxide is injected through an injection well for geologic sequestration (long term storage of carbon dioxide).
- ❖ The requirements focus on the siting, permitting, operation, testing and monitoring, postinjection site care and site closure of a Class VI well or wells.

Carbon Sequestration Storage Sequence



Note: Other items are required for permit and site closure per Wyo. Stat. § 35-11-313 and Water Quality Rules Chapter 24.

Application

1. General Information and Signatory Authority

- ❖ Address,
- ❖ Facility location,
- ❖ Consultant information,
- ❖ Site and facility description,
- ❖ SIC codes,
- ❖ Review of water quality management plans, wellhead protection area, source water protection area,
- ❖ Mineral and surface ownership,
- ❖ Access agreement, and
- ❖ Certification

2. Technical Information

- ❖ Project Information
- ❖ Site Characterization
- ❖ Area of Review
- ❖ Supporting Permit Plans
 - ❖ Emergency and Remedial Response Plan
 - ❖ Financial Assurance Demonstration
 - ❖ Testing and Monitoring Plan
 - ❖ Well Casing and Cementing Program
 - ❖ Plugging Plan
 - ❖ Postinjection Site and Facility Closure Plan
- ❖ Injection Well Operations

UIC Class VI Rule and Greenhouse Gas Reporting Requirements Under Subpart RR

- ❖ Regulatory requirements of the UIC Program and complementary monitoring and reporting requirements of the Greenhouse Gas Reporting Program:
 1. Ensure that sequestered carbon dioxide will remain secure, and
 2. Provide the monitoring to identify and address potential leakage and endangerment to Underground Sources of Drinking Water.

UIC Class VI Rule and Greenhouse Gas Reporting Requirements Under Subpart RR

- ❖ Reporting under subpart RR is required for facilities that have received a UIC Class VI permit.
- ❖ Subpart RR facilities are required to report
 - ❖ Basic information on the mass of carbon dioxide received for injection;
 - ❖ Develop and implement an EPA-approved monitoring, reporting, and verification (MRV) plan;
 - ❖ Report the mass of carbon dioxide sequestered using a mass balance approach; and
 - ❖ Report annual monitoring activities.

UIC Class VI Rule and Greenhouse Gas Reporting Requirements Under Subpart RR

- ❖ Information gathered or developed and submitted for compliance with UIC Class VI technical requirements could also be used to meet subpart RR requirements.
- ❖ For example, a subpart RR MRV plan could draw on the site characterization and computational modeling data required for UIC Class VI permitting.

Thank you



Contact

Electronic Documents Submittal

Forms and Guidance

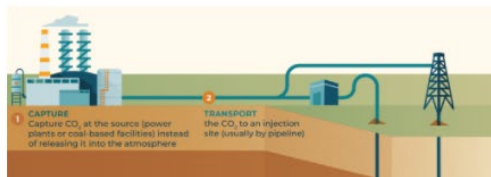
GEM Database

Rules and Regulations

- Abandoned Mine Land
- Administration
- Air Quality
- Industrial Siting
- Land Quality
- Solid & Hazardous Waste
- Water Quality

Class VI Carbon Capture, Utilization & Storage (CCUS) refers to the process in which carbon is captured from industrial processes and either utilized by turning the carbon into a new product or stored by injecting the carbon into a storage site, usually underground in a geologic formation.

[Click here to Sign up for the Class VI listserv](#)



Related Programs

Underground Injection Control

Class I

Class V

Class VI

Public Notices

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<https://deq.wyoming.gov/water-quality/groundwater/uic/class-vi/>