

Carbon Capture Overview

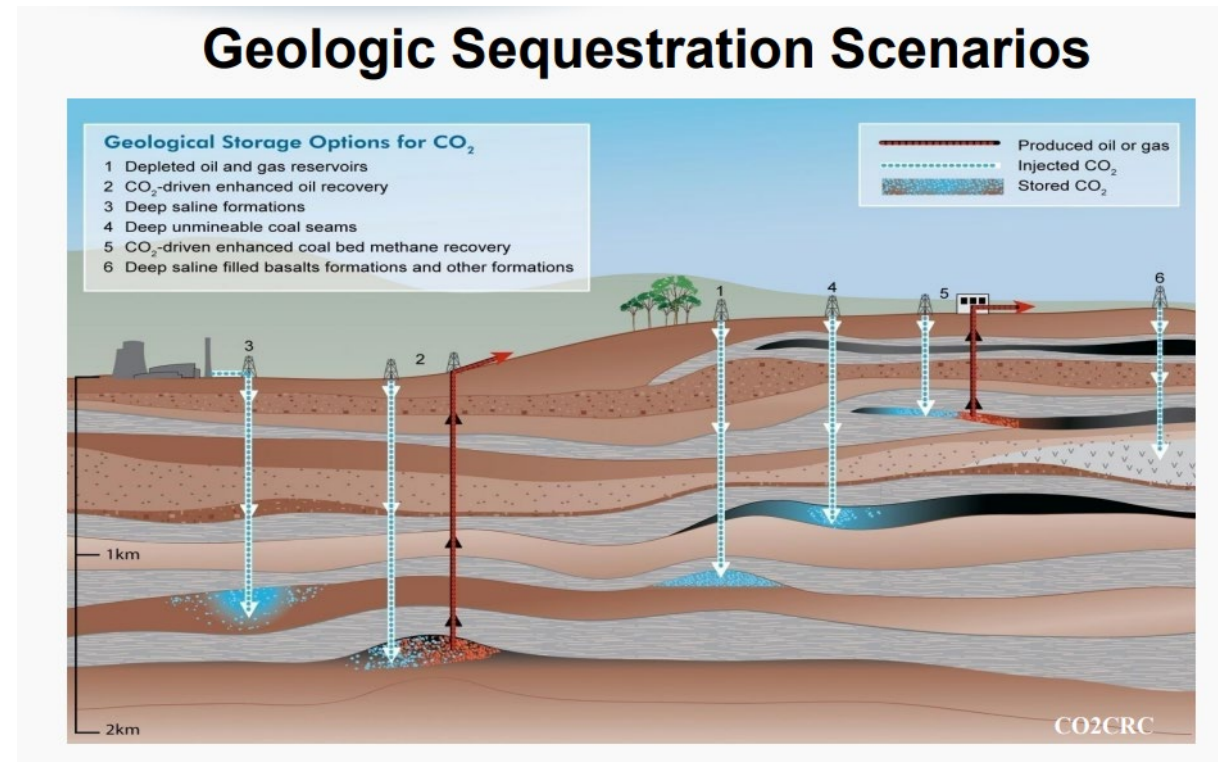
NEW MEXICO OIL CONSERVATION DIVISION (OCD) OF THE ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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What is Carbon Capture

- Carbon Capture is the capture of CO₂ from sources that normally emit into the atmosphere such as power plants. Once the CO₂ is captured it is injected underground for containment or used to enhance oil and gas production.
- Carbon Capture falls under the jurisdiction of the EPA Underground Injection Control Program (UIC) Class VI wells
- Why use Carbon Capture?
 - Reduce emissions
 - May help meet permit requirements
 - Monetary incentives - 45Q tax credit – rates were recently increased within the Inflation Act of 2022
 - \$85/ton for carbon sequestration (permanent storage)
 - \$60/ton for carbon utilization (enhanced oil recovery)
 - \$180/ton for direct air capture
 - \$130/ton for direct air capture used for enhanced oil recovery



Injection Jurisdiction in New Mexico

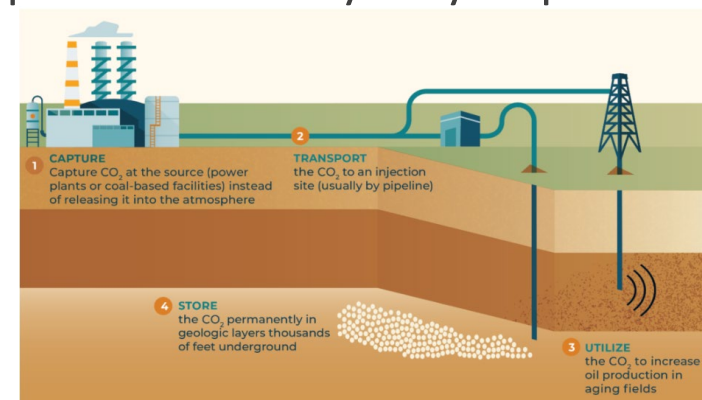
- EPA - Regulates injection through Underground Injection Control Program (UIC). A State may obtain primacy of the program through a Primacy agreement where EPA oversees the State agencies to ensure they meet federal mandates.
 - Oil Conservation Division – Regulates injection sources that relate to Oil and Gas
 - Primacy over Class I, II and III, V injection wells from EPA
 - Authority for Class II wells comes from the Oil and Gas Act, rulemaking changes will go through the Oil Conservation Commission
 - Authority for Class I, III, V wells comes from the Water Quality Act, rulemaking changes will go through the Water Quality Control Commission
 - NMED – Regulates the injection of fluids not related to Oil and Gas
 - Primacy over Class I, III and V injection wells from EPA
 - Authority for Class I, III and V wells comes from the Water Quality Act, any rulemaking changes will go through the Water Quality Control Commission

Class VI Jurisdiction

- New Mexico does not have primacy for Class VI wells
- EPA has jurisdiction over these wells - the permitting process goes through them
 - OCD is consulted for any well application but EPA that has final approval rights for the permits
- States with primacy over Class VI wells
 - North Dakota – took 5 years to gain primacy
 - Wyoming – took 3 years to gain primacy
- For New Mexico to become the primary permitting authority on Class VI wells, we would need to submit a program revision to obtain Primacy
 - The last modification to our Primacy agreement to add Class I Hazardous Waste Wells took ~6 years.
 - General process to gain primacy ~ 3 to 5 year process
 - New Mexico to develop pre-primacy package for EPA review
 - OCD to undergo rulemaking at WQCC
 - Following passage of rulemaking, OCD to submit primacy package for EPA for final review
 - Expect back and forth with EPA on modifications to application
 - Following extensive review, EPA to review or deny application

Class VI Wells

- Class VI Geosequestration (GS) permits are unique within the UIC program that require a very strong financial commitment across the four major phases of the project:
 - 1) Pre-construction,
 - 2) Pre-Injection,
 - 3) Operation, and
 - 4) Post injection (plugging and continued monitoring).
- They include requirements on reviewing potential chemical reactions with CO₂. There is also a continual required review process. The rules are complex and the technical needs are extensive.
- Public notices are required for each well application whereas other types of wells may only require public notice for an overall project containing multiple wells.
- Includes intensive permit reviews;
 - The EPA has taken 3-6 years for their reviews
 - States can review them in as short as 6-8 months
- Class VI wells require individual well bonding



Source: [Class VI - Wyoming Department of Environmental Quality](#)

Class II Wells

- OCD originally received primacy from the EPA in 1982
- General Description- Class II wells are used only to inject fluids associated with oil and natural gas production. Class II fluids are primarily brines (salt water) that are brought to the surface while producing oil and gas.
 - Class II wells include the disposal of H₂S from sources such as Gas Plants, or the injection of CO₂ for enhanced oil production
- Similarities to Class VI
 - Injection into similar formations
 - Injection using similar surface equipment
 - H₂S is often comingled with CO₂, so injection streams contain both CO₂ and H₂S
 - Currently CO₂ is injected in NM in class II for enhanced oil production
- Differences from Class VI
 - Added oversight and monitoring
 - Likely larger volumes of CO₂
 - An ~50 year post closure monitoring period after the well stops injection
 - Class VI rules are newer in development, as such they are more detailed in their requirements.

Questions?

Appendix- Federal Process

Sequestration Phases & Rule References

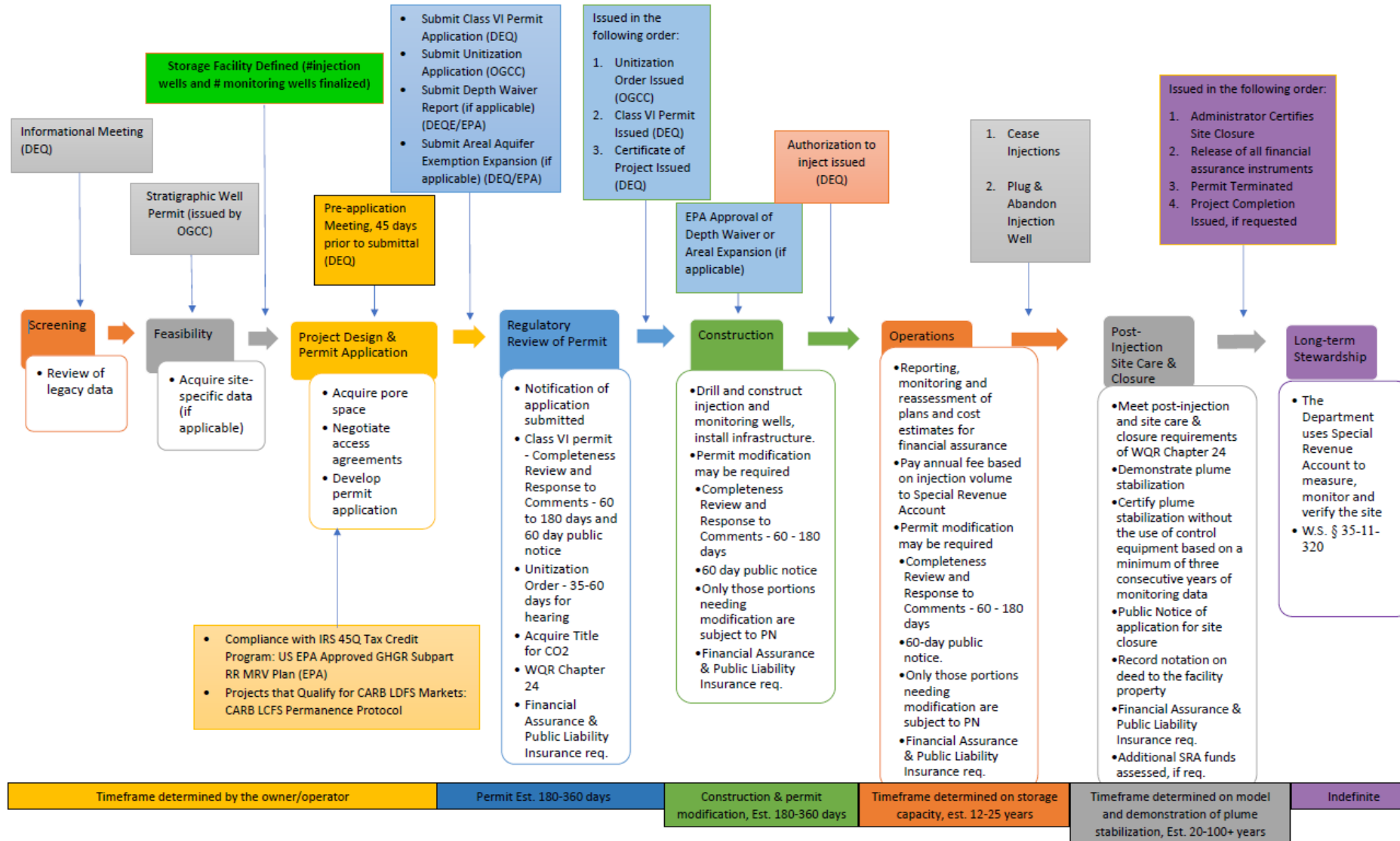
Class VI Program Elements (40 CFR 146.82)

- Phase 1: Pre-construction phase activities
 - Site Characterization (40 CFR 146.83)
 - Area of Review (AoR) and Corrective Action Plan (40 CFR 146.84)
 - Proposed Injection Well Construction (40 CFR 146.86)
 - Financial Responsibility (40 CFR 146.85)
 - Testing and Monitoring Plan (40 CFR 146.90)
 - Emergency and Remedial Response Plan (40 CFR 146.94)
 - Injection Well Plugging Plan (40 CFR 146.92)
 - Post-Injection Site Care (PISC) and Site Closure Plan (40 CFR 146.93)
 - Pre-Construction Phase Reporting, Record Keeping, and Data Management (40 CFR 146.91)
 - Injection Depth Waivers (40 CFR 146.95)
 - Transitioning from Class II to Class VI (40 CFR 144.19)
 - Aquifer Exemption Expansions (40 CFR 146.4)
- Phase 2: Pre-operation
 - Injection Well Construction (40 CFR 146.86)
 - Pre-operation Logging, Sampling, and Testing (40 CFR 146.87)
 - Evaluation of Pre-operational Information (40 CFR 146.82)
- Phase 3: Operation/Injection activities
 - Injection Well Operation (40 CFR 146.88)
 - Required Reporting (40 CFR 146.91)
 - Monitoring and Testing (40 CFR 146.90)
 - Mechanical Integrity (40 CFR 146.89)
 - Area of Review Re-evaluation and Corrective Action (40 CFR 146.84)
 - Financial Responsibility Adjustments (40 CFR 146.85)
 - Emergency and Remedial Response (40 CFR 146.94)
- Phase 4: Post-injection
 - Injection Well Plugging (40 CFR 146.92)
 - Post-injection Site Care and Site Closure (40 CFR 146.93)

Appendix- Wyoming's Current Class VI Well Permit Process

Carbon Sequestration Storage Sequence

Source: [Class VI - Wyoming Department of Environmental Quality](#)



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