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Introduction to Carbon Capture, Utilization and Storage Laws and Regulations

Laws and Regulations

- Property Law
- Administrative Regulations
- Tax Incentives

Property Law

- Pore Space Ownership
- Rights of Mineral Owners
- State/Federal Lands

Ownership

- Ownership is the right that confers on a person direct, immediate, and exclusive authority over a thing. La. Civ. Code art. 477
- Mineral ownership can be severed from surface ownership.
 - Louisiana – mineral servitude
 - Other states – mineral estate
- When mineral ownership is severed, who has the right to use or grant rights to use the pore space?

Pore Space Ownership

- **Majority Rule**- surface owner owns pore space
 - Montana, North Dakota, and Wyoming (via legislation)
 - California, Louisiana, Michigan, New Mexico, New York, Oklahoma, and West Virginia (via case law)
- **Minority Rule**- mineral owner owns pore space
 - Kentucky (but potentially overruled)
- Texas?
 - No cases directly on point but likely the surface owner

Acquiring Pore Space Rights

- Lease
 - Limited to 99-year term in Louisiana.
- Servitude/Easement
 - Requires a “use” in Louisiana to maintain beyond 10 years.
- Subsurface Estate
 - Can be an option in other states (e.g., FutureGen - Illinois).

Mineral Owners

- Louisiana – Correlative Rights
 - The surface owner and the mineral owner must “exercise their respective rights with reasonable regard for those of the other.” Mineral Code art. 11.
- Other States – Accommodation Doctrine
 - Mineral estate is the dominant estate over the surface estate.
 - Accommodation Doctrine generally requires respect for existing surface uses if there are reasonable cost-effective alternatives under established industry practices.

Governmental Owners

- Louisiana
 - State Mineral and Energy Board can enter into sequestration leases or operating agreements on lands owned by the State of Louisiana and on other public lands if requested by the agency or political subdivision.
 - Leases – limited to 25-year term with 25-year renewal – public bid process.
 - Operating Agreements – no public bid process (Capio and Air Products).
 - Large tracts versus streams or bayous?

Governmental Owners

- Federal – DOI BLM

- 2012 Instruction Memorandum (IM 2012-035) provides policies and guidance on potential sequestration on BLM lands.
- 2022 Instruction Memorandum (IM 2022-041) provides for authorization of rights-of-way (ROWs) to use public lands for site characterization, transportation, injection, capture, and geologic sequestration of carbon dioxide (CO₂) at appropriately classified injection well locations in connection with CO₂ sequestration projects.
- Includes authorizing the use of pore space managed by the Bureau of Land Management (BLM) when surface facilities, including injection wells, are on private or state-owned lands or lands managed by another Federal agency.

Governmental Owners

- Federal
 - Army or Army Corps of Engineers?
 - US Forest Service?

Administrative Regulations

- Louisiana focus:
 - Sequestration
 - Office of Conservation Order approving storage facility
 - Class VI Well Permitting
 - Enhanced Recovery
 - Unitization
 - Class II Well Permitting

Unitization?

- **Montana and North Dakota**: require consent of 60% of pore space owners
- **Wyoming**: requires consent of 80% of pore space owners
- **Louisiana**: No unitization but allows for expropriation.

Storage Facility Approval

- Louisiana Geologic Sequestration of Carbon Dioxide Act – La. Rev. Stat. 30:1101-1111.
 - Storage Facility means the underground reservoir, carbon dioxide injection wells, monitoring wells, underground equipment, and surface buildings and equipment utilized in the storage operation.
 - The underground reservoir component of the storage facility includes any necessary and reasonable aerial [areal] buffer and subsurface monitoring zones designated by the commissioner for the purpose of ensuring the safe and efficient operation of the storage facility for the storage of carbon dioxide and shall be chosen to protect against pollution, and escape or migration of carbon dioxide.

Storage Facility Approval

- Requires notice and public hearing and shall be based on findings that:
 - (a) the reservoir is suitable and feasible for the project;
 - (b) the reservoir is depleted of hydrocarbons or that a certain percentage of mineral owners have consented to the use of the reservoir if it is not depleted;
 - 100% if producing or capable of producing in paying quantities.
 - 75% if the reservoir has greater value or utility for sequestration than for production of the remaining reservoir volumes.
 - (c) use of the reservoir will not contaminate other freshwater formations or other oil, gas, or mineral formations; and
 - (d) use of the reservoir will not endanger human lives or cause a hazardous condition to the property.

Storage Facility Approval

- Unlike enhanced recovery unit hearings that are held in Baton Rouge, hearings to approve geologic storage facilities must be held in the parish where the facility is located.
- No hearings have been held to date.

Expropriation Authority

- The commissioner shall issue a certificate of public convenience and necessity if, after a public hearing, he determines that it is required by the present or future public convenience and necessity, and such decision is based upon the storage facility meeting the statutory requirements for approval and any other applicable rules adopted under these statutes.

Expropriation Authority

- Once the certificate is obtained, the storage operator may expropriate needed property to acquire surface and subsurface rights and property interests necessary or useful for the purpose of constructing, operating, or modifying a storage facility and the necessary infrastructure including the laying, maintaining, and operating of pipelines for the transportation of carbon dioxide to a storage facility, together with utility, telegraph, and telephone lines necessary and incidental to the operation of these storage facilities and pipelines, over private property thus expropriated.

Expropriation Authority

- Follows general expropriation procedure (La. Rev. Stat. 19:2, et seq.) and is in addition to any other expropriation rights authorized by law.
- The exercise of the right of eminent domain granted in this Chapter shall not prevent persons having the right to do so from drilling through the storage facility in such manner as shall comply with the rules of the commissioner issued for the purpose of protecting the storage facility against pollution or invasion and against the escape or migration of carbon dioxide.

Expropriation Authority

- Act 163 (2022) amends statute to allow expropriations to prohibit drilling through a storage facility in Caldwell Parish if:
 - A period of 5 years has elapsed from the actual drilling or operation of any oil or gas well within the facility to depths below the base of the storage reservoir; and
 - Any reservoirs below the base of the storage reservoir that previously produced are no longer capable of producing in paying quantities.
 - Prohibitions terminate if the commissioner finds, after notice and hearing, that the storage facility operator has abandoned all reasonable efforts to use the facility prior to actual injection operations.

Expropriation Authority

- Expropriation Issues:
 - Cannot expropriate mineral rights for purposes of achieving any necessary consent to meet statutory requirement for use of non-depleted reservoir.
 - Uncertain Valuation.

Liability Release

- Ten years, or any other time frame established by rule, after cessation of injection into a storage facility, the commissioner shall issue a certificate of completion of injection operations, upon a showing by the storage operator that the reservoir is reasonably expected to retain mechanical integrity and the carbon dioxide will reasonably remain emplaced, at which time ownership to the remaining project including the stored carbon dioxide transfers to the state.
- Upon the issuance of the certificate of completion of injection operations, the storage operator, all generators of any injected carbon dioxide, all owners of carbon dioxide stored in the storage facility, and all owners otherwise having any interest in the storage facility, shall be released from any and all duties or obligations under this Chapter and any and all liability associated with or related to that storage facility which arises after the issuance of the certificate of completion of injection operations.

Liability Release

- Provided the provisions pertaining to site-specific trust accounts are not applicable, such release from liability will not apply to the owner or last operator of record of a storage facility if the Carbon Dioxide Geologic Storage Trust Fund has been depleted of funds such that it contains inadequate funds to address or remediate any duty, obligation, or liability that may arise after issuance of the certificate of completion of injection operations.

Site-Specific Trust Accounts

- Parties may establish a site-specific trust account for the purpose of providing a source of funds for long-term maintenance, monitoring, and site closure or remediation of that storage facility site at such time in the future when closure or remediation of that storage facility site is required.
- Once established, prior owners or operators are released from liability. Last owner remains responsible.

Carbon Dioxide Geologic Storage Trust Fund

- General fund established for:
- Operational and long-term inspecting, testing, and monitoring of the site.
- Remediation of mechanical problems associated with remaining wells and surface infrastructure.
- Repairing mechanical leaks at the site.
- Plugging and abandoning remaining wells or conversion for use as observation wells.
- Administration of this Chapter.
- Payment of fees and costs associated with the administration of the fund or site-specific accounts.
- Payment of fees and costs associated with the acquisition of appropriate insurance for future storage facility liability if it should become available, either commercially or through government funding.

Carbon Dioxide Geologic Storage Trust Fund

- Funded by:
- Fees, penalties, etc., collected under the statutes
- Private contributions or grants from any source
- Interest on deposited amounts
- Site-specific trust accounts (limited to use for that particular site)
- Monthly injection fees collected from operators (5M cap)
- Annual regulatory fee not to exceed \$50,000 for facilities that have not received a certificate of completion of injection operations.
- An application fee that shall not exceed the actual or anticipated cost to the state for the review of the permit or application.

Class VI Well Permitting

Overview

- EPA oversees Safe Drinking Water Act (SDWA)
 - Six well classifications under SDWA UIC program:
 - Class VI (used to inject carbon dioxide into deep rock formations)

Class VI Well Permitting

Primacy

- SDWA allows for states to seek “primary enforcement authority” under UIC program (“primacy”)
 - Primacy application pending in Louisiana for Class VI wells
 - Primacy Granted for Class VI wells in Wyoming and North Dakota

Class VI Well Permitting

- 40 CFR 146.81, et seq.
- Reference: EPA CCS—UIC Class VI Implementation Manual for UIC Program Directors 2018.

Class VI Well Permitting

Permit Information Requirements [40 CFR 146.82]

- In addition to information required for Class I-V permits, must submit additional information, including the following:
 - Map showing injection well and applicable Area of Review (AoR)
 - Geologic information on storage reservoir and storage site
 - List of all wells within the AoR that penetrate the injection or confining zones
 - Post-injection site care and site closure plan
 - Demonstration that financial responsibility requirements are met

Class VI Well Permitting

Minimum Siting Criteria [40 CFR 146.83]

- A suitable geologic system, including an injection zone that can receive the total anticipated volume of carbon dioxide and confining zone(s) to contain the injected carbon dioxide stream and displaced formation fluids.

AoR and corrective action [40 CFR 146.84]

- AoR- region surrounding sequestration project where USDWs may be endangered by injection activity delineated by computational modeling.
- Owner/operator required to prepare AoR and reevaluate as needed. Also required to perform corrective action on wells in AoR to prevent movement of fluid into or between USDWs.

Class VI Well Permitting

Financial responsibility [40 CFR 146.85]

- Owner/operator must demonstrate and maintain financial responsibility for performing corrective action on improperly abandoned wells in the AoR, injection well plugging, post-injection site care (PISC) and site closure activities, and emergency and remedial response.

Injection well construction [40 CFR 146.86]

- Design and construction of Class VI wells using materials that are compatible with the carbon dioxide stream over the duration of the Class VI project to prevent the endangerment of USDWs.

Class VI Well Permitting

Logging, sampling, and testing prior to operation [40 CFR 146.87]

- Outlines activities, including logs, surveys, and tests of the injection well and formations that must be performed before injection of carbon dioxide may commence.

Operating requirements [40 CFR 146.88]

- Provides operational measures for Class VI wells to ensure that the injection of carbon dioxide does not endanger USDWs, along with limitations on injection pressure and requirements for automatic shut-off devices.

Class VI Well Permitting

Mechanical integrity requirements [40 CFR 146.89]

- Specifies continuous monitoring to demonstrate internal mechanical integrity and annual external mechanical integrity tests.

Testing and monitoring requirements [40 CFR 146.90]

- Defines the elements that must be included in the required Testing and Monitoring Plan submitted with a Class VI permit application and implemented throughout the project to demonstrate the safe operation of the injection well and track the position of the carbon dioxide plume and pressure front.

Class VI Well Permitting

Reporting requirements [40 CFR 146.91]

- Establishes the periodic timeframes and circumstances for the electronic reporting of Class VI well testing, monitoring, and operating results and requirements for keeping records.

Plugging requirements [40 CFR 146.92]

- Specifies that a Class VI injection well must be properly plugged to ensure that the well does not become a conduit for fluid movement into USDWs in the future.

Class VI Well Permitting

Post-injection Site Care (PISC) and site closure requirements [40 CFR 146.93]

- Addresses activities that occur following cessation of injection. The owner or operator must continue to monitor the site for 50 years following the cessation of injection, or for an approved alternative timeframe, until it can be demonstrated that no additional monitoring is needed to ensure that the project does not pose an endangerment to USDWs; following this, they must plug the injection and monitoring wells and close the site.

Class VI Well Permitting

Emergency and remedial response requirements [40 CFR 146.94]

- Specifies that owners or operators of Class VI wells must develop and maintain an approved Emergency and Remedial Response Plan that describes the actions to be taken to address events that may cause endangerment to a USDW or other resources

Depth waivers [40 CFR 146.95]

- A process under which Class VI well owners or operators can seek a waiver from the injection depth requirements in order to inject carbon dioxide into non-USDWs that are located above or between USDWs.

Louisiana Primacy?

- Statewide Order 29-N-6.
- Largely mirrors federal regulations.
- Will become effective when and if primacy is granted.
- Q4 2022/Q1 2023?

Tax Incentives

- Federal 45Q
- California Low Carbon Fuel Standard (LCFS)

45Q Tax Credit

- Federal income tax credit based on metric tons of “qualified carbon oxide” which is “captured by the taxpayer” using “carbon capture equipment” at a “qualified facility.”

45Q Tax Credit

- What is “qualified carbon oxide”?
 - “Qualified carbon oxide” = used in enhanced oil recovery, geologic sequestration, or commercial utilization.

45Q Tax Credit

- What is a “qualified facility”?
 - “Qualified facility” = any “industrial facility or direct air capture facility, the construction of which begins before January 1, 2026, and
 - (i) the construction of carbon capture equipment begins before such date; or
 - (ii) the original planning and design for such facility includes installation of carbon capture equipment”

45Q Tax Credit

- Who can claim the credit?
 - Taxpayer that owns the carbon capture equipment and physically or contractually ensures the capture, disposal, injection, or utilization of the qualified carbon oxide
 - Owner may elect to transfer credits to another party that disposes of, injects, or utilizes the carbon oxide
 - If multiple owners, only one taxpayer can claim credit, but partnerships may be utilized allow for multiple taxpayers to share credits

45Q Tax Credit

- How much is the credit?
 - Amount of credit depends on when the carbon capture equipment is “placed into service”
 - For carbon capture equipment placed into service after February 8, 2018, owner may claim the below credit per metric ton for 12-year period:

Activity	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Disposal	\$22.66	\$25.70	\$28.74	\$31.77	\$34.81	\$37.85	\$40.89	\$43.92	\$46.96	\$50.00
Injection/ Utilization	\$12.83	\$15.29	\$17.76	\$20.22	\$22.68	\$25.15	\$27.61	\$30.07	\$32.54	\$35.00

California's LCFS Credit

- Available to CCS project operators that operate outside of California and are engaged in direct air capture or sales of low carbon transportation fuel within California
- Must meet the requirements of the California Air Resource Board (CARB) set forth in its Carbon Capture and Sequestration Protocol

California's LCFS Credit

- CCS Project Operator required to show proof that there is “binding agreement among relevant parties that drilling or extraction that penetrate the storage complex are prohibited . . .”
- But Louisiana Geologic Sequestration of Carbon Dioxide Act does not prohibit drilling through storage reservoir

California's LCFS Credit

Two Solutions:

(1) Contract with mineral owners; or

(2) Act 163 of 2022 permits use of eminent domain to prohibit drilling through reservoir in Caldwell Parish if:

- 5 years has elapsed from the actual drilling or operation of well within boundaries of storage facility drilled to depths below storage formation
- All reservoirs below storage formation that were drilled and produced within the boundaries of the storage facility are no longer capable of producing in paying quantities

California's LCFS Credit

- How much is the credit?
 - Trading at \$93 per ton as of July 25, 2022.
 - Credit is pro-rated based on volumes of fuel sent to California

Questions?

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