



Texas Carbon Dioxide Sequestration Rules

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- **Jurisdiction**
- **Rules**
 - Storage with EOR
 - Storage without EOR
- **Other incentives**



- **Railroad Commission**
 - In reservoirs productive of oil, gas or geothermal resources
 - In reservoirs productive of oil, gas, or geothermal resources in the past, or potentially in the future
 - In saline formations above or below such reservoirs
 - Extraction of anthropogenic CO2
- **Texas Commission on Environmental Quality (TCEQ)**
 - In saline formations other than those under RRC jurisdiction
- **Environmental Protection Agency (EPA)**
 - Class VI (for now)



- **RRC Rules**

- RRC underground injection rules for enhanced recovery (16 TAC §3.46)
- 2010: MOU amended
- 2010: RRC CO2 rules for geologic storage not associated with enhanced recovery adopted
- 2011: RRC CO2 rules for geologic storage associated with enhanced recovery adopted



- **Chapter 5 Carbon Dioxide**
 - Subchapter A – General Provisions
 - Subchapter B – Geologic Storage and Associated Injection of Anthropogenic CO2 (Non-EOR)
 - Subchapter C - Certification of Geologic Storage of Anthropogenic CO2 Incidental to Enhanced Recovery of Oil, Gas, or Geothermal Resources (EOR)



- Non-EOR CO2 storage rules include all of the same elements as the Class VI federal rules:
 - Site characterization
 - Area of Review and Corrective Action
 - Well construction
 - Mechanical integrity
 - Monitoring
 - Well plugging and Post-injection site care
 - Financial security



- **RRC MAY ISSUE A PERMIT IF:**
 - No endangerment/injury to oil, gas or other minerals
 - Water protected from CO2 migration or displaced formation fluids
 - No endangerment/injury to human health/safety
 - Reservoir suitable for protecting against escape/migration
 - Applicant meets statutory and regulatory requirements



- **USED RRC/STATE RULES WHERE APPROPRIATE:**
 - SWR 1 (notice of bankruptcy)
 - SWR 13 (well completion)
 - SWR 14 (well plugging)
 - SWR 46 (Injection well elements)
 - SWR 78 (Financial assurance for wells)
 - Water Well driller regulations for monitor wells completed in USDWs



- **RRC vs EPA RULES**

- Do not imply more than one confining zone necessary
- No prohibition on storage above USDWs
- No down-hole shut-off valve unless offshore
- External MI testing once every 5 years
- No default (50-year) post-injection monitoring
- Phased financial security
- 5 year (rather than 10 year) record retention
- A bit more flexibility in other areas



Subchapter C: CO₂ Storage Associated with Enhanced Recovery

- Additional 25% decrease in severance tax on oil produced
- Certification of GS of CO₂ incidental to enhanced recovery operations for which:
 - there is a reasonable expectation of more than insignificant future production volumes or rates as a result of the injection of anthropogenic CO₂ ; and
 - operating pressures not higher than reasonably necessary for enhanced recovery.



Subchapter C: CO₂ Storage Associated with EOR

- **Registration for Certification**

- Testing, monitoring, and reporting plan to validate permanent storage
- May use Subparts RR or UU of 40 CFR Part 98, Mandatory Reporting of Greenhouse Gases: Injection and Geologic Sequestration of Carbon Dioxide
- Fee of \$500 for each EOR facility to be registered

- **Annual Certification**

- Operator must provide report detailing results of approved testing, monitoring, and reporting plan
- Annual certification fee of \$0.025 per metric ton of anthropogenic CO₂ injected into each registered enhanced recovery facility.



- **CO2 Ownership**

- Stored CO2 is property of the storage operator or his heirs, successors, or assigns
- Unless found to be abandoned, CO2 not the property of the owner of the surface or mineral estate
- Allows owner to extract anthropogenic CO2

- **Trust Fund**

- RRC may assess fees to cover the cost of the program

Texas – Clean Energy Project



- **Franchise tax credit – lesser of**
 - 10% of total capital cost of project; or
 - \$100 million
- **Project to construct a coal-, natural gas-, or petroleum coke-fueled electric generating facility, that will:**
 - have a capacity of at least 200 megawatts;
 - meet the emissions profile for an advanced clean energy project under 382.003(1-a)(B), H&SC;
 - capture at least 70% of the CO₂ resulting from or associated with the generation of electricity by the facility;
 - be capable of permanently sequestering in a geological formation the carbon dioxide captured; and
 - be capable of supplying the CO₂ captured for purposes of an EOR project.

Texas – Clean Energy Project



- **RRC issues certificate**
 - Certificate from qualified independent PE that project is operational and meets requirements
 - Contract with BEG
- **Only 3 projects, one of which may be a natural gas project**
- **No tax credit before September 1, 2018**

Texas – Offshore CO2 Repository



- **TCEQ**
 - Rules for location, construction, operation and monitoring
- **Land commissioner**
 - Contracts with BEG to identify potential locations
 - Annual report
- **School Land Board**
 - Makes final determination of suitable locations
 - Contracts for construction or operation
 - Acquires title to CO2
- **BEG**
 - Performs measurement, monitoring and verification
 - Reports to Land Board



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