CO2: Regulation and Permitting Framework Considerations

Presented to Energy and Telecommunications Interim Committee

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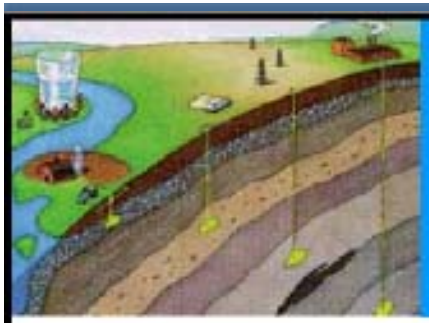
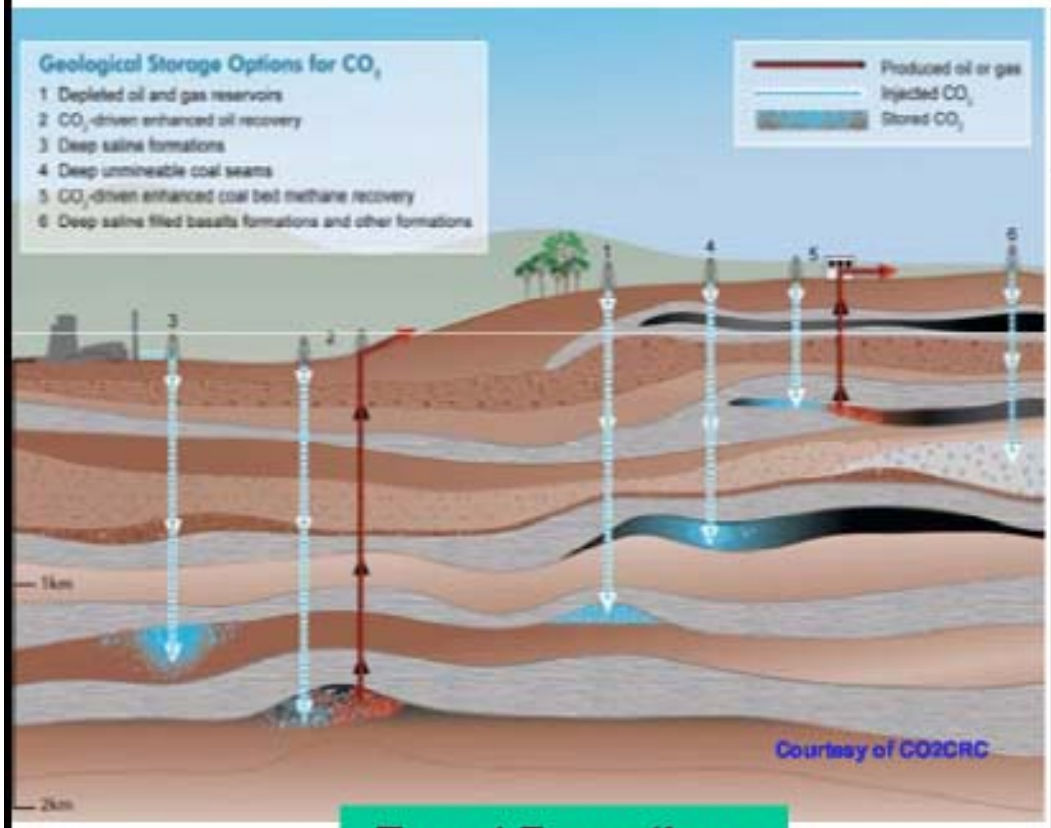
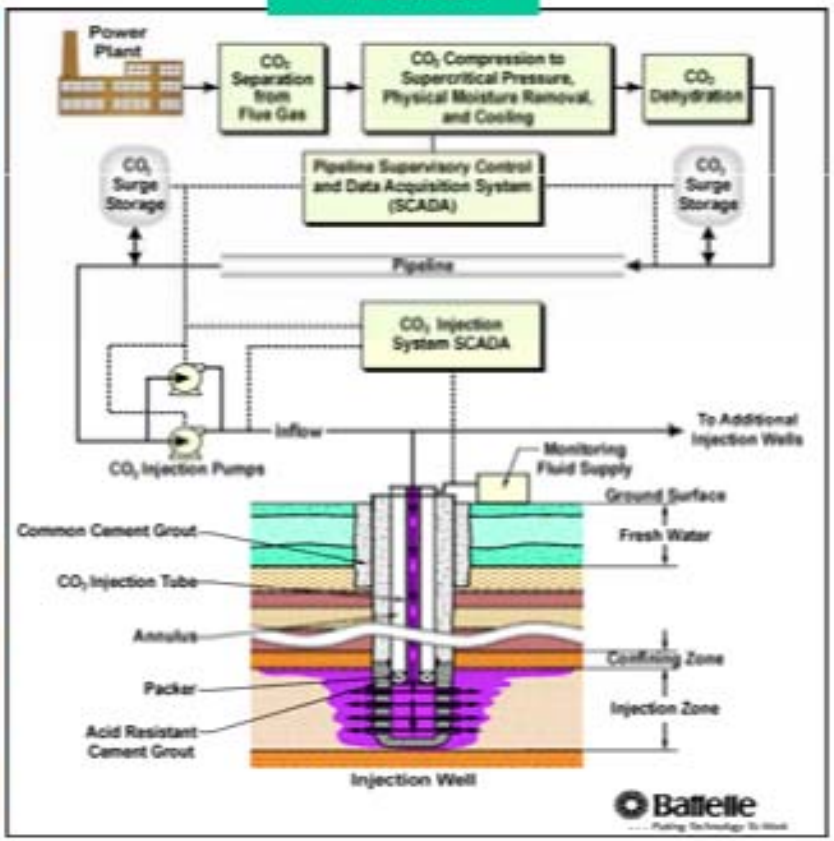


Geologic Sequestration



Target Formations

Process



Regulatory Framework—is there one?

- There is no overarching regulatory regime dedicated to carbon capture and storage
- CO2 used for enhanced oil recovery is regulated under the Safe Drinking Water Act—Underground Injection Control (UIC) Class II
- EPA has released guidance for experimentation of the carbon capture and storage industry as Class V UIC.

Regulation, continued

- Resource Conservation and Recovery Act (RCRA) may attach if substance is found to be hazardous.
  - Key to RCRA regulation is whether or not the substance is “characteristic” of hazardous waste: (toxicity, ignitability, reactivity, corrosivity)
  - If inert or otherwise marketable, may not be considered hazardous.

40CFR261.4 b 4: possible exclusion

- Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste, generated primarily from the combustion of coal or other fossil fuels, except as provided by §266.112 of this chapter for facilities that burn or process hazardous waste.

Regulation, continued

- Interstate Oil and gas Compact Commission (IOGCC) has prepared a model statute and rules for regulation of geologic sequestration.
- CO2 is viewed as a commodity under these rules.

Montana Regulation: if CO2 is captured and “discharged” into ground

- Liabilities for any damages, undefined scope and magnitude
  - Mineral rights impacts, undefined
  - Plumes –may reach surface, may stay in ground
  - If reaching surface, would be a gas
  - If staying in ground, could be in groundwater
  - --CO2, methane, N20 (nitrous oxide), chlorofluorocarbons (CFCs), Ozone, H2S, Mercury, etc.

Groundwater Discharge
Montana Water Quality Act

- Definitions: 75-5-103
- Nondegradation:

--75-5-301=Classification

--75-5-303= Policy

--75-5-317=Nonsignificant Activities

- Exemptions: 75-5-401
- Permitting/Prohibitions: 75-5-605
- What we do not know

Definitions of interest

- High Quality waters
- Pollution
- State Waters

Nondegradation

- 75-5-301
- We are to have standards
- We are to define mixing zones
- We are to determine significance of degradation of state waters.
- 75-5-303
- We are to protect uses
- May authorize degradation

Nonsignificant Activities

- 75-5-317 lists “predesignated” activities that are nonsignificant in terms of degradation of state waters
- Subpart k --Oil and gas drilling
- Subpart o—hazardous waste management facilities

Exemptions from Permitting

- 75-5-401 (5) lists exemptions:
- a. oil and gas activities
- d. Hazardous waste management facilities
- e. Water injection wells and activities associated with oil and gas field operations.

Permits and Prohibitions

- 75-5-605 (2)
- It is unlawful except for exemptions, to construct, modify, or operate a disposal system that discharges into any state waters without a permit.

What don’t we know?

- Most of what will happen when the substance is injected.
- Content of captured gases and variability.
- Stability, transport and effect of injected CO2 in the subsurface.
- Effect of injecting substance into geology: geologic stability, geochemical stability
- MEPA compliance requires an analysis: level of analysis, types of analyses