



# Session 2: Permitting geologic sequestration projects

Elizabeth Wilson, University of Minnesota

Resolving the Legal and Regulatory Challenges to Geologic Sequestration of CO<sub>2</sub>—A CCSReg Project Workshop

Hall of the States, Washington, DC

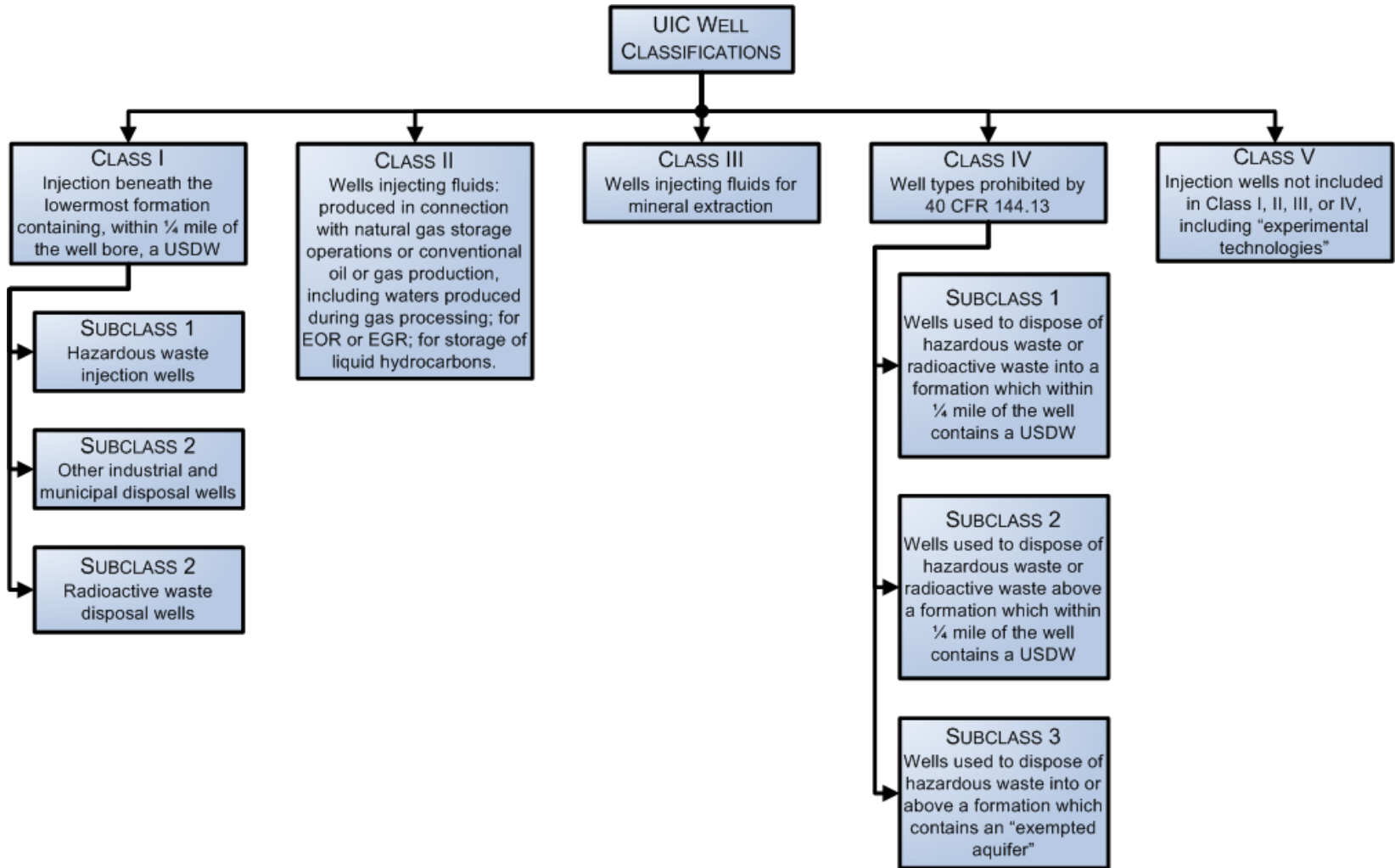
October 26, 2010

Washington, D.C.

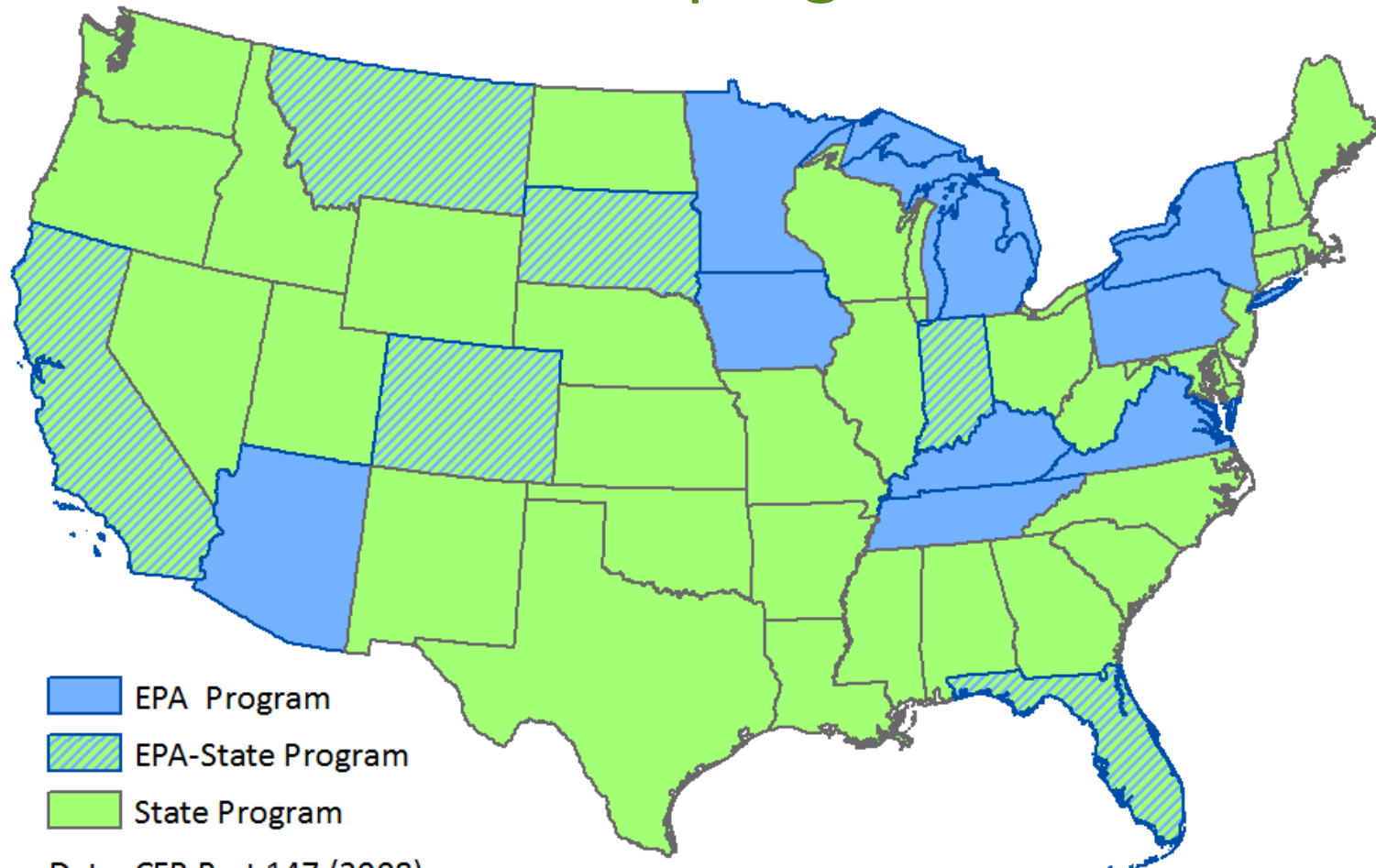
# Permitting of GS projects will occur under the UIC program

- All injection of fluids into the subsurface is permitted by the EPA's Underground Injection Control (UIC) program
- EPA has proposed rules creating a new "well class" for GS projects:
  - Sets well construction standards
  - Establishes area of review (AoR) for GS projects
  - Establishes a post-injection period
  - Outlines financial assurance mechanism (*for operation period only*)

# EPA UIC program has five well classes



# States may obtain primacy to implement the UIC program



- EPA Program
- EPA-State Program
- State Program

Data: CFR Part 147 (2008)

Note: Two joint EPA-Tribal programs are not shown

# The UIC program should be modified to create a comprehensive, performance-based framework for Geologic Sequestration

Amendments to the Safe Drinking Water Act

Structure the relationship between federal and state GS regulators

Direct UIC regulators to coordinate with those responsible for GHG accounting

Include mechanisms to balance multiple environmental objectives: i.e., air and water impacts

Modifications to the proposed UIC well permitting rules

Clarify the relationship between built-for-purpose GS and EOR

Improve public outreach requirements

Address the disparity between regulations for GS wells and other well classes (e.g. hazardous waste and experimental wells)

## Consideration of inter-state environmental impacts (1)

### Sec. 312(c): Program Requirements

- (4) require State UIC programs to take into account the effects that permanent geologic sequestration of CO<sub>2</sub> in the permitting State will have in any other State; and
- (5) ensure that any State with a reasonable prospect of being affected by the grant of a CO<sub>2</sub> injection permit by another State shall have the right to intervene and participate in proceedings conducted by the permitting State for consideration of a petition of a permit for underground injection of CO<sub>2</sub> for permanent geologic sequestration.

## Consideration of inter-state environmental impacts (2)

### Sec. 312(f): Interstate Geologic Sequestration Facilities

- (1) States may enter into agreements with respect to permitting and regulating a geologic sequestration facility that will require the use of geologic formations and pore space located in more than one State.
- (2) The EPA is the UIC CO<sub>2</sub> Regulator for any interstate geologic sequestration facility if the States where the project is located fail to enter into an agreement with respect to permitting and regulating the interstate project.

# The application and issuance process for CO<sub>2</sub> injection permits should be open and transparent: Sec. 312(e)

- (2) If a geologic sequestration facility developer applies for CO<sub>2</sub> injection permit under this subtitle, the UIC CO<sub>2</sub> Regulator shall:
- (A) **publish in the Federal Register and provide such additional public notice** as the UIC CO<sub>2</sub> Regulator shall require of the permit application, and
  - (B) **afford a period of 90 days for other geologic sequestration facility developers to intervene** and file competing applications, such that:
    - (i) Any party wishing to contend that the grant of a CO<sub>2</sub> injection permit under this subtitle and, if applicable, a pore space permit under subtitle C **may impair its own ability to develop and operate an alternative and competing geologic sequestration facility, or impair the operation of a currently operating geologic sequestration facility**, shall be entitled to equal consideration with the original applicant if it files a competing application within 90 days of public notice for the original application.
    - (ii) If a competing application is filed more than 90 days after the original application, the original application shall be considered and resolved upon its own merits without the necessity of consideration of the secondary competing application.



# Balancing multiple environmental objectives: the SDWA determination, Sec. 312(d)

## Part C of the Safe Drinking Water Act

- (2) DETERMINATION.—The UIC CO<sub>2</sub> Regulator may make a SDWA determination only if the regulator finds that **the public benefit of geologic sequestration of carbon dioxide outweighs the protection of the underground drinking water source** at issue after carefully balancing the goals of:
- (A) **minimizing the present and future threats to human health and the environment** imposed by global climate change with
  - (B) **the protection and safety of underground drinking water sources.**

# Balancing multiple environmental objectives: the SDWA determination, Sec. 312(d)

- (3) FACTORS.—In making a SDWA determination, the CO<sub>2</sub> Regulator shall consider:
- (A) **direct and indirect impacts to underground sources of drinking water and human health and the environment** resulting from geologic sequestration of carbon dioxide,
  - (B) **local impacts of potential surface leakage of sequestered carbon dioxide**, assessing both probability and magnitude of potential harm,
  - (C) the **nation's need to deploy and use CCS technology** to control GHG emissions.
  - (D) such other factors as the UIC CO<sub>2</sub> regulator determines to be relevant.

# A gap in our proposal: Stringency of Class I versus CO<sub>2</sub> injection wells

While we make the recommendation that the "disparity in stringency between regulations for GS wells and hazardous waste and experimental wells" should be addressed, we don't do so in the model legislation.

Is this an issue that should be resolved here? And if so, what solutions exist to address the problem?

# Questions for discussion

- Is this an opportunity to address what has been described as a "chronic underfunding" of State UIC programs?
- Will state agencies have the capacity to manage a performance-based program?
- Will the balancing concept work in practice? Is it necessary to incorporate air concerns?