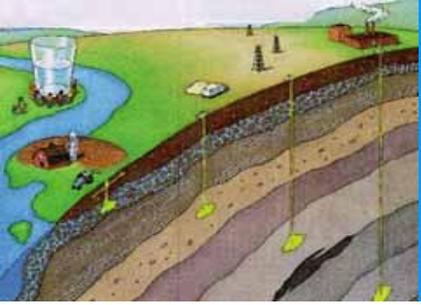


# *Considerations for Rule Finalization and Implementation of the Underground Injection Control (UIC) Program for Carbon Dioxide Geologic Sequestration (GS) Wells*

2010 Regional Carbon Sequestration Partnerships Annual Review

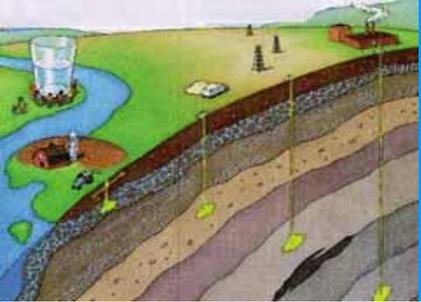


Sean Porse and Bruce Kobelski  
U.S. Environmental Protection Agency  
Office of Ground Water and Drinking Water  
October 5, 2010



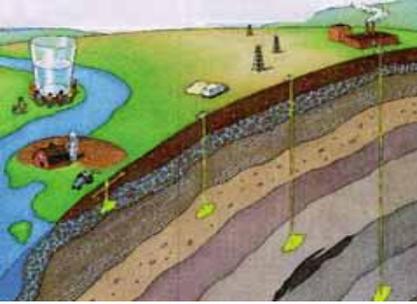
# Presentation Overview

- Topics to be covered include:
  - GS Rule Development and Finalization
  - Class VI Permitting and Primacy Applications After Rule Promulgation
  - Guidance Development and Available Tools
  - Rule Implementation Workshops



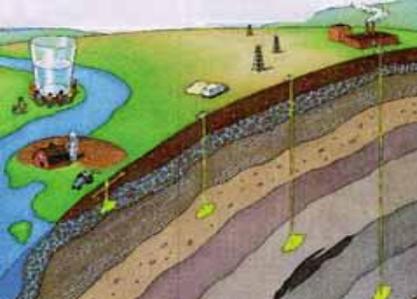
# GS Rule Development and Finalization

- UIC Program Background
- GS Rulemaking Update



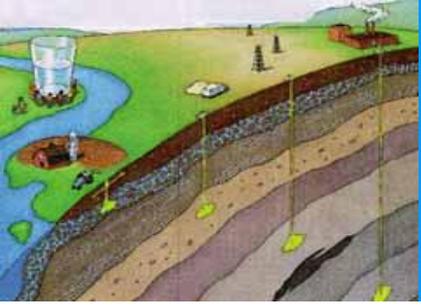
# UIC Program Background

- 1974 Safe Drinking Water Act (SDWA; Reauthorized in 1996)
  - Federal regulations for protection of Underground Sources of Drinking Water (USDWs)
  - USDW defined:
    - Any aquifer or portion of an aquifer that contains water that is less than **10,000 PPM** total dissolved solids or contains a volume of water such that it is a present, or viable future source for a Public Water Supply System
- UIC Program regulates underground injection of *all fluids* – liquid, gas, or slurry
  - Designation as a commodity does not change SDWA applicability
  - Some natural gas (hydrocarbon) storage, oil & gas production, and some hydraulic fracturing fluids exempted
- Existing UIC program provides the regulatory framework for the Geologic Sequestration (GS) of Carbon Dioxide requirements



# EPA's GS Rulemaking *Coordination*

- Federal Advisory Committees
  - National Drinking Water Advisory Council
  - Clean Air Act Advisory Committee
  - Environmental Financial Advisory Board
- States and Tribal Nations
  - Ground Water Protection Council
  - Interstate Oil & Gas Compact Commission
  - National Tribal Organizations
- Water Utilities
- Academia
- Federal Agencies
  - Health and Human Services
  - Department of Energy
  - Internal Revenue Service
  - Department of Interior
- Non-Governmental Organizations
  - Association of State Drinking Water Associations
  - American Water Works Associations
  - Natural Resources Defense Council
- Industry
- Public



# EPA's GS Rulemaking

## *Goals of the Rulemaking Process*

- Use a clear and transparent process
- Ensure protection of USDWs
- Tailor existing UIC program requirements for GS of CO<sub>2</sub>
- Use an adaptive approach
- Capitalize on existing EPA, state, tribal, and industry experience
- Involve, inform, and educate the public

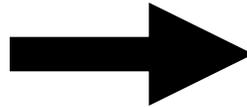


# EPA's GS Rulemaking

## *Tailored Program Elements*

### Special Considerations for GS

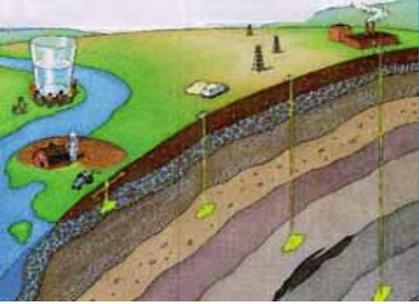
- Large Volumes
- Buoyancy
- Viscosity (Mobility)
- Corrosivity



### UIC Program Elements

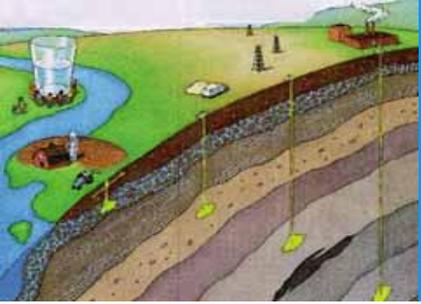
- Site Characterization
- Area Of Review
- Well Construction
- Well Operation
- Site Monitoring
- Post-Injection Site Care
- Public Participation
- Financial Responsibility
- Site Closure

Develop new well class  
for GS – Class VI



# EPA's GS Rulemaking *Notice of Data Availability*

- Notice of Data Availability (NODA) and Request for Comment
  - Developed in early 2009
  - Published: August 31, 2009
  - Public comment period: August 31 – October 15, 2009
- Outgrowth of proposal and public comments
- Developed to seek comment on:
  - Research findings and DOE Regional Partnership project data
  - Potential approach that would allow injection above or between underground sources of drinking water (i.e. waiver process)
  - Comprehensive Framework (SDWA, CAA, RCRA)

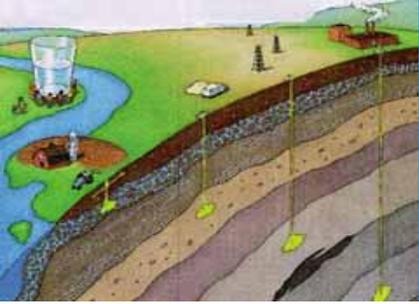


# EPA's GS Rulemaking

## *Current Activities*

### **Preparing for Rule Finalization:**

- Reviewing comments and preparing responses to comments:
  - Proposal
  - NODA
- Finalizing GS regulatory text and preamble language
- Preparing a final rule cost analysis
- Finalizing support documents and the final rule docket
- Developing technical guidance documents to support rule implementation



# EPA's GS Rulemaking

## *Current Activities*

### **Coordinating with**

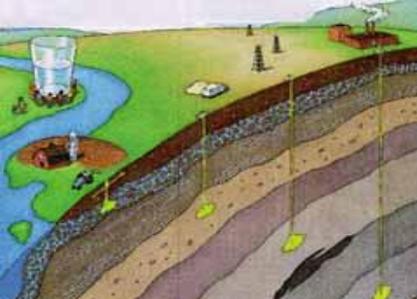
- Stakeholders
- Co-regulators, States, and Tribes
- EPA Program Offices and Regions
- The National Drinking Water Advisory Council and the Environmental Financial Advisory Board
- National organizations including GWPC, TCEQ, ASDWA, AWWA, and IOGCC
- Other Federal Agencies

### **Supporting GS Research**

- Lawrence Berkeley National Laboratory (LBNL) Interagency Agreement
- EPA Office of Research and Development (ORD)
- EPA Science to Achieve Results (STAR) Grants

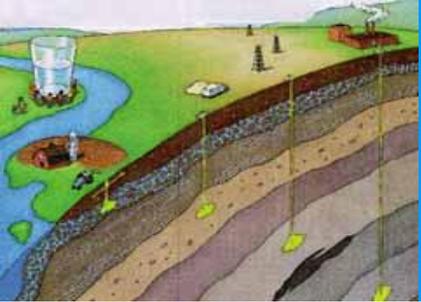
### **Participated in the CCS Task Force**

- Co-chaired by EPA and DOE
- Overcome barriers to widespread deployment of CCS in ten years



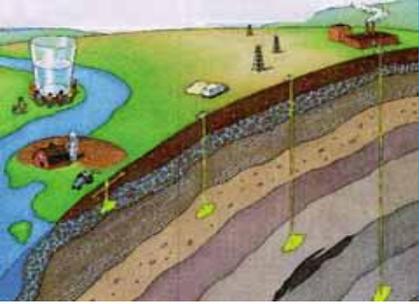
# EPA's GS Rulemaking Schedule

Activity	Timeframe
Technical Workshops & Data Collection	2005 – 2008
Stakeholder Meetings	2007 - 2008
Proposed Rule	Published: July 25, 2008 Public Comment Period Closed Dec. 24, 2008
Notice of Data Availability	Published: August 31, 2009 Public Comment Period Closed Oct. 15, 2009
Response to Comments and OMB Interagency Review	<b>In Process</b>
Final UIC GS Rule	<b>Late 2010/Early 2011</b>
Implementation	<b>After publication</b>



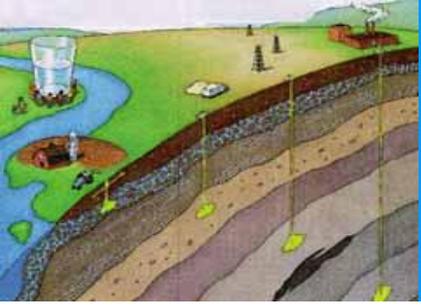
# Rule Implementation Considerations

- Class VI Permitting and Primacy Applications After Rule Promulgation
- GS Rule Related Guidance Development
- Class VI Program Implementation Workshops



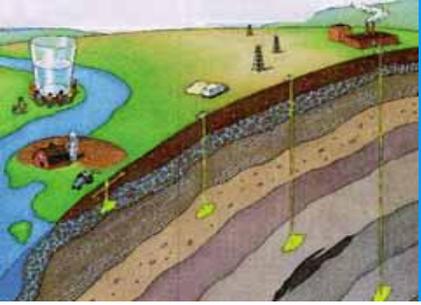
# Class VI Permitting and Primacy Applications After Rule Promulgation





# Permitting and Primacy after Rule Promulgation

- UIC Program primary enforcement responsibility (primacy) requirements under §§1421, 1422, and 1425 of the SDWA
- EPA determined in proposed GS Rule that Class VI falls under 1422
  - States should indicate intentions for Class VI primacy so EPA can assist, if necessary, with the application
  - Class VI primacy application period starts with the *Federal Register* publication
  - States can submit a complete application at any time
  - If a State chooses not to seek primacy, EPA will administer the program on the State's behalf



# Permitting and Primacy after Rule Promulgation

- During application period, States *with Current SDWA §1422 Primacy encouraged to* issue permits under existing authorities
  - Consistent with Class VI regulations to ease the burden of re-permitting
- Upon the close of application period, if States have chosen not to apply for Class VI primacy, or have not yet received approval from EPA, EPA will administer the program on the State's behalf
- Once States have received approval for Class VI primacy, they will become the permitting authority for Class VI permits
  - Transition with the Region as necessary



# Permitting and Primacy after Rule Promulgation

- During application period in States *without current §1422 Primacy*, EPA is the GS permitting authority, and is **encouraged to** issue permits for GS projects under existing authorities
  - Consistent with Class VI regulations to ease the burden of re-permitting
- Upon the close of application period, if States haven chosen not to apply for Class VI, or have not yet received approval from EPA, EPA will continue to administer the program on the State's behalf
- Once States have received approval for Class VI, they will become the permitting authority for Class VI permits
  - Transition with Region as necessary

State receives permit application for GS project

Does the state have an approved UIC program under SDWA Section 1422?

If the state wants to run a Class VI program, it should submit a complete New UIC Program application and receive EPA approval before issuing Class VI permits;

Or, If state is not interested in obtaining Class VI program primacy

Is the state submitting a UIC Program Revision application to add Class VI?

Is the Class VI permit application sent to the State within the Class VI primacy application period?

State processes GS project permit application under existing authorities

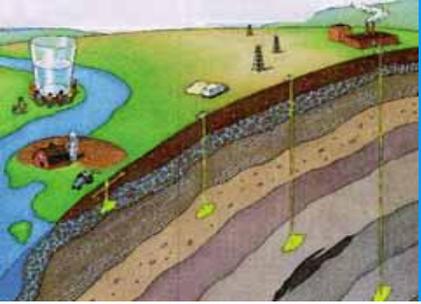
Has the state received primacy for Class VI?

State can issue Class VI well permit

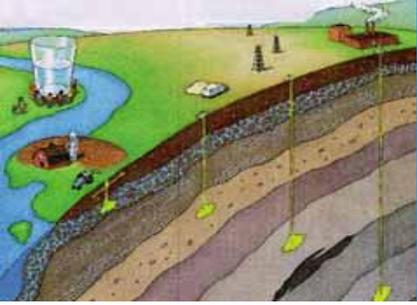
EPA Regional office processes all Class VI permit applications until state receives primacy

# Permitting Flow Chart



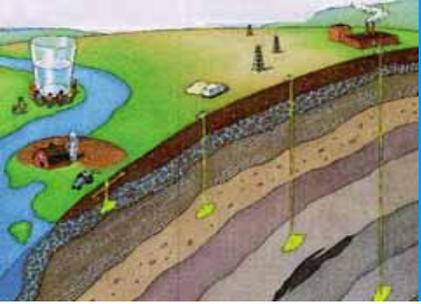


# Introduction to GS Rule Related Guidance Development and Class VI Program Implementation Workshops



# GS Rule Related Guidance *Document Development*

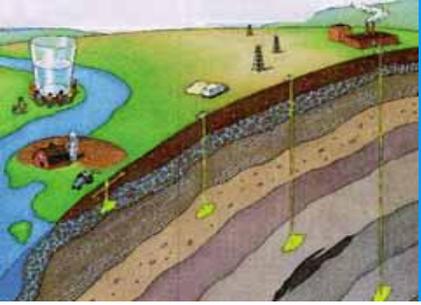
- **Guidance Documents Currently Under Development:**
  - Financial Responsibility
  - Public Participation Fact Sheet
  - Site Characterization
  - Area of Review and Corrective Action
  - Well Construction
  - Testing and Monitoring
  - Addendum to UICPG #83 for Class V Experimental
  - Project Plan Development
  - Primacy Application and Implementation



# Guidance Development Schedule

## *Released Around Rule Publication*

- Draft documents are scheduled to be posted on EPA's website around time of final rule publication in the *Federal Register*
- Draft documents available for public comment during an anticipated 30-day comment period
- Interested stakeholders can download the draft documents from EPA's website for review; comments sent to EPA email address



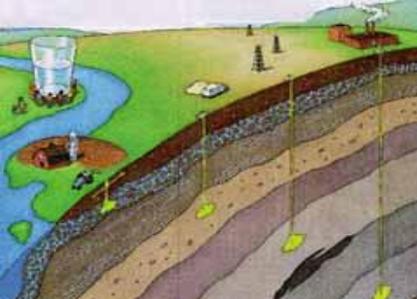
# Plans for Class VI Program Implementation Workshops

- Regional workshops planned at EPA offices around the country
  - Designed for co-regulators from Regions and States
  - Exploring potential to coordinate with 2011 GWPC Winter Meeting
  
- Tentative schedule based on current information
  - January 2011 – Denver, Chicago, Dallas/Austin
  - February 2011- Philadelphia, Atlanta, Kansas City
  - Webcast technology available
  
- Series of focused, technical webcasts Spring/Summer 2011
  - Details of GS Rule elements
  - Will be open to the public



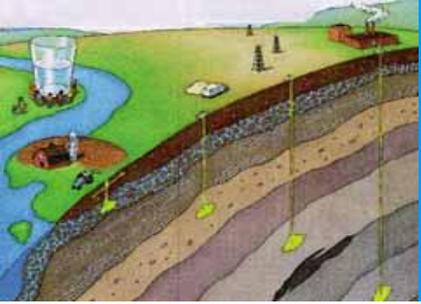
# Plans for Class VI Program Implementation Workshops

- Interim Final Primacy Application and Implementation Manual
  - Shared with UIC Directors registered for Implementation Workshop
  - Workshop participants will have opportunity to comment
  - The Manual will be posted on EPA's website as Interim Final in 2011
    - Stakeholders will have an opportunity to review and comment
    - Details on the comment period for the Implementation Manual will also be posted on EPA's website



# Plans for Class VI Program Implementation Workshops

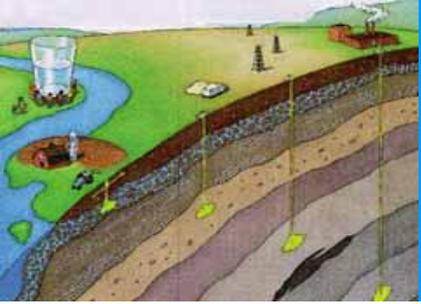
- 1-2 days covering GS Rule elements and evaluating permit applications
  - Applying for UIC Primacy for the Class VI program (New Program or Program Revision)
  - Rule element introduction
  - Considerations for conversion of existing wells (I, II, or V) to Class VI
  - Environmental Justice, public involvement and outreach considerations
  - Mock permit application evaluation exercise
  - Data management, reporting and recordkeeping



# Guidance Development Schedule

## *Additional Documents*

- More guidance documents in early development stage
  - Class II-VI Transition
  - Recordkeeping, Reporting and Data Management
  - Plugging, Post-Injection Site Care, and Site Closure
- Plan to post for public comment in 2011



# Thank you!

- To submit Guidance comments  
[GSRuleGuidanceComments@epa.gov](mailto:GSRuleGuidanceComments@epa.gov) (give title of guidance in email subject line)
- EPA Geologic Sequestration of Carbon Dioxide Website  
[http://www.epa.gov/safewater/uic/wells\\_sequestration.html](http://www.epa.gov/safewater/uic/wells_sequestration.html)
- Rulemaking Docket  
[www.regulations.gov](http://www.regulations.gov) (docket i.d.: EPA-HQ-OW-2008-0390)