



# **U.S. EPA Overview on Aquifer Storage and Recovery**

**GWPC Underground Injection Control Conference**

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# Background

- Need for ASR in Florida
- How does Florida meet future demand?
- Attributes of ASR
- Emerging Importance of ASR



# The Problem

- Oxygenated water injected via ASR wells can cause an oxidative/geochemical reaction which releases arsenic into the ground water.
- Arsenic levels in Florida's monitoring wells and ASR wells exceed the 10 ppb National Primary Drinking Water Regulation or MCL.
- Leads to uncertainty regarding consistency with the Safe Drinking Water Act and UIC regulations.



# The Issue – Consistency with SDWA and UIC Regulations

- Purpose of the SDWA and UIC Regulations is to protect Underground Sources of Drinking Water.
- Key provision: 40 CFR 144.12(a)
  - No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of any NPDWR or otherwise adversely affect the health of persons.



# EPA's Position

- An appropriate approach under Class V UIC regulations is for a UIC Director acting on a case-by-case basis to issue Class V permits with specific conditions that ensure consistency with the law and the goals of SDWA.
- Region 4/EPA OGWDW worked closely with the State of Florida and had numerous face-to-face meetings and conference calls to review the empirical data and other available information and discuss possible options for moving forward.



# EPA's Letter to FDEP

- Recognizes importance of ASR as a tool for sustainable water management.
- Applies to activities that store and withdraw water to augment drinking water supplies.
- Identifies that for Public Water Systems using ASR, Class V UIC regulations at 40 CFR 144.12(c) and 144.84(b)(1) provide flexibility to maintain ASR despite liberation of arsenic, provided appropriate permit conditions are used.



# EPA's Letter to FDEP

- Guiding principle that the burden of protection not be transferred from the PWS to another user.
  - PWS should maintain area of control beyond which water withdrawn does not need treatment to address arsenic;
  - Permits should contain conditions that will prevent a user other than the PWS operating the ASR system from accessing the aquifer as a source;
  - Permit conditions should include requirements for monitoring wells and triggers to define circumstances when further protective action may be needed.



# EPA's Letter to FDEP

- Recommends that permit conditions include a suite of practices designed to minimize the area where potential arsenic mobilization may occur.
- Florida is at the forefront of developing the tools that can minimize the extent of any potential arsenic mobilization when determined to be necessary:
  - Degasification pretreatment
  - Consistent operation
  - Full recovery of injected water



# EPA's Letter to FDEP

- EPA appreciates the emphasis that FDEP has given in trying to resolve this complex issue.
- EPA believes that ASR is a viable option as long as adequate steps are taken to address potential arsenic mobilization caused by injection.



# Next Steps

- Work with other EPA programs and FDEP to consider factors at other types of ASR facilities
  - Injectate is something other than treated drinking water
  - Use is something other than drinking water source
  - e.g, Irrigation and flow augmentation
- Region 4 will review new Class V permits for ASR to ensure consistency with the recommended approach



# Take Home Message

- ASR is a viable option.
- To meet future demand, Florida must develop water supplies and implement conservation techniques. ASR is a critical component of Florida's overall water management strategy.
- ASR where arsenic is mobilized raises concerns about consistency with the SDWA and UIC regulations.
- UIC Class V regulations at 40 CFR 144.12(c) and 144.84(b)(1) provide flexibility to maintain ASR despite movement of arsenic.
- FDEP permitted conditions should include a suite of activities to minimize the mobilization of arsenic, limit spatial extent of contamination and protect public health.



# Take Home Message

- Win x 4
- EPA will continue to work in coordination and collaboration with FDEP to refine and improve its UIC Program as needed to protect and conserve the State's precious underground sources of drinking water.



**Thanks for attending the GWPC UIC  
Conference and this session!**

**Questions?**



# Contact Information

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