EPA’s Report on Aquifer Recharge and Aquifer Storage and Recovery in the UIC Program

Kara Goodwin
February 9, 2021
GWPC UIC Conference
The Safe Drinking Water Act

- Authorizes EPA to develop minimum federal regulations for state, territory, and tribal Underground Injection Control (UIC) programs to protect underground sources of drinking water (USDWs)
- Mandates EPA to regulate underground injection of most fluids – liquid, gas, or slurry
- Prohibits injection that endangers a USDW
- Establishes a process for approving primary enforcement responsibility to states, territories, and tribes (Primacy)
- Authorizes EPA to provide assistance grants to states, territories and tribes in support of essential UIC program functions

**UIC Program Mission: Protect public health by preventing contamination of USDWs**
Class V wells - Manage the shallow injection of all other fluids to prevent contamination of drinking water resources

In your community, there may be industrial waste disposal wells, storm water drainage wells, large-capacity septic systems, and other Class V wells. They are regulated and are not allowed to endanger drinking water resources.

Not drawn to scale
Purpose of UIC requirements:

- Injected fluids stay within the well and the intended injection zone
- Fluids that are directly or indirectly injected into a USDW do not cause a public water system to violate drinking water standards or otherwise adversely affect public health.
What is a UIC well?

“A bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system.”

40 CFR 144.3

Answer the following questions to determine if you have a Class V storm water drainage well.

<table>
<thead>
<tr>
<th>Questions:</th>
<th>If Your Answer Is Yes...</th>
<th>If Your Answer Is No...</th>
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</thead>
<tbody>
<tr>
<td>1. Do you operate a stormwater collection system that relies on infiltration to collect and dispose of storm water runoff?</td>
<td>Go to question 2.</td>
<td>You do not have a Class V stormwater drainage well. Stop here.</td>
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<tr>
<td>2. Does your infiltration system discharge to the subsurface?</td>
<td>Go to question 3.</td>
<td>You do not have a Class V stormwater drainage well. Stop here.</td>
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<tr>
<td>3. Does your stormwater infiltration system consist of a drilled or driven shaft, or dug hole that is deeper than it is wide? Does it rely on a naturally occurring sinkhole? Does it include any subsurface piping?</td>
<td>You have a Class V stormwater drainage well and are subject to Class V requirements.</td>
<td>You do not have a Class V stormwater drainage well. Stop here.</td>
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</tbody>
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https://www.epa.gov/uic/stormwater-drainage-wells
MAR/ASR & Water Sustainability

- Forty out of 50 state water managers expect to face freshwater shortages in their states in the next 10 years, according to a Government Accountability Office report (2014).
- EPA recognizes the potential value of ASR as a tool to help balance the need for smart water management while protecting water quality.

Maps courtesy of the National Drought Mitigation Center at University of Nebraska-Lincoln, USDA, and NOAA.
MAR/ASR & Water Reuse

• Water Reuse Action Plan kickoff February 2019

  • Action 2.7.4: Increase Understanding of Current Aquifer Storage and Recovery Practices
EPA Report on State of AR & ASR in the U.S. (UIC)

Overview of the AR/ASR Practice
• Technical overview
• Considerations for implementation
  • Site selection
  • Water sources
  • Monitoring
• Challenges and strategies for success
  • Water quality
  • Operational
  • Economic
EPA Report on State of AR & ASR in the U.S. (UIC)

Regulatory Landscape

- UIC primacy
  - 38 Class V primacy programs
  - EPA DI in 20 states/territories
- Rule authorized vs permitted
- Summary of state regulations
  - UIC regulations
  - Other state regulations
EPA Report on State of AR & ASR in the U.S. (UIC)

AR/ASR Well Inventory

• The U.S. EPA’s UIC Injection Well Inventory (data extracted from the deactivated National UIC Database in May 2020, last updated in 2018)

• An updated version of the inventory database that was originally used for AWWA’s M63 Aquifer Storage and Recovery Manual (AWWA, 2015)

• The International Groundwater Resources Assessment Centre’s (IGRAC) MAR Portal – [www.marportal.un-igrac.org](http://www.marportal.un-igrac.org) (Stefan and Ansems, 2018)
Next Steps

• Finalizing Report, Reg Summary & Well Inventory
  • Input from EPA Regions

• Continuing collaboration with GWPC MAR/ASR group and EPA Water Reuse Team
Questions? Feedback?

Kara Goodwin
EPA HQ OGWDW
goodwin.kara@epa.gov