Class V Injection Wells: Back to the Future

Ground Water Protection Council 2014 UIC Conference
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Today’s Perspective of 1980s Class V Injection Well Work

• GWPC’s Ben Grunewald & Mike Paque requested a retrospective presentation on Class V injection wells
• This entailed going back in time to the ‘80s to look at Class V injection well inventory & assessment work by EPA & the States, using my 2014 Texas perspective
• Discovered my old UIC Working Files buried in the garage (kudo’s to my husband!)
• Back in the ‘80s, GWPC was UIPC & UIC Programs were new; thankfully, many of the players are still in the game today: Paque, Kohler, Knape, Hildebrandt, et al
Safe Drinking Water Act Authorizes Underground Injection Control Regulation
Class V Injection Well Selected Regulatory Highpoints

- Safe Drinking Water Act (SDWA) enacted in 1974; among other programs, the act addressed underground injection wells. Class V injection wells defined by default: wells not included in Classes I – IV
- In 1980, EPA deferred establishing technical requirements for Class V wells & allowed authorization by rule; inventory information required
- UIC Program Directors were required to submit Class V injection well inventory & assessment to EPA
- 1986 SDWA Amendments required EPA to prepare & submit a Report to Congress on Class V injection wells
Class V Injection Well Selected
Regulatory Highpoints

• EPA obtained assistance with the Class V inventory & assessment work from a small engineering company out of Norman, OK: Engineering Enterprises, Inc. (EEI)

• I served as EEI’s Class V project manager, with projects that included conducting Class V inventory & assessment projects in Direct Implementation states, developing the national inventory & assessment, & compiling the Report to Congress on Class V Wells

• EEI assembled a Class V project team – the team was under the gun to get a huge amount of work done in very short order
Class V Injection Well Selected Regulatory Highpoints

- EEI’s Class V project team compiled info on ~32 types of Class V injection wells identified at the time
- Inventory questionnaires were conducted & compiled
- Inspections of identified wells were conducted (EEI inspections were primarily in Region IX)
- Exchanges were made with States & Regions to compile info into the Report to Congress (about the size of a NYC phone book)
- Luckily for EEI & EPA, there had been a downturn in the oil industry & EEI was able to hire a bunch of Okie geologists (retreads) to get all this work completed
2014 Sugar Bowl results: Oklahoma stuns Alabama, 45-31

Alabama vs. Oklahoma, 2014 Sugar Bowl: "Big Game Bob" rides again
Report to Congress: Inventory & Assessment of Class V Injection Wells September 1987
Getting the Word Out Regarding Class V Injection Wells 1987 & 1988
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Class V Concerns in the ‘80s

- There were so many types of Class V injection wells (32 types +/-), ranging from very low tech (cesspools & drainage wells) to very high tech (radioactive waste disposal & geothermal wells)
- Uneven distribution of information existed, which meant there were likely many unreported wells
- Close proximity of many Class V injection wells to water supply wells
- Very little funding to support understanding & regulation of Class V injection wells
Motor Vehicle Waste Disposal Wells
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(or maybe Radioactive Waste Disposal Wells?)
Large Capacity Cesspools & Other Sewage Disposal Wells
Dry Wells: Commercial & Industrial Drainage Wells
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Industrial Disposal Wells
Agricultural Drainage Wells
Aquifer Recharge Wells, Including Aquifer Storage & Recovery Wells
Improved Sinkholes
Aquifer Remediation Wells
Aquifer Remediation Wells
Abandoned Water Wells

Baby Jessica Rescued from Well in Backyard in Midland, Texas 1987 (an oil well; but points out vulnerabilities of unintentional injection into abandoned & improperly plugged water wells)
Texas Concerns

• So back to the future (& present time) what are the concerns with Class V injection wells in Texas?
  – Very low federal funding levels for Class V wells & future funding doesn’t look any better; TCEQ has applied additional resources to this program, with 4 of 11 UIC staff spending most of their time on Class V wells
  – Texas has a huge inventory of Class V injection wells: 40,872 Class V wells at 2,387 facilities authorized, with the largest percentage being 5X26 groundwater remediation injection wells (24,716 wells authorized at 700 facilities) – however, this is total authorized & doesn’t subtract out closed wells/authorizations
Texas Concerns

• Like most of the nation, UIC focus at TCEQ has been on other better funded, higher profile well classes
  – being a large, diverse state, it has been difficult to do outreach & develop/maintain an accurate inventory
  – for many years the state’s Class V “database” was housed in file drawers & boxes

• State of Texas essentially banned Motor Vehicle Waste Disposal Wells (MVWDWs) & large capacity cesspools to comply with EPA’s Class V Rule (effective 12/7/99)
  – however, a few of these MVWDWs are found every year through regional office inspections & follow-ups to citizen complaints
  – closure of MVWDWs through the enforcement process is difficult & communication can be challenging
TCEQ Current Class V Well Focus

- Keeping up with active Class V injection well authorization requests – every day brings more requests
- TCEQ is working backwards through its 5X26 injection well files to get current information & close out authorizations no longer needed; includes coordinating with TCEQ’s Remediation Division programs
- With ongoing drought in Texas, TCEQ is focusing on Aquifer Recharge Wells (including Aquifer Storage & Recovery or ASR wells) & Desalination Concentrate Disposal Wells for water suppliers using brackish groundwater treatment plants (El Paso Water Utilities, San Antonio Water System, City of Kerrville, etc.)
TCEQ Current Class V Well Focus

- TCEQ UIC Permits Section working with TCEQ Superfund Section to capture un-inventoried Class V (and Class IV) injection wells at Texas superfund sites – federal rules that allow superfund sites to operate without a permit have stymied inventory of remediation injection wells at superfund sites.

- TCEQ refining its Class V injection well database in anticipation of flowing the data to EPA in the future (this will take considerable work to get to that point, including coordination with EPA).
Wrap-Up on Class V Injection Wells

• I never thought I’d be doing injection well work after being out of that arena for 25+ years

• It has been refreshing yet still professionally challenging getting back into this work; most of my time is spent on Class I & III wells (including aquifer exemptions) these days

• I’m blessed to have a strong, experienced TCEQ staff & am very happy that many of the people doing injection well work in the 1980s are still involved with injection well programs – the depth & breadth of injection well & water resources knowledge is impressive!!

• We mostly got it right in the ’80s with the original inventory & assessment work, especially considering the tools, existing knowledge & timeframes available to do the work
Questions??

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www.tceq.texas.gov/permitting/waste_permits/uic_permits/uic.html