

Introduction to Deep Well Injection as a Disposal Option: Anna Feldman (SCS Engineers) Arkansas Environmental Federation Convention Presentation



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Anna Feldman undertook a presentation at the October 10-11 Arkansas Environmental Federation Convention titled:

Introduction to Deep Well Injection as a Disposal Option ("Presentation").

Ms. Feldman is a Associate Professional in SCS Engineer's Little Rock, Office.

SCS Engineers states that it serves public and private clients across the nation and notes that its core capabilities include solid and hazardous waste management, renewable energy, remediation, carbon capture, measurement, and verification.

The three primary components of the Presentation included:

- Background and Use Cases (when is an injection well a good option to consider?)
- Research, Design, Monitoring (how are environmentally safe injection wells built?)
- State-Specific Considerations (what would an injection well project look like in Arkansas?)

Additional questions addressed included:

- How are injection wells classified?
- What circumstances make an injection well a good disposal option?

Ms. Feldman explained that the definition of "underground injection" involves:

- The technology of placing fluids underground through wells.
- Underground rock formations contain voids and pore space of varying size and connectivity.
- Varying capacity for fluid storage and flow.
- Encompasses multiple types of projects.

History of injection wells was discussed from the 1930's to date.

EPA classifications for wells were referenced which include:

- Class I: Industrial and municipal waste disposal wells.
- Class II: Oil and gas related injection wells.
- Class III: Solution mining wells.
- Class IV: Shallow hazardous and radioactive waste injection wells (BANNED).

- Class V: Non-hazardous fluids injection wells.
- Class VI: Geologic sequestration injection wells for CO₂.

Certain classes of injection wells were discussed with examples provided. The focus was on Class I and Class VI wells.

The potential use of Class I injection wells as a potential PFAS management option was noted.

The various issues associated with siting an injection well were reviewed, noting concepts such as:

- Injection interval.
- Confining units.
- Fluid interactions-existing and injected.
- Faults and seismicity.

The need to understand (i.e., know) the relevant waste stream was addressed. Further, well construction was reviewed noting:

- Subsurface.
- Surface design factors.
- Testing and monitoring.

State-specific considerations were reviewed with a special focus on formations in Arkansas that may have the potential for suitable injection interval geology.

Equally relevant was a review of the Arkansas UIC Program, with the following noted:

- The Arkansas Department of Energy and Environment – Division of Environmental Quality has primacy over Class I injection wells.
- Seven Class I injection well Permits as of October 2024.
- Active injection intervals range from 2,500 to 8,700 feet below ground surface.
- Review timelines and cost vary from project to project.

The components of a project from initiation to end-of-life were discussed, including a review of public notice and reaction issues.

A copy of the slides from the Presentation can be downloaded [here](#).