



Texas Commission on Environmental Quality

Bobby Janecka

Radioactive Materials Section Manager

bobby.janecka@tceq.texas.gov

(512) 239-6415



Radioactive Materials Licensing

Authorizing licenses for:

- Low-level radioactive waste disposal
- By-product material disposal
- Public water system NORM waste disposal
- Alternative methods of disposal (i.e. above ground radioactive waste disposal)
- Radioactive waste storage and processing



Contaminated debris from the Savannah River Site bound for disposal in the Waste Control Specialists Federal Waste Facility, prior to being macroencapsulated in grout and placed in a modular concrete canister for disposal.



Radioactive Materials Licensing

Low-Level Radioactive Waste (LLRW) Disposal Facility in Andrews County, operated by Waste Control Specialists

As of August 31, 2017:

- Over 112,000 cubic feet of LLRW has been safely disposed in the Compact Waste Facility.
- Over 271,000 cubic feet of federal LLRW has been safely disposed in the Federal Waste Facility.



- Over \$44.5 million in fees have been generated as revenue to the State of Texas.

The Waste Control Specialists Compact Waste Facility, as inspected by TCEQ Office of Compliance and Enforcement staff on May 29, 2014.



Radioactive Materials Licensing

Waste Control Specialists operates several disposal cells and processing facilities at the Andrews County site.

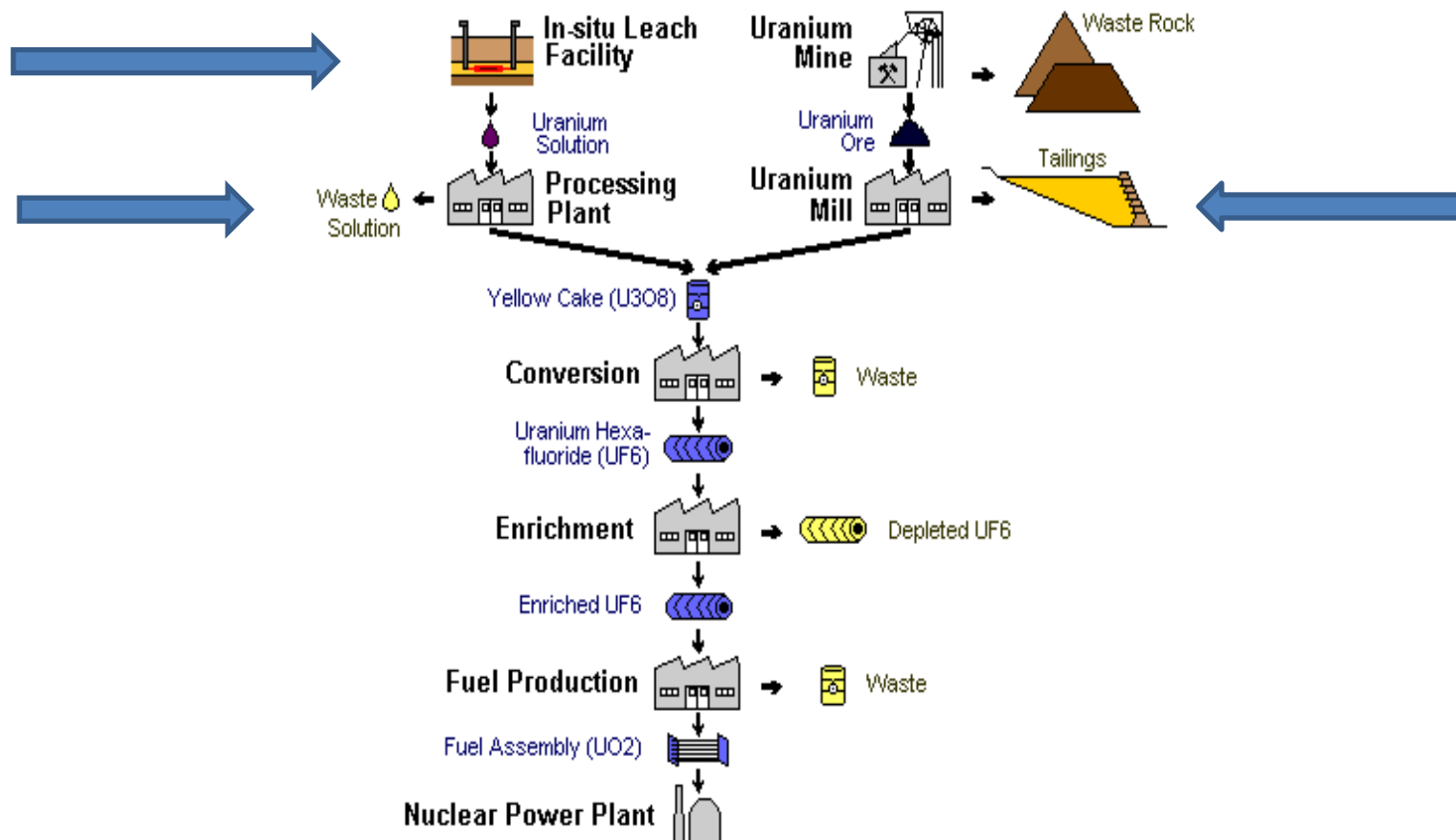


The Waste Control Specialists Compact Waste Facility, shown in a 2015 satellite image.



Uranium Licensing and Permitting

- Licenses and permits In-Situ Uranium mining and processing and disposal of by-product material.





Uranium Licensing and Permitting

- Authorizes and provides oversight for In-Situ Uranium Mining and Processing Operations.
- Currently:
 - 7 licensed sites with in-situ mining operations and
 - 3 licensed sites with processing operations.





Uranium Licensing and Permitting

- Maintains oversight of legacy conventional uranium mills for eventual transfer to the Department of Energy.
- Currently:
 - 4 tailing impoundments.





Uranium Licensing and Permitting

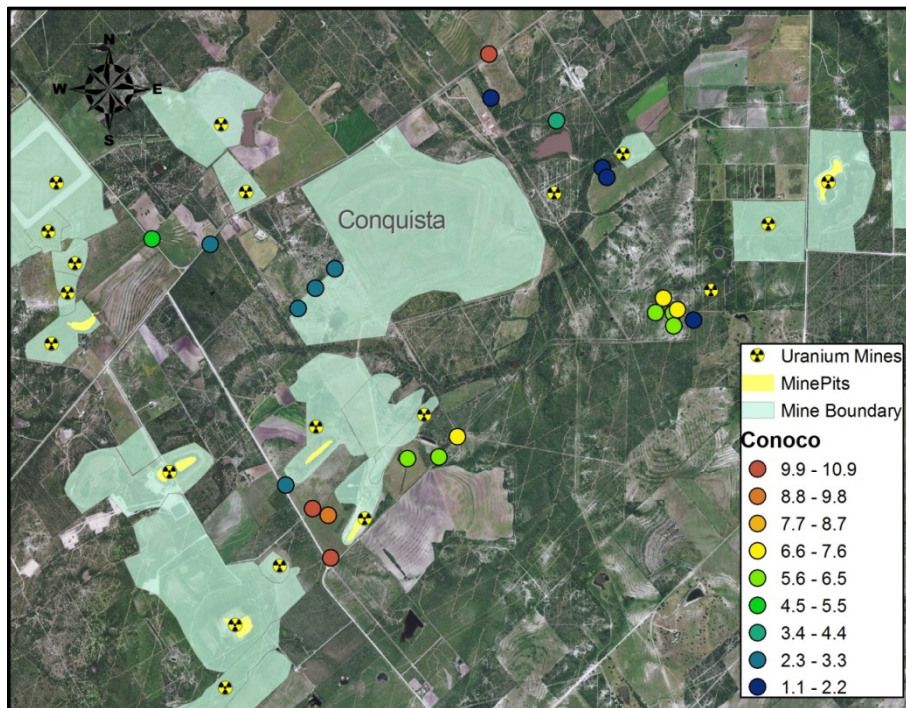
- Provides technical support and oversight during decommissioning and reclamation operations.





Uranium Licensing and Permitting

- Performs site characterizations and inspections of sites for release to unrestricted use.





Uranium Licensing and Permitting

- Several different projects have also fallen within the scope of the Uranium Licensing and Permitting team:
 - Desalination plants
 - Natural uranium and radium in water provides potential for creating issues for disposal.
 - Nuclear missile crash site
 - A 1958 B-47 dropped its nuclear payload near Taylor, TX, rupturing the casing and spilling its radioactive contents over a large area.
 - Superfund Technical support
 - Federated Metals Site, several radioactive waste components.



Radioactive Materials

Underground Injection Control

- In 1982, the Environmental Protection Agency (EPA) delegated Underground Injection Control (UIC) Program authority to Texas. In Texas UIC jurisdiction is split, based on well type, between:
 - Texas Commission on Environmental Quality (TCEQ): Class I; Class III minerals mining; Class IV; Class V injection wells
 - Texas Railroad Commission (TRC): Class II oil & gas; Class III brine mining wells
- The state's UIC Program regulates injection in order to protect fresh water and Underground Sources of Drinking Water (USDWs)
- Underground injection wells used for decades to dispose of waste:
 - 1930s: oil companies began injecting wastes into depleted reservoirs through converted oil production wells
 - 1950s: injection of hazardous chemicals and steel industry wastes began
 - 1960: use of injection wells for waste disposal rose sharply as manufacturing of chemicals increased



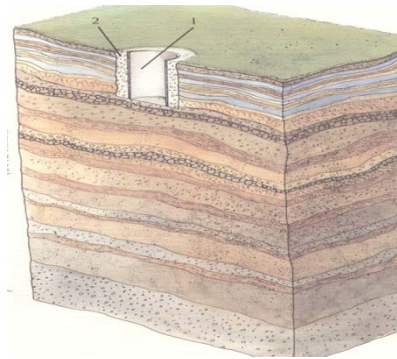
Radioactive Materials Underground Injection Control

Well Class	Type of Injection Well	Number of Facilities	Number of Wells	Wells Temp. Abandoned
I	Hazardous Waste Disposal	24	60	7
I	Nonhazardous Waste Disposal	26	48	2
III	In-Situ Mining	7	6,880	0
IV	Prohibited (unless specifically authorized)	6	113	0
V	Miscellaneous Wells (~21 subclasses)	2,386	40,871	0
Total No. Facilities and Wells (as reported to EPA in February 2014)		2,449	47,972	9

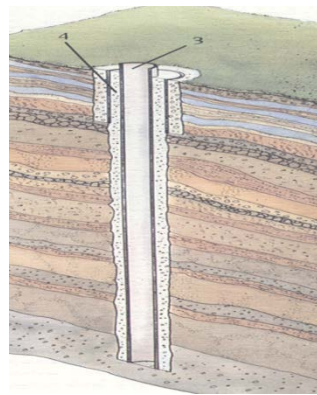


Radioactive Materials Underground Injection Control

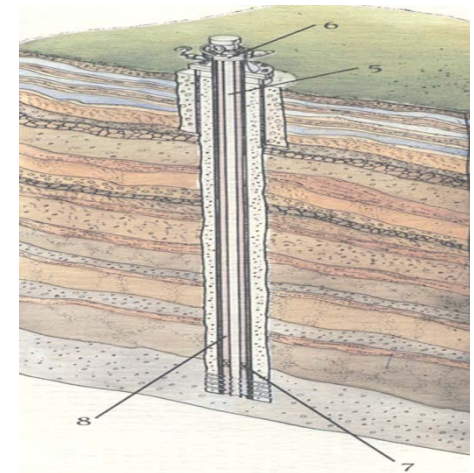
UIC Deep Well Construction Features
Typical of Class I Waste Disposal Wells



Surface Casing
& Cement



Long String Casing
& Cement



Tubing , Packer,
Wellhead Controls



Radioactive Materials Underground Injection Control

Class I Injection Wells: industrial and municipal waste disposal wells that inject beneath the lowermost USDW (non-hazardous, hazardous, and radioactive wastes) – TCEQ issues permits



Wellhead - Desalination Concentrate Disposal Well (San Antonio Water System)

Class I Industrial Disposal Well
Wellhead & Pre-Injection Units

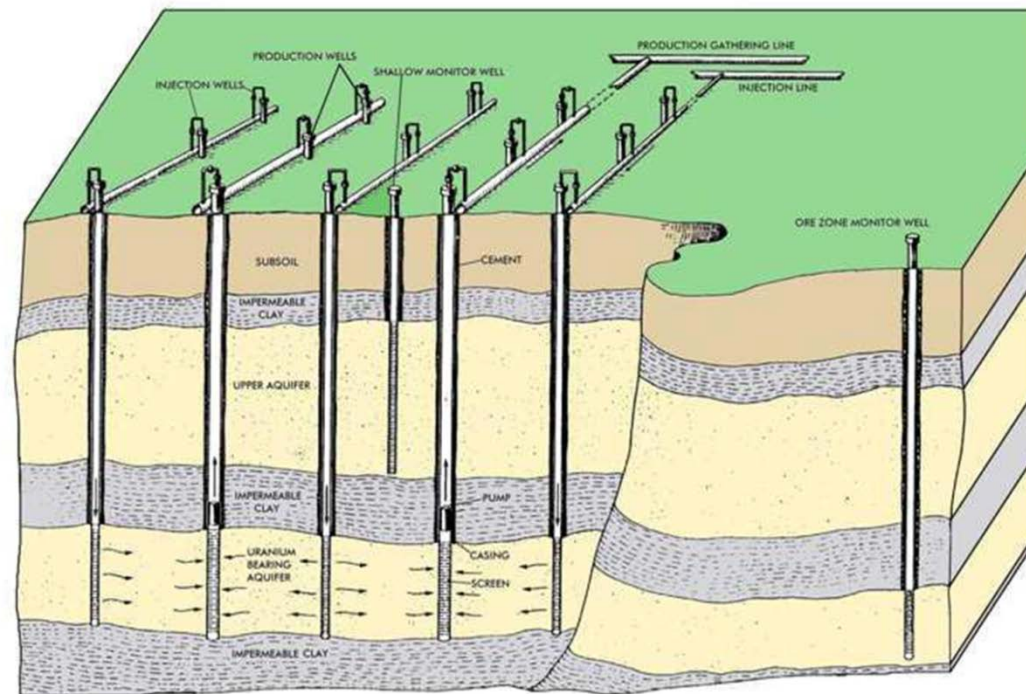




Radioactive Materials

Underground Injection Control

Class III Injection Wells: wells used for solution mining of minerals such as uranium, sulfur and sodium sulfate – TCEQ issues permits and aquifer exemptions (requires EPA approval)



Block diagram of in-situ recovery uranium mining operations



Radioactive Materials

Underground Injection Control

Class IV Injection Wells: wells that inject hazardous or radioactive fluids into or above a USDW (prohibited except where authorized for use in Superfund or RCRA cleanups) – TCEQ has inventoried



Open wellhead in front of sign

Unauthorized Class IV injection well discovered during site visit and later closed as part of a site cleanup



Radioactive Materials

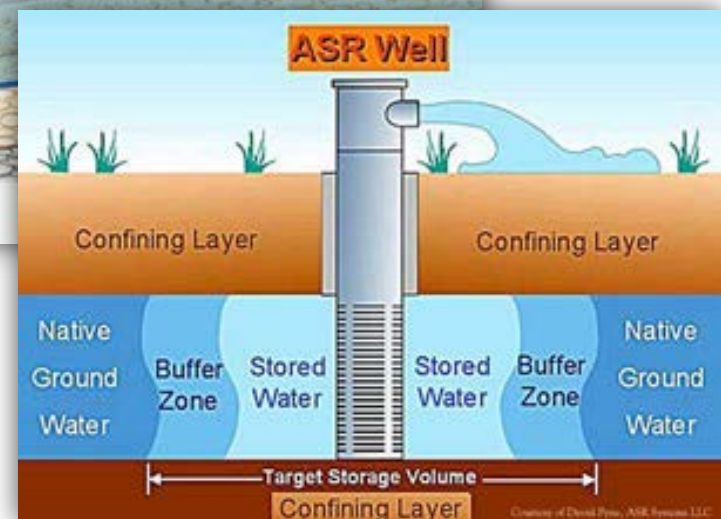
Underground Injection Control

Class V Injection Wells: Includes ~ 21 subclasses of injection wells not included in other well classes - generally inject into or above USDWs
TCEQ authorizes and/or inventories – not a permit program



EPA schematic showing some
Class V injection well types

Aquifer Storage and
Recovery Well Diagram





Current WCS License

- Radioactive Materials License R04100 Amendment 31
- Available at https://www.tceq.texas.gov/permitting/radmat/licensing/wcs_license_app.html
- (just Google “tceq 4100”)



Waste Acceptance Criteria

- Attachment C of the license (pp. 73-89).
- Loosely drafted with waste generators as intended audience.