

How Were the Uranium Deposits in South Texas Created?

During the Mid-Tertiary period, extensive volcanic activity in Northern Mexico and the Southwest United States resulted in the eruption of volcanic ash, which was deposited throughout the Gulf of Mexico region. Much of this ash was incorporated into sediments deposited in what is now south Texas. Oxidizing rainfall on ash-rich layers leached uranium and other elements from the ash into the groundwater. Alternatively, groundwater moving through these sediments over time dissolved uranium from buried ash. As this oxidized groundwater traveled through the aquifer, it eventually encountered chemically-reducing conditions that caused the uranium to precipitate from the groundwater into the aquifer material. Over time, the amount of precipitated uranium increased, creating these uranium deposits in groundwater-bearing geologic units, although some of the uranium originally mined was above the water table.

Resources and Useful Links:

- Texas Commission on Environmental Quality (TCEQ) Source Material Recovery and By-Product Material Disposal, <https://www.tceq.texas.gov/permitting/radmat/uranium/uranium.html>
- TCEQ In Situ Leach and Conventional Uranium-Recovery Methods, <https://www.tceq.texas.gov/permitting/radmat/uranium/process.html>
- TCEQ Regulations for Class III Well Production Area Development, https://www.tceq.texas.gov/permitting/radmat/uic_permits/UIC_Guidance_Classes_3.html
- U.S. Environmental Protection Agency Class III Injection Wells for Solution Mining, <https://www.epa.gov/uic/class-iii-injection-wells-solution-mining>
- Texas A&M AgriLife Extension Service (TAES) *Drinking Water Problems: Radionuclides* (B-6192), <https://twon.tamu.edu/wp-content/uploads/sites/3/2021/06/drinking-water-problems-radionuclides.pdf>
- Texas Department of Water Resources, Report 291, *Underground Injection Operations in Texas – A Classification and Assessment of Underground Injection Activities*, 1984, https://www.twdb.texas.gov/publications/reports/numbered_reports/doc/R291/report291.asp

Other Frequently Asked Questions (FAQs)

To find additional FAQs visit the Texas Groundwater Protection Committee's FAQ webpage at <https://tgpc.texas.gov/frequently-asked-questions-faqs>.