Is the Uranium Recovered from Mining Ready for Use?

Much like crude oil, the uranium oxide recovered from the mining process (referred to as "yellow cake" due to its powdery texture and bright yellow color) requires additional processing before it can be used as a fuel or in nuclear weapons. Uranium occurs as a mixture of two isotopes: uranium-235 (U235) and uranium-238 (U238). This mixture contains about 0.7 percent U235 and about 99.3 percent U238. One use of U235 is fuel for a nuclear power plant, but first it must be processed to increase the percentage of U235 to levels of about 3 – 5 percent. The process of increasing the percentage of U235, called enrichment, is done at specialized processing plants.

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 Wells, https://www.tceq.texas.gov/permitting/radmat/uic_permits/UIC_Guidance_Class_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
- U.S. Nuclear Regulatory Commission (NRC) *NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications*, http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1569/sr1569.pdf
- U.S. NRC *NUREG 6870: Consideration of Geochemical Issues in Groundwater Restoration at Uranium In-Situ Leach Mining Facilities*, https://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr6870/index.html
- 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

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.