Is the Uranium Recovered from Mining Ready to Be Used ?

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 as an explosive. Uranium occurs mainly as a mixture of two forms, or isotopes: uranium 235 (U235) and uranium 238 (U238). This mixture contains about 99.3% U238 and about 0.7% U235. It is the U235 that is used as either fuel for a nuclear power plant or other applications. Uranium must be processed to increase the percentage of U235 to levels of about 3 – 5% before it can serve as fuel for a nuclear power plant. The process of increasing the percentage of U235, called enrichment, is performed at specialized processing plants.

References:

- 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, http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=331&sch=E&rl=Y
- TCEQ Regulations for Class III Well Production Area Development, http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=331&sch=F&rl=Y
- 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, http://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr6870/cr6870.pdf
- Texas A&M AgriLife Extension Service (TAES) *Drinking Water Problems: Radionuclides* (B-6192), http://www.agrilifebookstore.org/default.asp

For additional Frequently Asked Questions (FAQs) related to groundwater quantity, groundwater quality, septic systems, water wells, administrative entities, and publications, visit the Texas Groundwater Protection Committee's FAQ webpage at http://tgpc.state.tx.us/frequently-asked-questions-faqs/.