

- This guide is a summary of the Texas Codes governing exemptions as they apply to waste disposal at USET.
- Data received from the generator concerning the exempt status of a waste stream will be reviewed by US Ecology and compiled into a submission to Texas Commission on Environmental Quality (TCEQ). No exempt radioactive waste will be accepted at this facility without prior concurrence of exempt status (per USET WAP section 3.6)
- Materials requiring stabilization must meet exempt concentrations before processing per 30 TAC 336.229

**Table 1. Radium and Other NORM in Soil or Other Media<sup>1</sup>**

25 TAC	Isotope and Material	Isotope, Activity, or Concentration
289.259(d)(1)(B)(i)	Radium-226 or 228 with progeny in soil or other media <sup>1</sup>	≤ 30 pCi/g of parent nuclide
289.259(d)(1)(B)(iii)	Any other NORM in soil or other media <sup>1</sup>	≤ 150 pCi/g of parent nuclide
289.259(d)(3) <sup>2</sup>	Pipe and other down hole or surface equipment used in oil production contaminated with NORM scale or residue <b>not otherwise exempted</b> is exempt if the maximum radiation exposure level does not exceed:	≤50μR/hr including background radiation at any accessible point
289.259(d)(4)	Products and materials containing NORM distributed in accordance with a specific license	Refer to 25 TAC 289.259(k)(4)
289.259(d)(5)(A) <sup>3</sup>	Potassium and potassium compounds	may not be enriched in K-40 (818 pCi/g)
289.259(d)(5)(B) <sup>3</sup>	Byproducts from fossil fuel combustion (bottom ash, fly ash, flue-gas emission control byproducts)	N/A
289.259(d)(5)(C) <sup>3</sup>	Material used for building construction, industrial processing, sandblasting, metal casings, or other NORM	Radionuclides may not be concentrated to levels higher than found in natural state

1. The definition of “other media” includes sludge per 25 TAC 289.259(c)(5); contaminated water and other liquids are not exempt. A mixture of sludge and water may be acceptable if the radioactive component occurs only in the sludge.
2. If material exhibits an exposure rate reading less than 50μR/hr it is exempt. Further sampling and analysis is not needed to verify exemption. **Note: this only applies to material from the Oil production industry.**
3. Equipment and containers used to produce, contain, or transport these products are also exempt.

**Table 2. Exempt source material per 25 TAC 289.251(d)<sup>1</sup>**

Source Material	Maximum Concentration of Source Material	Equivalent Specific Activity
U-Nat in equilibrium with progeny	Less than 0.05% by weight	≤ 167 pCi/g U-238
Depleted Uranium	Less than 0.05% by weight	≤ 169 pCi/g U-238
Th-Nat in equilibrium with progeny	Less than 0.05% by weight	≤ 55 pCi/g Th-232
Mixture of Thorium and Uranium	Sum of ratios ≤ 1 <sup>2</sup>	
Ore Containing Source Material	Ore must be unrefined and unprocessed	

1. Exempts “source material in any chemical mixture, compound, solution, or alloy in which the source material is less than 0.05% by weight of the mixture, compound, solution or alloy.”
2. Unity Equation:  $\frac{\text{Conc. of U in sample}}{\text{Allowable conc. of U}} + \frac{\text{Conc. of Th in sample}}{\text{Allowable conc. of Th}} \leq 1$

**Table 3. Exempted Products, Devices, and Items**

25 TAC	Product, Device, or Item	Isotope, Activity, or Concentration
289.251(d)(3)(A)(i-iii)	Incandescent gas mantles, vacuum tubes, welding rods	Any quantity Thorium
289.251(d)(3)(A)(iv)	Electric lamps for illumination	≤ 50 mg Thorium ea.
289.251(d)(3)(A)(v)	Germicidal lamps, sunlamps, outdoor lamps, and industrial lamps	≤ 2 grams Thorium ea.
289.251(d)(3)(A)(vi)	Rare earth metals and compounds, mixtures, and products	≤ 0.25% by weight Thorium and/or Uranium
289.251(d)(3)(A)(vii)	Personnel neutron dosimeters	≤ 50 mg Thorium ea.
289.251(d)(3)(B)(i)	Source material in glazed ceramic tableware manufactured before August 27, 2013	≤ 20% by weight in glaze
289.251(d)(3)(B)(ii)	Source material in glassware not including glass brick, pane glass, ceramic tile, or other glass or ceramic used in construction manufactured before August 27, 2013	≤ 10% by weight
289.251(d)(3)(B)(ii)	Source material in glassware not including glass brick, pane glass, ceramic tile, or other glass or ceramic used in construction manufactured after August 27, 2013	≤ 2% by weight
289.251(d)(3)(B)(iii)	Source material in glass enamel or glass enamel frit imported prior to July 25, 1983	≤ 10% by weight
289.251(d)(3)(B)(iv)	Piezoelectric ceramic	≤ 2% by weight
289.251(d)(3)(C)	Photographic film, negatives, and prints	Uranium or Thorium
289.251(d)(3)(D)	Finished product or part fabricated of, or containing, metal-thorium alloys. Cannot treat or process chemically, metallurgically, or physically	≤ 4% by weight Thorium
289.251(d)(3)(E)	Depleted uranium contained in counterweights installed in aircraft, rockets, projectiles, and missiles or stored or handled in connection with installation or removal of such.	Refer to specific rule
289.251(d)(3)(F)	Natural or depleted uranium used as shielding in shipping containers	Refer to specific rule
289.251(d)(3)(G)	Thorium or uranium contained in finished optical lenses and mirrors manufactured before August 27, 2013	≤ 30% by weight Thorium
289.251(d)(3)(G)	Thorium or uranium contained in finished optical lenses and mirrors manufactured after August 27, 2013	≤ 10% by weight Thorium or Uranium
289.251(d)(3)(H)	Uranium in detector heads for use in fire detection units	≤ 0.005μCi Uranium ea.
289.251(d)(3)(I)	Thorium contained in any finished aircraft engine part. Must be dispersed in nickel-thoria alloy in the form of finely divided thoria (thorium dioxide)	≤ 4% by weight Thorium

25 TAC	Product, Device, or Item	Isotope, Activity, or Concentration
289.251(e)(3)(A)(i)	Time pieces, static eliminators, ion generating tubes, balances, marine compasses, electron tubes, internal calibration sources for radiation measurement devices, and spark gap irradiators	Refer to specific rule
289.251(e)(3)(A)(i)(IV)	Devices authorized before October 23, 2012, for use under a general license	Refer to specific rule
289.251(e)(3)(A)(i)(IX)	Ionization chamber smoke detectors	≤ 1μCi Am-241 ea. or per manufacturing license
289.251(e)(3)(B)	Self-luminous products containing H-3, Kr-85, or Pm-147	Per manufacturing license
289.251(e)(3)(C)	Gas and aerosol detectors for protection of life and property from fires and airborne hazards	Per manufacturing license
289.251(e)(3)(D)	Certain industrial devices	Refer to specific rule
289.251(e)(4)	Capsules containing C-14 urea for <i>in vivo</i> diagnostic use	≤ 1μCi per capsule
289.251(I)(1)	Exempt Concentrations	Refer to specific Table
289.251(I)(2)	Exempt Quantities	Refer to specific Table
289.202(fff)(1)(A)	Medium used for liquid scintillation counting, or <i>in vitro</i> clinical or laboratory testing	≤ 0.05μCi/g H-3, C-14, or I-125
Other materials, products or devices exempted from NRC regulation by rule, order, license, license condition or letter of interpretation may only be accepted based on Department review and approval of a specific proposal.		

**“300 Day Half-life rule”: 25 TAC 289.202(fff)(4)**

Allows a licensee to dispose of licensed material not exceeding the concentration and total curie limits given in 25 TAC 289.202(ggg)(7). If the licensed material also contains hazardous waste, it must be disposed of at a facility authorized to manage hazardous waste. The generator must be licensed in Texas and the licensee must obtain approval from DSHS.

**“Prohibition of Dilution Rule”: 30 TAC 336.229**

No person shall reduce the concentration of radioactive constituents by dilution to meet exemption levels established under the Texas Health and Safety Code, Chapter 401, §401.106, or change the waste's classification or disposal requirements. Radioactive material that has been diluted as a result of stabilization, mixing, or treatment, including, but not limited to, Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDR) treatment, or for any other reason, shall be subject to the disposal regulations it would have been subject to prior to dilution.

**Surface Contaminated Objects**

Objects that are only contaminated on their surfaces, i.e., dpm/100 cm<sup>2</sup>, may be converted to a volumetric concentrations, i.e., pCi/g, by calculating the total amount of surface contamination (in either total dpm or total pCi) and dividing that value by the net weight of the materials under consideration.