

Community Concern: What is mine waste?

- The waste **IS**:
 - Mine Waste Rock – Very Low Level Waste
 - Broken rocks and sand that contain natural radioactive and non-radioactive metals at levels higher than background in surface soils.
 - Waste left by the miners that had too little uranium to be transported to mills.
- The waste **IS NOT**:
 - Uranium Mill Tailings, which are processed ore that has been altered from its natural state by crushing and acidifying
 - Reactive or explosive or acutely toxic
 - Hazardous waste
- Mine waste from Quivira and Section 32/33 mines is *not regulated* by the NRC because of the low radiation levels, unlike uranium mill tailings (see graphic, next slide)



Radiation Intensities of Various Nuclear Wastes Compared with Background

Increasing doses of gamma radiation* →

(A) Normal soils: naturally occurring radiation

(B) Mine wastes: elevated radiation, heavy metals; dry dirt, rocks

(C) Uranium ore: elevated radiation, heavy metals

(D) Uranium mill tailings: high chemical toxicity, high radiation

(E) Transuranic wastes: high radiation, remote-hand

(F) Spent fuel: deadly, remote handled



A
"Background," or natural conditions



B
Mine waste (Quivira CR1 Mine)



C
Uranium ore hauling on AZ Strip



D
Uranium mill tailings (UNC, Churchrock)



E
Transuranic wastes (WIPP)



F
Spent nuclear fuel (Palo Verde NGS)

*We have compiled and calculated numerical dose rates for each category of wastes, and those data are being undergoing peer review.