UNITED STATES DEPARTMENT OF ENERGY

DOE's New Interpretation of
High Level Waste

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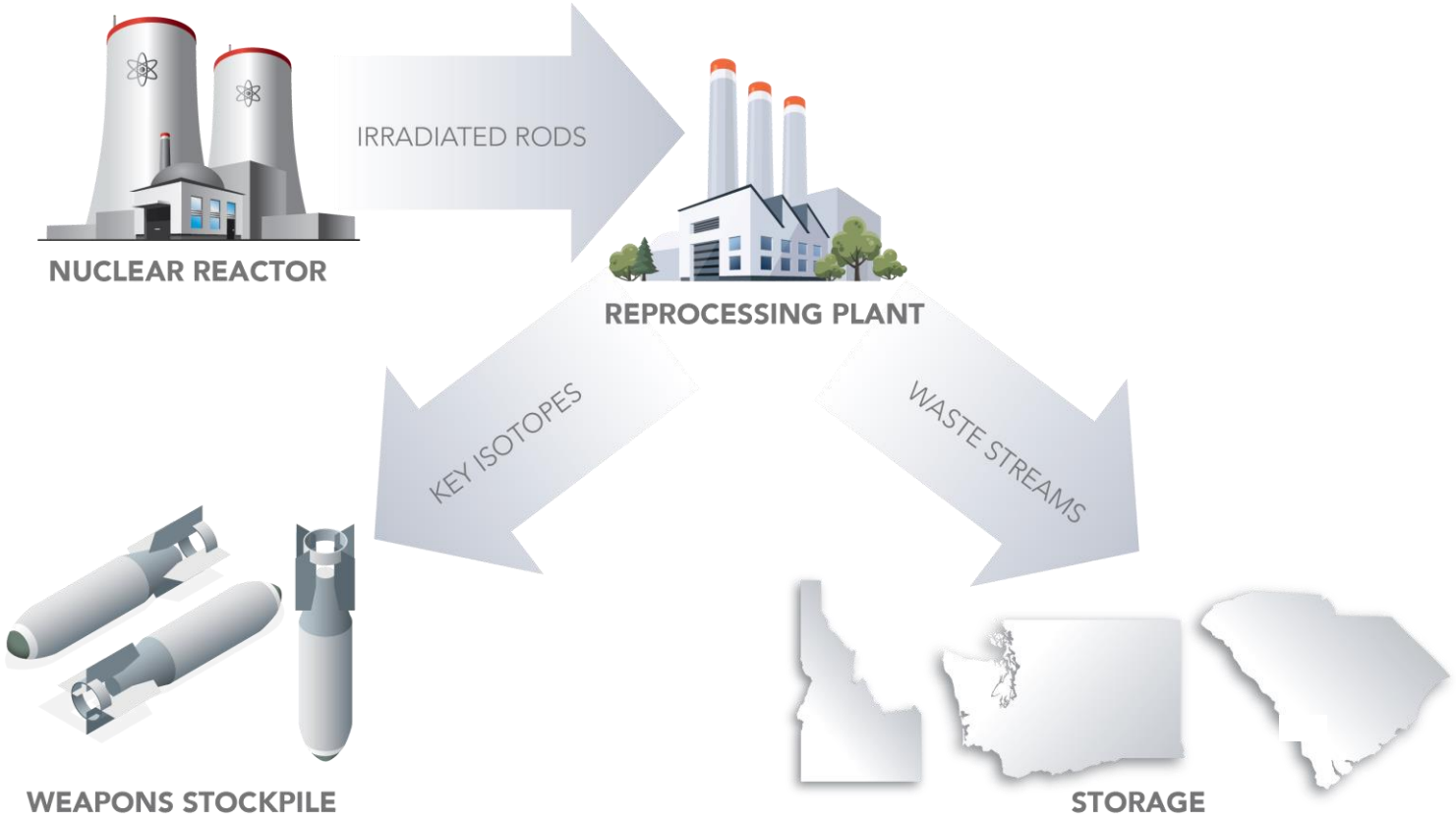
Where did this waste come from?

For national defense during the Cold War, the U.S. reprocessed used nuclear fuel rods to isolate key radioactive isotopes for our strategic weapons stockpile.

That reprocessing created varied radioactive waste streams like sludge, slurry, liquid, and debris that remain stored at DOE sites in South Carolina, Idaho, and Washington.



How did we get here?

In 1982, Congress passed the Nuclear Waste Policy Act (NWPA), which codified the definition of High Level Waste (HLW) as…

"(A) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, …

… including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and

(B) other highly radioactive material that the [NRC], consistent with existing law, determines by rule requires permanent isolation."

Historically, DOE has managed nearly ***all reprocessing waste streams*** as HLW regardless of radioactivity level.

*This **one-size-fits-all approach by previous administrations** has led to decades of delay, cost billions of dollars and left the waste trapped in DOE facilities in three states without a permanent disposal solution*.

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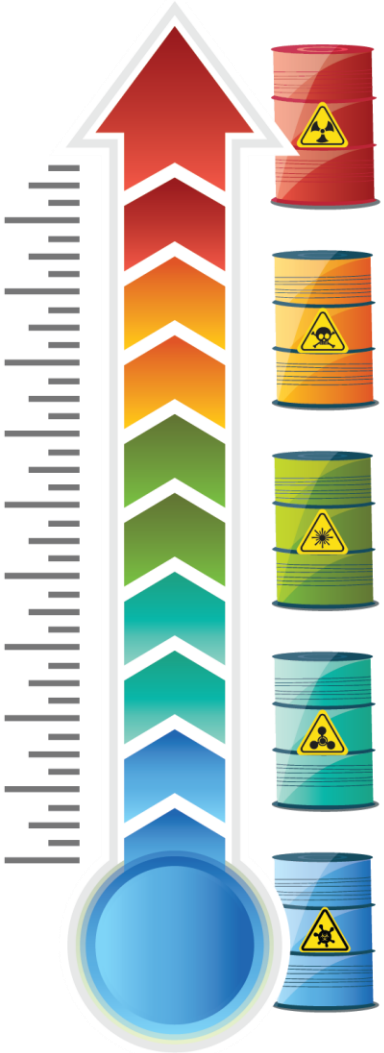
Different levels of waste

Different levels of waste require different management methods and disposal solutions:

- HLW is prepared for disposal through a complex process called vitrification, where the material is mixed with molten glass. The NWPA requires that it be isolated deep underground.
- For example, less radioactive waste – with levels similar to wastes from nuclear medicine – can be safely and routinely disposed of in NRC or State-licensed commercial facilities.
- DOE's management of nearly all reprocessing waste as HLW has prevented much of it from being transitioned from storage to permanent disposal.

This waste is currently managed as HLW and stored at DOE sites, even though the majority of it is lower-level radioactive waste and could be properly disposed of **much more efficiently without sacrificing safety**.



HLW

High Level Waste remains very dangerous for thousands of years and therefore requires isolation in a deep geologic repository.

GTCC

Greater than Class C waste is the highest level of low-level radioactive waste. GTCC LLW requires stringent disposal methods, though there may be some GTCC LLW for which near-surface disposal is safe for public health and the environment.

C

Waste containing radionuclides in the highest amount suitable for shallow landfill burial. This waste has a majority of radionuclides that take hundreds of years to decay to safe levels. This material requires extensive shielding during handling and transport.

B

Waste containing mostly radionuclides which decay to safe levels within a few decades. This material requires shielding during handling and transport and is disposed of safely in shallow landfills licensed for this waste.

A

The lowest class of radioactive material that makes up 95% of low-level radioactive waste. Class A LLW contains the least radioactivity, most of which comes from radionuclides which decay to safe levels within decades. Examples include medical wastes produced daily from hospitals, dental offices, and similar industries that use radioactive technology.

DOE's new interpretation of HLW

Under its authority, DOE is issuing its interpretation of what constitutes HLW. Going forward, reprocessing waste will be considered to be HLW *according to its characteristics, not just how it was made*. In other words:

- whether the waste was created by reprocessing;
  AND
- whether or not that waste actually contains "highly radioactive material" and "fission products in sufficient concentrations" to warrant deep underground disposal – or instead be eligible for safe disposition in an *alternate disposal facility.*

Scientific analyses in accordance with NRC-equivalent standards will reveal the radiological character and potential hazards of each particular collection of waste and designate them for appropriate disposal.

Determinations will be made on a case-by-case basis, and with appropriate National Environmental Policy Act (NEPA) analysis, which will ensure transparency and public participation before any final designation or disposal decision.

DOE will continue to manage all reprocessing waste at the three sites as HLW until and unless a specific waste stream has been shown ***not*** to be HLW through this process.

A long-overdue solution…

By appropriately managing radioactive waste according to its characteristics, DOE will finally open potential avenues for the ***safe treatment and removal*** *of waste languishing at DOE sites for decades.*

Next steps

At Savannah River Site, DOE manages certain reprocessing waste through the Defense Waste Processing Facility (DWPF).

To determine whether to apply this new interpretation to a particular waste stream, DOE is starting a NEPA-compliant analysis to determine if 10,000 gallons of DWPF wastewater needs to be treated as HLW or not.

- If this material meets NRC standards for non-HLW disposal, DOE will safely treat and dispose of it in a licensed facility outside South Carolina.
- NEPA allows state, local, and tribal officials and the public to observe and comment on DOE's environmental analyses.
- At this time, DOE is only considering these 10,000 gallons for disposition under this interpretation.
- Any future determinations would follow a NEPA-compliant process that includes engagement with all appropriate stakeholders.

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