## Acronyms and Abbreviations

DOE limited the use of acronyms and abbreviations in this Summary to provide a more reader friendly document. These acronyms and abbreviations are listed below.

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| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| DOE | U.S. Department of Energy |
| EIS | environmental impact statement |
| EPA | U.S. Environmental Protection Agency |
| ***ERPG*** | ***Emergency Response Planning Guideline*** |
| HLW | high-level waste |
| INEEL | Idaho National Engineering and Environmental Laboratory (formerly known as the Idaho National Engineering Laboratory or INEL) |
| INTEC | Idaho Nuclear Technology and Engineering Center (formerly known as the Idaho Chemical Processing Plant or ICPP) |
| LCF | latent cancer fatality |
| LLW | low-level waste |
| MTHM | metric tons of heavy metal |
| NEPA | National Environmental Policy Act |
| RCRA | Resource Conservation and Recovery Act |
| ROD | Record of Decision |
| SBW | sodium-bearing waste |
| SNF and INEL EIS | U.S. Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs EIS |
| WIPP | Waste Isolation Pilot Plant |

# What is ...

## High-level waste?

High-level waste (HLW) is the highly radioactive material resulting from reprocessing spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from the liquid waste that contains fission products in sufficient concentrations, and other highly radioactive material that is determined, consistent with existing law, to require permanent isolation. HLW stored at the Idaho Nuclear Technology and Engineering Center (INTEC) contains a combination of:

- Highly radioactive, but relatively short-lived (approximately 30 year half-life) fission products (primarily cesium-137 and strontium-90)
- Long-lived radionuclides - technetium-99, carbon-14, and iodine-129 as well as transuranics (elements with atomic numbers greater than uranium).

At ***INTEC,*** all ***the*** liquid HLW ***recoverable with the use of the existing transfer equipment*** has been converted to a granular solid called calcine, which is stored in bin sets. HLW calcine is considered mixed HLW because it contains ***hazardous waste subject to the Resource Conservation and Recovery Act (RCRA), as amended.***

## Transuranic waste?

Transuranic waste is radioactive waste that contains isotopes with 93 or greater protons (atomic number) in the nucleus of each atom (such as neptunium or plutonium), a half-life greater than 20 years, and an alpha-emitting radionuclide concentration of greater than 100 nanocuries per gram of waste.

## ***Low-level waste?***

***Low-level waste (LLW) is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e(2) of the Atomic Energy Act of 1954, amended), or naturally occurring radioactive material. The Nuclear Regulatory Commission regulations (10 CFR Part 61) provide a classification system for LLW. This classification system includes:***

- ***Class A waste - radioactive waste that is usually segregated from other wastes at disposal sites to ensure stability of the disposal site. Class A waste can be disposed of along with other wastes if the requirements for stability are met. Class A waste usually has lower concentrations of radionuclides than Class C waste.***
- ***Class C waste - radioactive waste that is suitable for near surface disposal but due to its radionuclide concentrations must meet more rigorous requirements for waste form stability. Class C waste requires protective measures at the disposal facility to protect against inadvertent intrusion.***

***These waste classifications are not applicable to DOE LLW. However, the terms Class A-type and Class C-type are used in this Environmental Impact Statement (EIS) to refer to DOE LLW streams that could be disposed of at offsite facilities licensed by the Nuclear Regulatory Commission.***

## Mixed waste?

Mixed waste is waste that contains both ***source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954, as amended, and hazardous waste subject to RCRA, as amended. When referring to a specific classification of radioactive waste that also contains hazardous waste, "mixed" is used as an adjective, followed by high-level, transuranic, or low-level, as appropriate.***

## Spent nuclear fuel?

Spent nuclear fuel is fuel that has been withdrawn from a nuclear reactor following irradiation. When it is taken out of a reactor, spent nuclear fuel contains some unused enriched uranium, radioactive fission products, and activation products. Because of its high radioactivity (including gamma-ray emitters), it must be properly shielded.

## What is
(continued)

### *Waste fractions?*

***Waste fractions are produced when radioactive waste is treated to separate radionuclides according to activity level. Depending upon the characteristics of resulting fractions, waste may be classified as high-level, transuranic, or low-level.***

### Sodium-bearing waste?

Sodium-bearing waste (SBW) is a liquid ***mixed*** **r**adioactive waste produced from the second and third cycles of spent nuclear fuel reprocessing ***and*** waste calcination, liquid wastes from INTEC closure activities stored in the Tank Farm, solids in the bottom of the tanks, ***and trace contamination from first cycle reprocessing extraction waste.*** SBW contains large quantities of sodium and potassium nitrates. Typically, SBW is processed through an evaporator to reduce the volume, then stored in the ***Tank Farm.*** It has historically been managed within the HLW program because of the existing plant configuration and some physical and chemical properties that are similar to HLW. Radionuclide concentrations for liquid SBW are generally 10 to 1,000 times less than for liquid HLW. SBW contains hazardous and radioactive ***components*** and is a mixed **waste.** ***DOE assumes that the SBW is mixed transuranic waste.*** This EIS refers to SBW as mixed transuranic waste/SBW.

### Newly generated liquid waste?

Newly generated liquid waste refers to liquid waste from a variety of sources that has been ***evaporated and*** added to the liquid ***mixed*** HLW and mixed transuranic waste/SBW in the below-grade tanks at INTEC. Sources include leachates from treating contaminated high efficiency particulate air filters, decontamination liquids from INTEC operations that are not associated with HLW management activities, and liquid wastes from other INEEL facilities. ***Newly generated liquid waste*** is used in this EIS because INTEC has historically used this term to refer to liquid waste streams ***(past and future)*** that were not part of spent fuel reprocessing.

### *Tank heel?*

***A tank heel is the amount of liquid remaining in each tank after lowering to the greatest extent possible by use of the existing transfer equipment, such as ejectors.***

### *Tank residual?*

***The tank residual is the amount of radioactive waste remaining in each tank, the removal of which is not considered to be technically and economically practical. This could be the tank heel or the amount of radioactive waste remaining after additional removal using other methods than the existing transfer equipment.***