



Nuclear Waste & Power

Fast facts

How much nuclear waste is stored in Washington state? How did it get here?

- During World War II and the Cold War, the United States produced plutonium on an industrial scale in order to fuel atomic weapons for potential attacks. Hanford in Washington state produced two-thirds of the nation's plutonium. To make an atomic bomb, uranium has to be irradiated to make small amounts of plutonium. Then, a series of toxic chemicals are used to extract the plutonium. Approximately 75 tons of plutonium was created, and all the uranium and chemicals used to create plutonium, otherwise known as nuclear waste, remained on site.
- Plutonium stopped being produced at Hanford in 1987, and nuclear waste clean-up efforts began in 1989.
- Fifty-six million gallons of chemical and radioactive waste remain in Hanford, Washington, in 177 tanks awaiting clean up. That waste is currently classified as high level. Washington state has the largest amount of high-level nuclear waste in the U.S.

What makes nuclear waste “high level” and “low level”? How are they treated?

- High-level waste is defined by what it was used to treat, rather than how radioactive it is. Federal law (33 USCS §1402j) defines high-level waste as the radiation exposed fuel from a nuclear reactor and the waste generated when that fuel is processed. Federal laws further require that high-level nuclear waste be treated to make it stable (mixing it with glass is the most effective method to date) and then disposed of in a deep geologic repository.
- Low-level waste is defined by radioactivity. It includes things such as tools that have been exposed to trace amounts of radiation. These items typically have low radioactive content and can be safely stored closer to the surface of the ground.
- The definition of high-level waste may change in 2019. The Department of Energy has proposed changing the definition of high-level waste to describe how radioactive waste is rather than how it was used. This would reclassify up to 90 percent of Hanford's waste as low level. The federal laws for high level waste would no longer apply, and Hanford's waste could be disposed of differently. Proponents of the change say it will save taxpayers billions of dollars and allow waste to be moved elsewhere. Opponents say it could result in waste being left in tanks longer, in potential leaks, and in safety hazards.

Why are we still cleaning up nuclear waste decades after most of it was produced?

- Scientists have had to develop new tools and procedures to clean up each form of nuclear waste. About a third of Washington's waste is liquid, one-third crystallized, and one-third sludge. When clean-up began, no one had ever attempted this sort of job before, so it took a lot of experimenting to find the best way to do it.
- Equipment wears out quickly due to radiation exposure.



Fast facts

Who is currently trying to clean up high-level nuclear waste?

- The Tri-Party Agreement lays out the responsibilities of the U.S. Department of Energy (DOE), Washington State Department of Ecology, and the Environmental Protection Agency (EPA) for cleaning up nuclear waste. Energy manages Hanford and hires contractors to do clean-up work. Ecology and EPA oversee activities to ensure that federal and state environmental laws are followed.
- One federal law governing waste at Hanford is the Resource Conservation and Recovery Act, or RCRA. This law gives the EPA the authority to oversee the generation, transportation, treatment, storage, and disposal of hazardous waste for the prevention of as many accidents as possible. The law also includes a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled the EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.
- Another important law is the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly known as the Superfund law. CERCLA provides federal money to clean up hazardous waste sites when a major accident or emergency occurs or when a site is uncontrolled or abandoned. CERCLA also gives the EPA the power to find those who have caused a release of radioactive materials and get their cooperation in clean-up. EPA hires a private party to take care of the hazard and can also recover costs from financially viable individuals and companies once the emergency is dealt with. The EPA is authorized to implement CERCLA in all 50 states and U.S. territories.
- The disposal of low-level waste is regulated by Nuclear Regulatory Commission.

SOURCES

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