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KEY ISSUES

Low-Level Radioactive Waste



commercial low-level radioactive waste (LLW).

Modern society uses ionizing radiation, a form of energy abundant in nature, to provide hundreds of beneficial uses, ranging from smoke detectors and industrial gauges to nuclear medicine technologies and electricity generation. Many beneficial uses of radioactive materials result in the production of

Where It Comes From

Low-level radioactive waste is a byproduct of the beneficial uses of radioactive materials, including electricity generation, medical diagnosis and treatment, biomedical and pharmaceutical research, and manufacturing. The radioactive material in low-level waste emits the same radiation that everyone receives from nature.

LLW is solid material that can be safely transported under strict regulations established by the [U.S. Department of Transportation](#) and the [U.S. Nuclear Regulatory Commission \(NRC\)](#). It usually consists of items such as gloves and other protective clothing, glass and plastic laboratory supplies, machine parts and tools, and disposable medical items that have come in contact with radioactive materials.

The LLW produced at nuclear power plants consists of water purification filters and resins, tools, protective clothing and plant hardware, such as steam generators. It does not include used nuclear fuel from nuclear power plants or any waste from U.S. defense programs.

Many government agencies are responsible for ensuring that the public and the environment are carefully protected from the radioactivity in LLW. The [NRC licenses and regulates](#) all U.S. nuclear plants, including how they handle low-level waste, and some other facilities that dispose of LLW. The four existing and planned LLW disposal facilities are licensed and regulated by one of the 36 "[agreement states](#)" that have entered into agreements with the NRC to regulate "byproducts, sources and small quantities of special nuclear material within that state."

The NRC places low-level waste in one of three categories based on the concentration, half-life and types of radionuclides it contains, and has set requirements for packing and disposal of each class of waste. Class A accounts for 95 percent of all low-level waste and represents the lowest hazard, with its radioactivity fading to background levels within 100 years. Classes B and C represent greater potential hazards, with its radionuclides fading to background levels in less than 500 years. The NRC and the states govern the siting, operation and closure of all LLW disposal facilities.

For more information, see NEI's fact sheet, "[Disposal of Commercial](#)

Helpful Links

[Blue Ribbon Commission on America's Nuclear Future](#)
[Private Fuel Storage LLC](#)
[U.S. Nuclear Waste Technical Review Board](#)
[National Association of Regulatory Utility Commissioners \(NARUC\)](#)
[NRC Spent Fuel Storage in Pools and Dry Casks FAQ](#)
[and Key Points](#)
[NRC Fact Sheet on Storage of Spent Nuclear Fuel](#)

[+ MORE](#)

DID YOU KNOW?

Low-level radioactive waste includes protective clothing, glass and plastic lab supplies, and machine parts and tools.

Licensed Disposal Facilities

Under federal law, every state is ultimately responsible for providing disposal for the waste generated within its borders—either by in-state disposal, by joining with other states to form a compact, or by contracting with a state or compact that has a disposal facility. The NRC has established technical requirements for low-level waste disposal sites. Regardless of design, all low-level waste disposal sites use a series of natural and engineered barriers to prevent radioactivity from reaching the biosphere.

Four disposal facilities currently accept low-level radioactive waste:

Barnwell, S.C. [EnergySolutions Barnwell](#) is licensed by South Carolina to receive wastes in Classes A, B and C. The facility accepts waste from Connecticut, New Jersey and South Carolina.

Richland, Wash. [US Ecology Washington Low-Level Radioactive Waste](#) facility is licensed by the state of Washington to receive wastes in Classes A, B and C. It accepts waste from states that belong to the Northwest Compact (Washington, Alaska, Hawaii, Idaho, Montana, Oregon and Wyoming) and the Rocky Mountain Compact (Colorado, Nevada and New Mexico).

Clive, Utah [EnergySolutions Clive Operations](#) facility is licensed by the state of Utah to accept Class A waste only. The facility accepts waste from all regions of the United States.

Andrews County, Texas In September 2009, the Texas Commission on Environmental Quality issued a license to Waste Control Specialists LLC to build and operate the [Texas Compact Disposal Facility](#) in Andrews County. The facility began operations April 27, 2012, and accepts Classes A, B and C low-level radioactive waste from Texas, Vermont and the federal government.