

United States Commercial “Low-Level” Radioactive Waste Disposal Sites Fact Sheet

For as long as the United States has used nuclear power to produce electricity, it has also encountered a most critical question: **Where do we put the leftover nuclear waste?** So-called “low-level” radioactive waste is any radioactive waste that is not considered “high-level;” that is, anything that is not irradiated reactor fuel or waste from reprocessing the irradiated fuel.

In 1980, the Low-Level Radioactive Waste Policy Act was passed by Congress, placing the responsibility for so-called “low-level” radioactive waste disposal in the hands of the states. Through this act, states could form disposal compacts, within which they could create a single disposal site for use by multiple states.

Actually implementing disposal sites, however, has been extremely difficult due to the fact that all classes of so-called “low-level” radioactive waste can have very long-lasting components (some literally millions of years hazardous) while the federal regulations only require 100 years of institutional control (see 10 CFR 61.59).

Only 7 commercial “low-level” radioactive waste disposal facilities have operated in the U.S., 3 of which are still open today. As of March 2009, two new sites have been licensed, but one was cancelled (in Ward Valley, California) and one (in Andrews County, TX) has been licensed with dozens of “conditions” and other challenges as yet unmet. The following is a summary of the radioactive waste sites in the U.S.

Richland, WA

Dates of Operation: 1965-present

- Owned by U.S. Ecology
- Covers 100 acres of land in the middle of the Department of Energy’s Hanford nuclear site, about 23 miles northwest of Richland, Washington
- Licensed to receive Class A, B, and C “low-level” radioactive waste, as well as naturally occurring and accelerator-produced radioactive materials, or NARM
- Waste accepted here from the Northwest Interstate (WA, OR, ID, MT, UT, WY, HI, AK) and Rocky Mountain Compacts (CO, NM and NV)
- Has encountered “waste packaging violations and transportation safety issues” (in 1979) and importation of Spanish wastes (in 2000)
- Poses unique problems due to close proximity to Columbia River. Cleanup operations are currently

underway for the surrounding DOE Hanford site in response to concerns that the Hanford tanks are leaking into the Columbia River

Barnwell, SC

Dates of Operation: 1971-present

- Operated by Chem-Nuclear Systems, a subsidiary of EnergySolutions
- Only other operating disposal site that accepts all classes of “low-level” radioactive waste (A, B, and C)
- As of July 1, 2008, only accepts waste from the Atlantic Compact (SC, NJ and CT). This leaves 36 states without anywhere to store Class B and C waste.
- 2004 tests showed exceedingly high levels of tritium in monitoring wells beneath the site. As of 2008, the highest tritium concentration in a well is 18,303,000 pCi/L—well over the EPA drinking water standard of less than 20,000 pCi/L.

Beatty, NV

Dates of Operation: 1962-1992

- Owned by U.S. Ecology
- Located 105 miles northwest of Las Vegas
- United States Geological Survey (USGS) found well-above-background levels of tritium at depths of up to 357 feet below ground and carbon-14 at depths of up to 112 feet below ground in a 1994 study. In 1998, the USGS indicated that a 1997 test found even higher concentrations of these radionuclides in the same area.
- It has been confirmed that employees took contaminated tools and materials off-site
- In 1979, Beatty temporarily shut down for waste packaging and transportation issues, and USGS found radioactive waste containers buried outside of the boundaries of the site
- Closed permanently in 1992

West Valley, NY

Dates of Operation: 1963-1975

- Located 30 miles south of Buffalo, NY, in an eroding bedrock valley
- Home to the only commercial reprocessing of irradiated nuclear fuel in the U.S.
- December 2008 until June 8, 2009, public comment is open on the revised Draft Environmental Impact Statement on the final condition of the site
- Department of Energy “preferred alternative” is to

excavate 1% of the radioactivity now and decide how to proceed with the rest over the next 30 years

- Local, state, and national groups are calling for the full excavation alternative in order to protect the Great Lakes, most notably Lakes Erie and Ontario
- If only 1% of the radioactivity leaked into the Great Lakes 500 years from now, it would cost 3 times more—up to \$27 billion—to remediate the situation than if the waste was fully excavated over the course of the next 73 years.

Maxey Flats, KY

Dates of Operation: 1963-1977

- Operated by NECO (Nuclear Engineering Company, now US Ecology) until its closure in 1977, when the state of Kentucky took back the site
- Has a hazard ranking of 31.7 out of 100, adding the site to the National Priorities List as a Superfund site in 1986 (it takes a hazard ranking of at least 28.5 to make the National Priorities List)
- Tritium, cobalt-60, strontium-90, and plutonium-239 have been found in both onsite and in unrestricted areas
- Prediction that plutonium would only migrate one-half inch in 24,000 years was shown to be severely wrong when—after only 10 years—plutonium was found 2 miles offsite
- Site continues to undergo remediation activities today

Sheffield, IL

Dates of Operation: 1967-1978

- Operated by NECO
- Located near Trout Lake, where higher-than-natural doses of tritium were found in 1982; tritium was determined to be moving at a rate of 5 feet per day, 600 times predicted velocities
- Closed when NRC rejected a license for more trenches, and in 1979 the company abandoned the site. Through an injunction, Illinois forced NECO to return that year and start cleaning the leaking radioactivity.
- As of 1998, Illinois is now fully liable for the site, which continues to require maintenance, monitoring and control

Clive, UT

Dates of Operation: 1991-present

- Operated by EnergySolutions
- Only accepts Class A radioactive waste (the least concentrated but still long-lasting nuclear waste)
- Also accepts NARM, byproduct materials, and mixed radioactive and hazardous waste
- EnergySolutions applied to NRC to allow the importation of 20,000 tons of “low” and intermediate-

level radioactive waste from Italy in 2008. The State of Utah and the Northwest Compact oppose the import.

- As of the end of the 2009 Utah legislative session, no bill was passed allowing waste importation. EnergySolutions has challenged the State’s and Compact’s authority to refuse foreign waste, and NRC placed the application on hold until legal action is resolved.

Proposed Sites:

- In the 1990s, a disposal site in **Ward Valley, California**, was stopped from opening, due to its location near the Colorado River, various aquifers, the endangered desert tortoise, and multiple Native American nations.
- In **Andrews County, TX**, Waste Control Specialists, LLC (WCS) has received a license for “byproduct” material and a conditional (over 90 conditions) license for “low-level” radioactive waste despite concerns that the applications fail to show how the aquifers beneath and near the site will be protected. WCS is gearing up to start burying 60 million cubic feet of radioactive waste potentially starting summer of 2009, if all goes as planned. This site also affects residents in New Mexico, as the proposed site is on the TX-NM border. Despite the fact that the Texas Compact only includes Texas and Vermont, a loophole could allow the Andrews dump to accept waste from all states.

The future of “low-level” radioactive waste disposal

With few options for radioactive waste disposal—and currently, for most states, no options at all for Classes B, C and GTCC—nuclear waste generators’ search for new places and ways to get rid of nuclear waste and the accompanying liability is on.

Ideally, however, we should **stop making more waste**. With no place to put radioactive waste—plus the potential for dangerous health effects at every step of the nuclear fuel chain—it makes sense to cease the use of this energy source and look to better, cheaper, and safer alternatives like wind and solar power. We as citizens need to be vigilant and push for these alternatives—instead of nuclear power—in order to protect our communities and natural resources into the future.

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Please see the “Low-Level” Radioactive Waste Page at www.nirs.org for a full, referenced version of this fact sheet