



# BACKGROUND

Office of Public Affairs

301.415.8200



[www.nrc.gov](http://www.nrc.gov) ■ [opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

## Disposals of Very Low-Level Waste Under 10 CFR 20.2002

Radioactive (or nuclear) waste is produced as a byproduct of using radioactive materials in nuclear reactors, fuel processing plants, hospitals and research facilities. Radioactive waste is also generated while decommissioning and dismantling nuclear reactors and other nuclear facilities. These wastes must be safely managed and disposed of to protect people and the environment from the effects of ionizing radiation.

Radioactive waste is basically divided into “high-level waste” – mostly spent fuel from reactors – and “low-level waste.” Low-level waste can range in radioactivity from just above background levels found in nature to much higher levels. The Nuclear Regulatory Commission’s regulations (10 CFR Part 61) establish criteria for licensing low-level waste disposal sites. The regulations establish four classes of waste: A, B, C and greater than Class C, each with increasing hazards. The regulations specify controls needed to effectively isolate each class of waste from the environment.

However, some wastes with very low levels of radioactivity pose minimal risk to people or the environment. These wastes don’t require the controls spelled out in Part 61. The regulations (10 CFR 20.2002) offer a way for the NRC to approve alternative disposal methods for these wastes.

### Very Low-Level Waste

Very low-level waste (VLLW) does not have a statutory or regulatory definition. (It was previously called “low-activity waste” in some NRC guidance.) Generally, VLLW refers to wastes that contain some residual radioactivity, including naturally occurring radionuclides. It falls well below the Class A LLW limits found in Part 61. Therefore, VLLW can be safely disposed of in municipal, county or commercial landfills. Since 2000, the NRC has approved several requests for such disposal from decommissioning nuclear power plants, involving hundreds of thousands of cubic feet of material such as concrete or dirt with very low levels of radioactivity. Such alternative disposal may reduce overall risk (for example, from increased transportation distances) and help preserve disposal capacity for higher-risk waste in low-level waste facilities.

### 10 CFR 20.2002 Process

The NRC considers requests for alternative disposal under section 20.2002 of its regulations. This requires radiation doses be kept as low as reasonably achievable (ALARA) and within the NRC’s dose limits. Most requests are for disposal in regulated landfills, but a licensee may also seek to dispose of the waste on its property, or recycle and reuse the materials.

For offsite disposal, the NRC staff considers three people who might be exposed to radiation from the waste: a transportation worker (truck driver), a worker at the disposal facility, and a long-term resident at the site. If the projected dose for each is less than “a few millirem per year” – or about 1 percent of the annual background radiation we all receive from nature each year – the NRC staff typically will approve the request. First, it will document its analyses in a safety evaluation report and an environmental assessment, and will consult with any affected state governments.

Onsite disposal requests are simpler. The exposure scenarios are different from offsite disposals and generally easier to analyze. Also, licensees must ensure that materials disposed of onsite are accounted for in the eventual decommissioning of the site.

## **Guidance for Requests for Alternative Disposal Under 10 CFR 20.2002**

The NRC staff published guidance in 2009 describing the process for reviewing and approving alternative disposal requests. This guidance has now been revised and issued as a draft for public comment in October 2017. The new guidance adds clarity and consistency to the process and addresses requests to recycle and reuse materials. A final version of the revised guidance is expected to be issued in 2018.

## **References**

[10 CFR 20.2002](#)

2009 Guidance ([ML092460058](#))

2017 Draft Guidance ([ML16326A063](#))

October 2017