

Low Level Radioactive Waste (LLW)

National Academy of Sciences

Low Level Radioactive Waste: Management and Disposition

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*All you need in radioactive and hazardous waste
management*

What is LLRW?

“The external exposure to a member of the public resulting from release of the waste shall not exceed 25 mrem/year, effective dose equivalent; atmospheric releases shall not exceed limits in the National Emission Standards for Hazardous Air Pollutants (NESHAPS); the dose to a person who inadvertently intrudes into the disposal site after loss of institutional control (100y), shall not exceed a one-time commitment of 5mSv or an annual dose of 1mSv for first 1000y after emplacement.” LLW that is regulated by the NRC and qualifies for near surface burial is separated into the three classes A, B, C.

What is LLRW?

- A: Low levels of radiation and heat, no shielding required to protect workers or public, rule of thumb states that it should decay to acceptable levels within 100 years.
- B: Has higher concentrations of radioactivity than Class A and requires greater isolation and packaging (and shielding for operations) than Class A waste. Rule of thumb states that it should decay to acceptable levels within 300 years.
- C: Requires isolation from the biosphere for 500 years. Must be buried at least 5 meters below the surface and must have an engineered barrier (container and grouting).

What it isn't:

- High-Level Waste (HLW)
- Spent Nuclear Fuel (SNF)
- Transuranic Waste (TRU)
- Uranium Mining and Mill Tailings

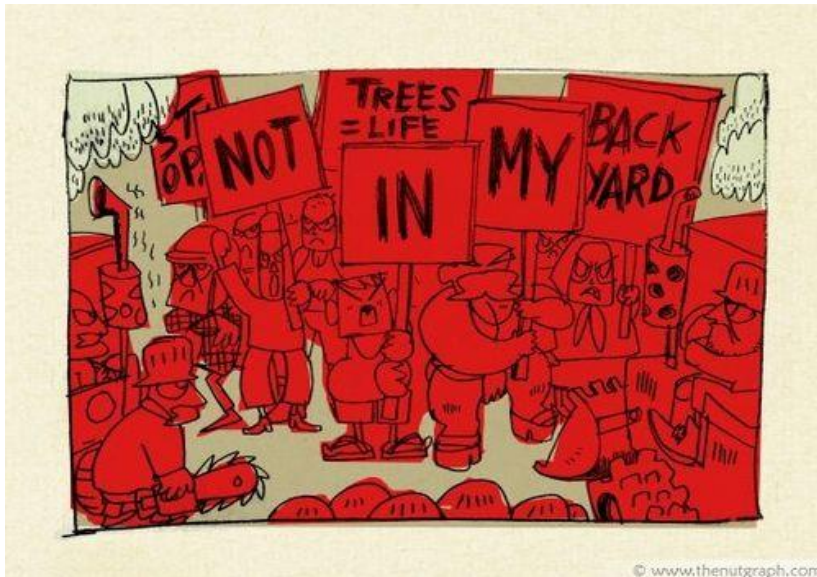
LLRW consists of:

- Paper, Rags, Plastic, Glassware, Syringes, Protective Clothing, Cardboard, Packaging Material, Organic Material, Spent Pharmaceuticals, Water-Treatment Residues, and Contaminated Ion Exchange Resins, filters, tools, clothing, and other irradiated metals from Nuclear Power Plants.



LLRW Policy Act (1980):

- Three operating facilities for storage- Beatty, NV; Barnwell, SC; and Richland, WA. In 1979, the governors of the three existing facilities testified in a subcommittee of Congress that they could not bear all the responsibility of LLRW disposal.



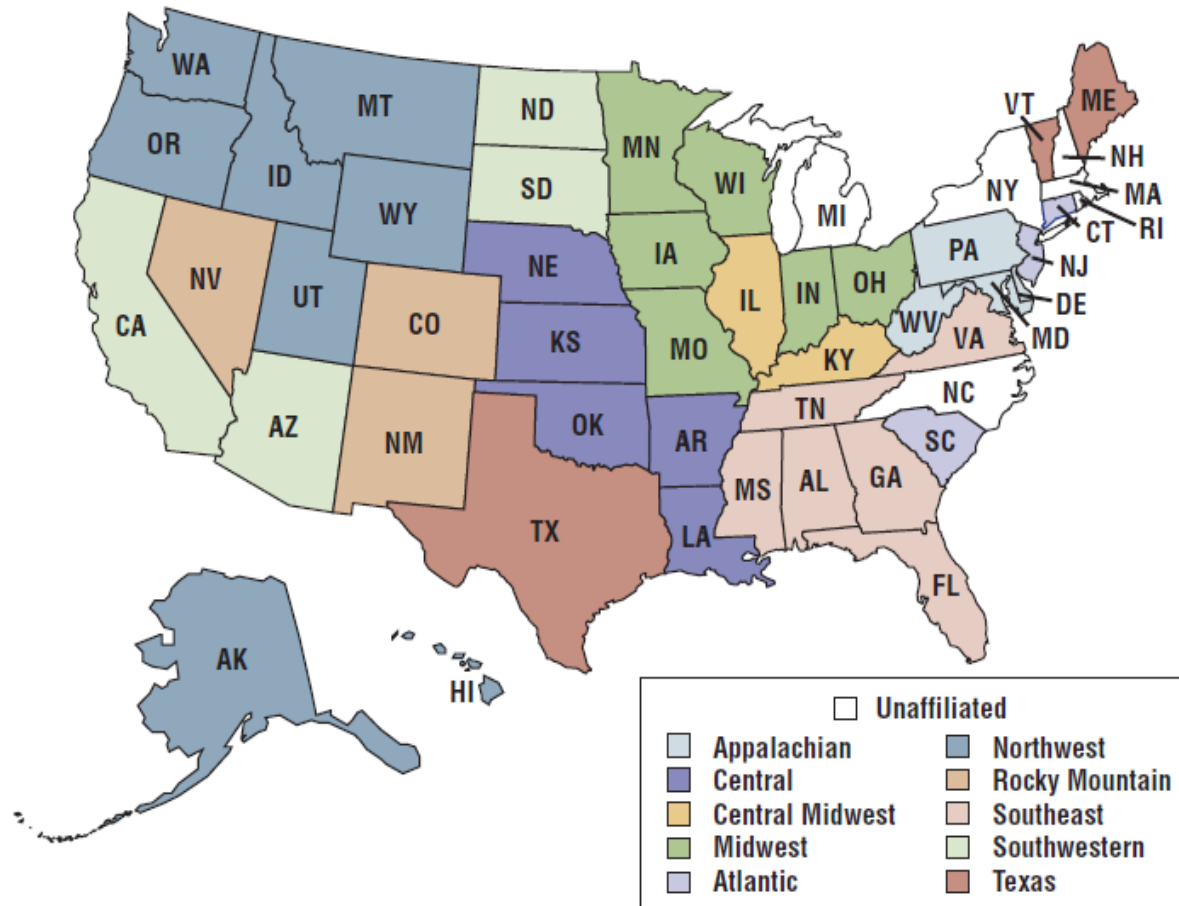
LLRW Policy Act:

- The purpose of the LLRWPA was to provide for more LLRW disposal capacity and to *distribute obligation for disposal on a state or regional basis.*
- Regional disposal is safest and most efficient.
- Developed the Compact System

LLRW Compact System:

FIGURE 1

Low-Level Radioactive Waste Compacts



Commercial LLRW Facilities:



Thank You



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