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Washington Closure Hanford

River Corridor Closure Project

Amendment to the ERDF ROD for a CERCLA ARAR Waiver to Allow Treatment of Hazardous Debris within the ERDF Landfill

February 11, 2014

U.S. Department of Energy
Richland Operations Office

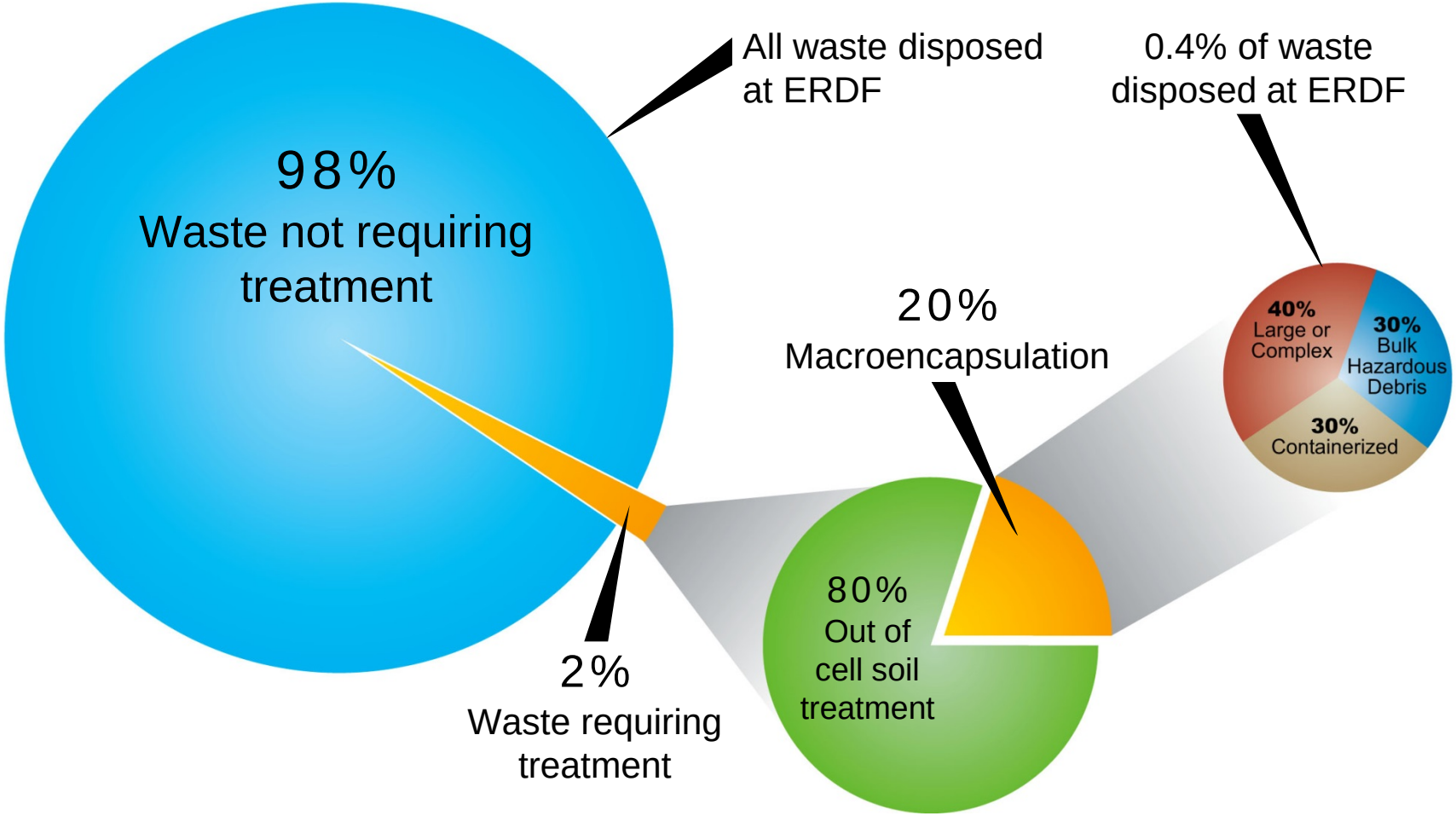
Purpose

- Amend the Environmental Restoration Disposal Facility Record of Decision (ERDF ROD) to grant a CERCLA applicable or relevant and appropriate requirements (ARARs) waiver allowing hazardous debris subject to land disposal restrictions (LDR) requirements to be treated within the ERDF landfill cells rather than in a unit outside of the cells, as would otherwise be required under 40 CFR 268 and WAC 173-303-140.

ERDF Treatment ARARs

- The 1995 ERDF ROD identifies the RCRA LDR standards as ARARs for operation of the ERDF, including 40 CFR 268, "Land Disposal Restrictions," which specifies that treatment standards must be met before these wastes can be placed (land disposed) within a landfill cell.
- The 1995 ERDF ROD also identifies the Washington State dangerous waste regulations (*Washington Administrative Code* [WAC] 173-303) as ARARs for ERDF. WAC 173-303-140 contains the state land disposal restrictions, which, similar to the federal regulations in 40 CFR 268, also prohibits land disposal of waste prior to meeting treatment standards.

Waste Requiring Macroencapsulation

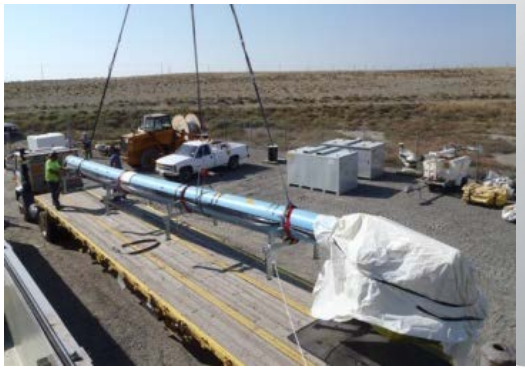


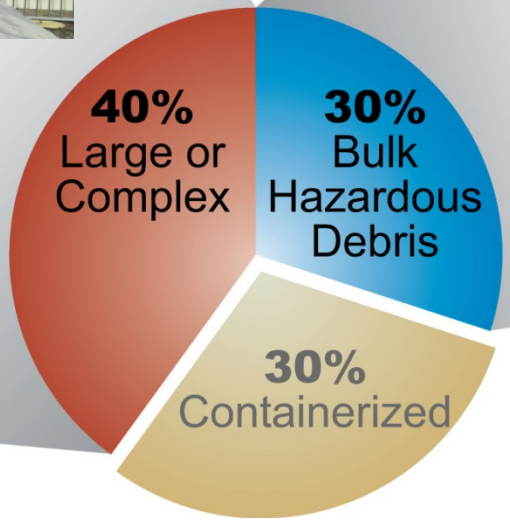
Waste Requiring Macroencapsulation

Hazardous and mixed waste characteristics

- Waste composition and waste forms are the same for in-trench and out-of-trench treatment
- Characteristic codes
- No organic vapors present
- No liquids

- *Complex items must be handled and manipulated to assure complete macroencapsulation*
- *Dangerous to coat and inspect underside of complex items*





- *The 324 Building alone will generate 3,000 cubic yards of hazardous debris. This highly contaminated facility poses extensive disposal challenges.*

In-Trench vs. Out-of-Trench Treatment

In-Trench Treatment

Offload into a staging area inside of the trench

Encapsulate with grout

In-Trench Treatment:

- Reduces risks to environment
- Reduces radiological and industrial risks to workers (ALARA)
- Proven to be safe and efficient
- Reduces disposal costs

Out-of-Trench Treatment:

- Increases risk to environment and workers
  - Significantly increases radiological exposure
  - Significantly increases industrial risks
  - Significantly increases chemical risks
- Increases treatment to disposal timeframe
- Increases disposal costs

Out-of-Trench Treatment

Offload into a staging area outside of the trench

Protect from elements

Relocate to treatment area

Spray primer

Spray first coat of foam

Spray second coat of foam

Spray third coat of foam

Spray first coat of encapsulation coating

Spray second coat of encapsulation coating

Reposition debris to complete process

Complete foaming

Complete coating

Load finished debris

Transport finished debris to trench

Offload finished debris into trench

One Team for Safe, Visible Cleanup of the River Corridor

Out-of-Trench Treatment Increases Risks to Workers

Industrial Risks

- Increased crane use
- 1 lift/load for in-trench vs. 5 lifts/load for out-of-trench
- Heavier crane lifts
- Working with suspended loads

Industrial Hygiene Risks

- Added chemical exposure pathway
- Additional respiratory protection needed
- Exposure time while spraying chemicals increased
- Weather-dependent
- Ergonomically hazardous
- Heat stress

Radiological Risks

- Longer staging time increases worker exposure
- Close proximity to contaminated waste increases worker exposure
- 20x more dose to workers
- Size reduction not an option due to radiological risk

Summary

In-Trench Treatment: Safe and Simplified Operations

- In-trench treatment uses one method (grout) for all waste forms
- Waste is never moved post-treatment – assures integrity of macro
  - Contaminant migration potential is eliminated upon completion of grouting
  - Curing process is complete in seven days
- Waste handling is at absolute minimum – *one* time
- Room to work – Disposal cell area is compliant and protects environment
  - Not confined to small operations areas
  - Workers not in proximity of waste
  - More ALARA
- Less expensive – More funds available for cleanup

Summary

In-trench treatment is more protective of people and the environment, as well as less expensive.