

External Technical Review Summary

United States Department of Energy Office of Environmental Management (DOE-EM)

External Technical Review of Environmental Management Waste Management Facility (EMWMF) at Oak Ridge, TN

Why DOE-EM Did This Review



The Environmental Management Waste Management Facility (EMWMF) is a land disposal facility for wastes generated by environmental restoration activities being conducted at the US Department of Energy's (DOE) Oak Ridge Reservation. Low-level radioactive wastes, hazardous wastes (Subtitle C of the Resource Conservation and Recovery Act), and wastes defined by the Toxic Substances Control Act are approved for disposal in the EMWMF. All of the cells are lined with a state-of-the-art double liner system. A 305-mm-thick granular layer is used for leachate collection along the base of the cells with a geocomposite drainage layer used for leachate collection on the slopes. The collected leachate is stored until transport to a separate on-site facility for treatment and disposal. *The external review objective was to identify (1) issues with the EMWMF design, operations and management that could impact its ability to meet performance objectives, (2) similarities to or lessons learned from Hanford's ERDF that would improve the EMWMF, and (3) good practices at EMWMF that would benefit other DOE sites.*

What the ETR Team Recommended

- Estimate the remaining land fill volume needed to complete remedial activities at Oak Ridge, and develop landfill expansion plans, if necessary. Pre-loading wastes, substituting thinner geosynthetic cover elements, or reducing thickness of the surface layer should be considered.

- Reduce the amount of clean soil used during disposal by accelerated phasing of landfill construction to allow lined areas for queuing debris and contaminated soils for disposal.
- Evaluate and utilize density methods that are more reliable than nuclear density testing. An increase in the required minimum waste density should be considered.
- Re-evaluate the compaction criterion, void space grouting criterion, and EMWMF waste settlement due to variations in stiffness and time-dependent compression and long-term creep settlement of the soils and debris.

What the ETR Team Found

The ETR Team found no issues of immediate concern affecting the performance of the EMWMF. There is a concern that the approved capacity of the EMWMF may not be sufficient for the remaining and non-baseline remedial actions at Oak Ridge.

- As noted in the recommendations, compaction assessment, waste settlement and impact on the cover should have a focused review to ensure long term objectives are met.
- Automated electronic control and record-keeping systems are being use for waste entering the disposal facility. Comprehensive technical guidance documents have been developed for delivery and disposal requirements. Similar systems should be considered for other DOE sites.
- Oak Ridge constructed a dedicated haul road for waste transport avoiding public road issues.
- A trust fund was established for perpetual long-term maintenance and monitoring after closure, alleviating public confidence issues.

To view the full ETR reports, please visit this web site:
<http://www.em.doe.gov/Pages/ExternalTechReviews.aspx>

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The purpose of an External Technical Review (ETR) is to reduce technical risk and uncertainty. ETRs provide pertinent information for DOE-EM to assess technical risk associated with projects and develop strategies for reducing the technical risk and to provide technical information needed to support critical project decisions. Technical risk reduction increases the probability of successful implementation of technical scope. In general, ETRs assesses technical bases, technology development, and technical risk identification and handling strategies.



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

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