



Oak Ridge Site Specific Advisory Board Recommendation 233: Recommendations on the Proposed Environmental Management Disposal Facility at the U.S. DOE Oak Ridge Reservation

Background

Much of the Manhattan Project legacy waste for which the Department of Energy (DOE) Oak Ridge Environmental Management (OREM) program is responsible falls under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (also known as the Superfund Act), which is a federal law regulating the cleanup of designated sites contaminated with hazardous waste.

The DOE Oak Ridge Reservation (ORR) is home to three large industrial sites with numerous buildings, burial grounds, soils, and other contaminated media for which OREM has responsibility. CERCLA wastes from OREM cleanup activities at these sites [the East Tennessee Technology Park (ETTP), Oak Ridge National Laboratory (ORNL), and the Y-12 National Security Complex (Y-12)] are in large part disposed in an existing OREM landfill known as the Environmental Management Waste Management Facility (EMWMF) near Y-12.



EMWMF is a dedicated disposal facility in Bear Creek Valley that receives low-level radioactive waste, hazardous waste regulated under the Resource Conservation and Recovery Act of 1976, waste regulated under the Toxic Substances Control Act of 1976, and mixed wastes generated from the cleanup programs at the ORR conducted under CERCLA. It is an engineered facility with six cells, a 2.18 million cubic yards capacity, and a 43-acre footprint, under final cover. EMWMF has been actively accepting ORR

CERCLA waste since 2002, but its capacity to accept waste will be exhausted by the year 2023.

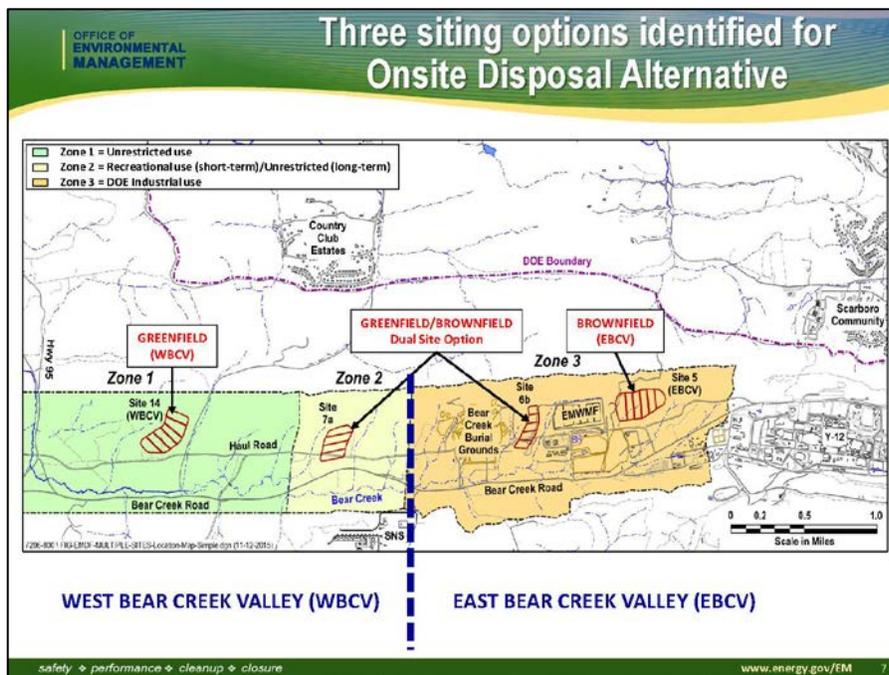
In December 2010, DOE first announced that additional CERCLA waste disposal capacity on the ORR would be necessary because of the expansion of OREM scope in the years since construction of EMWMF began. This need for additional capacity is primarily due to two factors: (1) the availability of American Recovery and Reinvestment Act funds that allowed OREM to accelerate clean-up projects within its scope at that time, and (2) expansion of the OREM program in recent years to include the removal of outdated facilities at ORNL and Y-12. DOE estimates that additional capacity for approximately 2.5 million cubic yards of waste will be needed through the year 2046.

Development of a new disposal area, named the Environmental Management Disposal Facility (EMDF), has been proposed by DOE to the Tennessee Department of Environment and Conservation (TDEC) and the Environmental Protection Agency (EPA). A “Remedial Investigation/Feasibility Study for CERCLA Waste Disposal¹” was written in 2012 to develop, screen, and evaluate alternatives for waste disposal against CERCLA criteria. It included a single site option/location for onsite disposal. The report was first submitted to TDEC and EPA for review in September 2012. The latest version, which includes five site options/locations, was submitted in March 2016 is currently undergoing review. Following finalization of the investigation/feasibility study, a Proposed Plan will be issued to TDEC, EPA, and the public for input. Following resolution of the plan, a Record of Decision will be signed by the three agencies, and design and construction activities will begin (currently estimated at 2018).

As part of an initial screening process for onsite alternatives, sixteen sites were evaluated as potential locations for an onsite disposal facility. Factors included topography and hydrology, available capacity, and intended future land use of the sites. Given these criteria, the search for onsite disposal options centered on Bear Creek Valley as the most viable location.

While considerable effort has been spent evaluating onsite options, both onsite and offsite options for CERCLA waste disposal are currently being considered by DOE, EPA, and TDEC. The following alternatives are under consideration:

- *No Action* — This alternative is a CERCLA requirement and is not expected to be selected.
- *Offsite Disposal* — This alternative would require the cross-country transport of waste to facilities in Utah and Nevada by truck and rail operations.
- *Hybrid Disposal* — This alternative would include a combination of a small onsite facility with additional offsite disposal at existing facilities.
- *Onsite Disposal* — This alternative is estimated to save \$800 million versus offsite disposal. Three options for onsite disposal are under consideration.



DOE maintains no stated preference at this time and is evaluating all options. However, since offsite federal and commercial facilities are already in place, discussions of an onsite or hybrid alternative have recently generated more activity among the three agencies owing to the fact that any of the onsite options require the selection of a new landfill location.

Discussion

ORSSAB began discussing the need for additional CERCLA waste disposal capacity on the ORR at its

December 2010 Environmental Management/Stewardship Committee meeting and has continued to follow developments and correspondence among the three agencies since that time.

In June 2011, the board issued Recommendation 200: “Recommendation on the Decision Process for Siting a Second CERCLA Waste Disposal Facility².” The recommendation suggested early involvement of state

and local governments and area citizens in the process of selecting a site for an additional waste disposal facility. It asked DOE to carefully evaluate future disposal needs and lifecycle costs and look for ways to reduce its disposal needs. It also recommended that DOE commit to additional payments to the State of Tennessee for long-term post-closure stewardship if EMDF is built.

In May 2014, ORSSAB issued Recommendation 223: “Recommendations on Additional Waste Disposal Capacity on the Oak Ridge Reservation³.” It asked DOE to continue planning for an additional onsite disposal facility that would have sufficient capacity to accept all appropriate future generated waste from DOE activities through cleanup of the ORR. It made general recommendations as to safety and siting, and it restated the board’s position on long-term post-closure stewardship.

In May 2016, DOE provided ORSSAB with an update on planning for CERCLA waste disposal capacity at its monthly board meeting and at its Environmental Management/Stewardship Committee meeting. The following recommendations were generated from discussions at those meetings.

Recommendations

ORSSAB supports onsite disposal of Oak Ridge EM CERCLA wastes that meet the onsite waste acceptance criteria. We affirm our commitment to the recommendations provided by the board to DOE in May 2014 and in addition wish to provide recommendations that have become relevant given the revisions of the remedial investigation/feasibility study and evolving discussions among DOE, TDEC, and EPA. In sum, our recommendations are as follows:

1. Continue with planning for additional on-site disposal capacity for low-level radioactive and chemically hazardous contaminated waste.
2. Continue efforts to minimize the need for additional on-site capacity by using lessons learned and operational and disposal efficiencies from operation of EMWMF. This should consider all volume reduction possibilities.
3. Consider using contaminated soils authorized for disposal at the EMDF as fill instead of clean fill, which decreases disposal capacity for contaminated materials.
4. Consider methods for expanding EMWMF capacity as a way to assure the smallest possible footprint for the new disposal facility.
5. Ensure that the proposed disposal facility will have sufficient capacity to accept all appropriate future generated waste from DOE activities through cleanup of the ORR.
6. Ensure that the proposed facility is engineered to operate safely and that migration of contaminants into adjacent groundwater, soil, and air does not exceed environmental regulatory limits.
7. Locate the facility in proximity to existing waste burial grounds, if technically feasible, such that contaminated areas are consolidated on the ORR. Sites in Zone 2 and 3 at Y-12 are acceptable as options because they fit this criteria and are favorable in terms of transporting waste. The board does not support greenfield intrusion (e.g., Zone 1).
8. Ensure that a trust fund for long-term stewardship is established for any new disposal facility similar to that for EMWMF.

¹“Remedial Investigation/Feasibility Study for CERCLA Waste Disposal,” (DOE/OR/01-2535&D3*), <http://doeic.science.energy.gov/uploads/F.0615.029.0023.pdf>, *Latest version available

²“Recommendation on the Decision Process for Siting a Second CERCLA Waste Disposal Facility,” <http://energy.gov/orem/downloads/recommendation-200-actions-regarding-second-cercla-facility>

³“Recommendations on Additional Waste Disposal Capacity on the Oak Ridge Reservation.” <http://energy.gov/orem/downloads/recommendation-223-recommendations-additional-waste-disposal-capacity>