Oak Ridge Site Specific Advisory Board Recommendation 240: 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 assets 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 of 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 (CERCLA), 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 approximately 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 the construction of EMWMF began. This need for additional capacity was initially 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projects within its scope at that time and (2) expansion of the OREM program in recent years to include the removal of outdated facilities at ORNL and Y-12.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 2.2 million cubic yards of waste will be needed to complete ORR cleanup effort as set forth in the current plan.

The following alternatives were considered when evaluating waste disposal capacity for ORR:

- *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.

Onsite options require the selection of a new landfill location. The initial screening process for onsite alternatives resulted in three sites in Bear Creek Valley being the most viable. Factors included topography and hydrology, available capacity, and intended future land use of the sites.

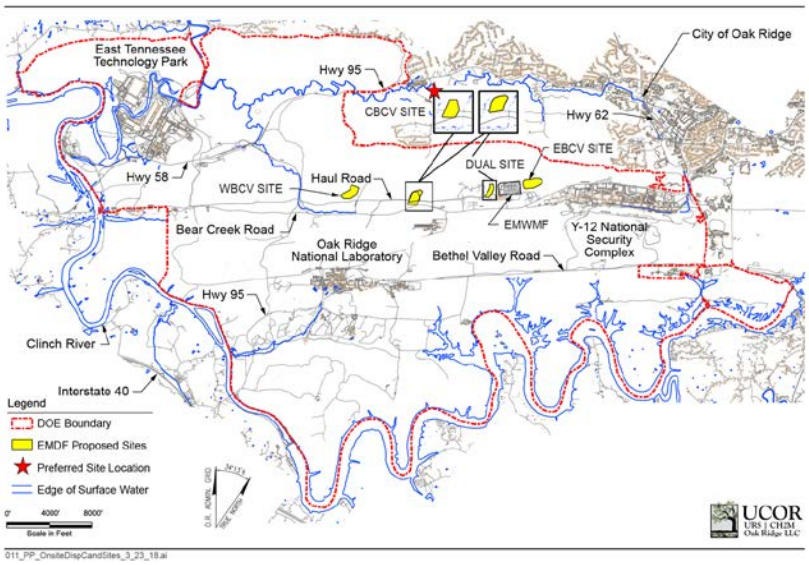

Figure 1 Proposed sites for EMDF

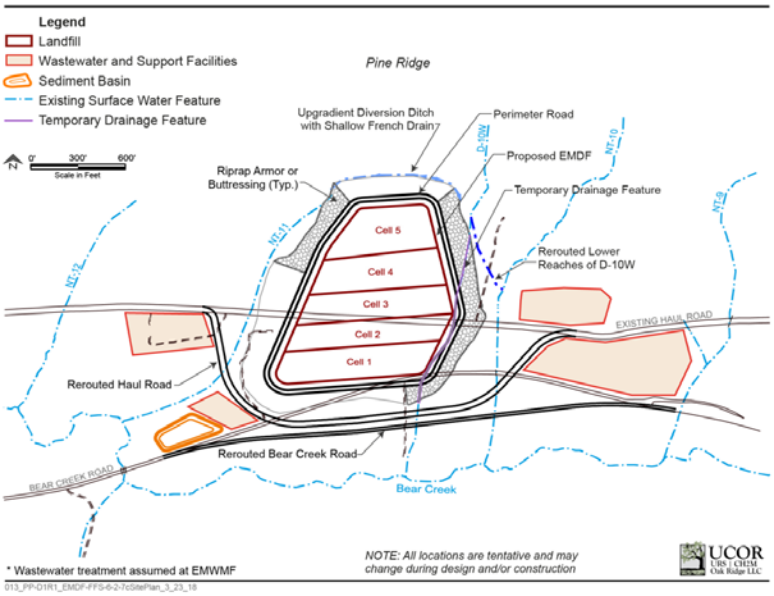

Figure 2 Concept design of the Central Bear Creek Valley Site

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). The *Remedial Investigation/Feasibility Study for CERCLA Waste Disposal*, (DOE/OR/01-2535&D5), was prepared in 2012 to develop, screen, and evaluate alternatives for waste disposal against CERCLA criteria.[1] The report was first submitted to TDEC and EPA for review in September 2012. The latest version, which includes four site options/locations, was submitted in February 2017 and EPA and TDEC submitted comments to DOE. DOE is responding to these comments and currently conducting a field study at the identified preferred site, which includes groundwater, surface water, and soil sampling.

DOE, EPA, and TDEC are working together to issue a Proposed Plan that will be available to the public for input (currently estimated for summer 2018). Additional actions will need to be taken by the agencies, including final agreements and evaluation of the related studies, before a final record of decision (ROD) can be signed.

Discussion

The Oak Ridge Site Specific Advisory Board (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 Facility.[2] 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 Reservation.[2] 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 December 2016 ORSSAB issued Recommendation 233: Recommendations on the Proposed Environmental Management Disposal Facility at the U.S. DOE Oak Ridge Reservation.[2] It asked DOE to ensure a trust fund for long term-stewardship is established for EMDF similar to that for EMWMF. DOE responded that continuation of the concept of a trust fund for EMDF similar to that for EMWMF was contingent upon the state accepting such an agreement. DOE's response also said it would be responsible for long-term stewardship of the facility, either through establishment of a trust fund with the state or independently.

- In April 2018, DOE provided ORSSAB with an update on ongoing efforts to assure waste disposal capacity for ORR 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 OREM CERCLA wastes that meet the onsite waste acceptance criteria. ORSSAB understands that in regards to stewardship the long-term stewardship agreement for EMWMF only included monitoring and maintenance and the state does not wish to participate in a similar agreement for EMDF. We 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. **Funding**: Ensure that funding is secured and prioritized to provide a reasonable period of overlap no less than two years operation of the proposed EMDF and the existing EMWMF given the fact that the EMWMF is currently at 75 percent capacity.
2. **Community Engagement**: Although communication with and to the community is part of the CERCLA process, emphasis should be placed on direct and iterative contact with the residential communities that are near the proposed EMDF site. Ideally, this should involve scheduled informational meetings with adjacent communities to ensure visibility regarding proposed plans, while allowing residents the opportunity to learn about the plans, and have their voice heard regarding their concerns. We recommend these meetings include the planning and status of the design and construction efforts and final timelines for completion of each critical phase. These informational meetings should be scheduled to take place as early as possible in the planning stages to adequately address community/public concerns and that meetings are scheduled in sufficient numbers, times and places to allow all interested parties to attend. Also, consideration should be given to publicizing dates, times and locations of the meetings to ensure the public is aware they are taking place.
3. **Expansion/Additional Capacity**: During the preparation of the Proposed Plan, the ROD and the conceptual and design phases of the EMDF, DOE should evaluate and ensure that the facility will allow for an additional capacity in case that the original capacity is not adequate.
4. **Monitoring**: Actual hydrologic conditions in the proximity of the proposed site for EMDF should be evaluated to mitigate or eliminate any deleterious effects later during construction and operation. Additionally, the evaluation process should include specific lessons learned from the current facility and results from on-going site investigation/sampling. The evaluation process should be completed before the design phase is finalized.

5. **Budget for Future Monitoring and Maintenance of the Completed Facility:** Funding should be allocated and prioritized for the post-construction phase that includes future monitoring and functioning of the facility for requirements stipulated in the ROD and other relevant documents.
    a. Seek a mechanism for either DOE or a public-private partnership that would be responsible for the lifetime of the EDMF to provide scheduled periodic maintenance to avoid deterioration of the facility once the facility is at capacity.
    b. Devise a monitoring and maintenance plan prior to closure of EMDF.

[1] *Document available at the DOE Information Center, doeic.science.energy.gov.*

[2] *Document available at energy.gov/orssab.*