

## **Successes, Progress, and Path Forward at the U.S. Department of Energy, Office of Environmental Management**

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### **Abstract**

The United States Department of Energy (DOE), Office of Environmental Management (EM) mission is to safely and efficiently address the substantial environmental liability of nuclear material resulting primarily from decades of nuclear weapons production and government-sponsored nuclear energy research that played such a pivotal role in international security. Over the past 30 years, the EM program has achieved significant and lasting progress in tackling this environmental legacy. The overall footprint has been reduced by 90 percent, from approximately 3,300 square miles to less than 300 square miles. EM is currently executing the remaining 16 of the original 107 sites around the United States.

DOE EM pursues its nuclear material cleanup objectives safely within a framework of regulatory compliance commitments and best business practices. Over the past 30 years, the EM program has demonstrated the capability to achieve significant and lasting progress, helping to fulfill the US government's commitment to its people and the world. Details of the progress and strategic vision for the future of nuclear management will be discussed in the presentation.

### **Introduction**

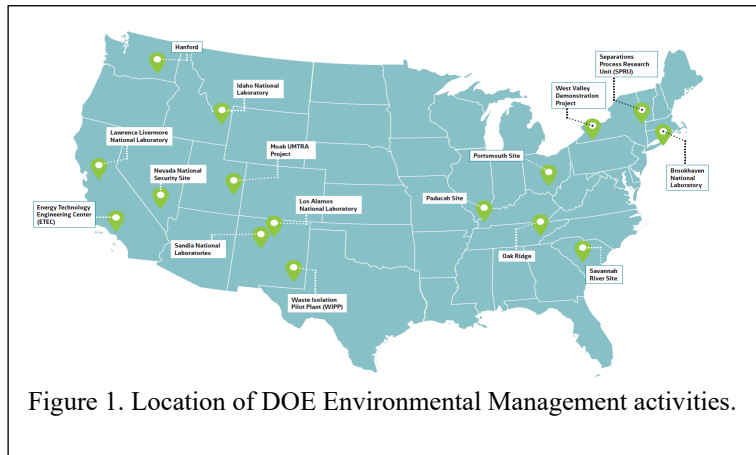
DOE EM has its roots in the Manhattan Project and the development of the first nuclear material production. EM's mission is to complete the safe cleanup of the environmental legacy brought about from decades of nuclear weapons development and government-sponsored nuclear energy research. EM's first priority is to ensure the safety and health of the public and EM's workforce while continuing to protect the environment.

The mission elements that the environmental cleanup program is based on are as follows: the disposition of tank waste, special nuclear material, spent nuclear fuel, transuranic (TRU) waste and solid waste, soil and ground water remediation, and facility deactivation and decommissioning.

### **Status and Progress**

Over the past 30 years, the EM program has achieved significant and lasting progress in tackling this environmental legacy. The overall footprint has been reduced by 90 percent, from approximately 3,300 square miles to less than 300 square miles (777 square kilometers). EM is currently executing the remaining 16 of the original 107 sites around the United States (Figure 1). EM has achieved many significant accomplishments including:

- Completing cleanup activities at major former weapons production sites such as Rocky Flats in Colorado and the Fernald and Mound sites in Ohio.
- Opening the world's only deep geological repository for TRU waste resulting from atomic energy defense activities at the Waste Isolation Pilot Plant in New Mexico.



- Completing the bulk of cleanup activities along the 220-square-mile Columbia River corridor at Hanford in Washington State.
- Completing the removal of the former uranium enrichment complex at Oak Ridge in Tennessee, including Building K-25, at one time the largest building in the world under one roof.
- Completing the Advanced Mixed Waste Treatment Project at Idaho National Laboratory, where 65,000 cubic meters of legacy TRU waste were processed for off-site disposal.
- Completing the construction of the tank waste treatment system at Savannah River Site in South Carolina, including almost 25 years of successful operations at the Defense Waste Processing Facility, as well as the construction and startup of the Salt Waste Processing Facility.
- Completing construction and initiating operation of two depleted uranium hexafluoride conversion plants at the Paducah Site in Kentucky and Portsmouth Site in Ohio.
- Completing waste vitrification activities and subsequent demolition of the Vitrification Facility at the West Valley Demonstration Project in New York — this was the first time EM has built, operated, and successfully decommissioned one of its major waste treatment facilities.
- Transferring more than 25,000 acres of land to local communities for beneficial reuse.
- Transferring 92 sites to the DOE Office of Legacy Management for long-term stewardship following successful remediation activities.

Furthermore, EM has fostered international collaboration for almost 20 years and has achieved tremendous success over the years by working collaboratively with international partners to identify solutions for EM cleanup challenges.

### **EM's Strategic Vision**

Given the scale and scope of the remaining EM mission, the development of new and innovative approaches to performing cleanup activities is critical so that EM can safely complete its work in a more efficient and more cost-effective manner.

EM is undertaking a variety of strategic initiatives to enable successes across the DOE complex in the coming decade, and for the remainder of its mission. Here are some highlights from the *EM Strategic Vision: 2021–2031*:

- Safety and Security: EM will continue to perform its activities with a strong safety culture that integrates environmental, safety, health, and quality requirements and controls in all work activities.
- Program and Project Management: EM has performed and will continue to perform several root cause analyses to better understand why some projects have experienced cost and schedule issues.
- Acquisition: EM will continue to develop and improve acquisition tools, processes, and resources to increase consistency and efficiency in competing and awarding contracts.
- Regulatory and Stakeholder Engagement: EM works actively with our regulators in negotiating compliance agreement priorities and milestones for individual sites. EM will continue meaningful discussion and ongoing engagement with its stakeholders.
- Infrastructure: EM is achieving success in infrastructure upgrades at the sites that will amplify the ability to perform environmental cleanup in the future.
- Next-Generation Workforce: EM is committed to promoting and supporting an inclusive environment that provides all employees the chance to work to their full potential. EM is also expanding our recruitment strategies and leadership development programs to foster the workforce for the future.
- Innovative Approaches: Given the scale and scope of the remaining EM mission, it is critical to develop new and innovative approaches to performing cleanup activities so that we can safely complete its work in a more efficient and more cost-effective manner.

## Conclusion

For over 30 years, EM has demonstrated the capability to achieve significant and lasting progress, fulfilling the commitment to the public, DOE workers, and the environment. EM will continue to work to identify and assess opportunities to accelerate cleanup and completion of an entire site, or opportunities to accelerate key pieces of work scope. The coming decade offers several potential opportunities for acceleration that EM will continue to assess and develop.

## References

Department of Energy, Office of Environmental Management, *EM Strategic Vision: 2021–2031*, <https://www.energy.gov/sites/default/files/2021-04/EM-Strategic-Vision-2021-2031.pdf>, Mar 23, 2021.

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