

U.S. Department of
ENERGYTM

Office of Environmental
Management

**YEAR
IN
REVIEW
2024**

December 23, 2024

www.energy.gov/em





TABLE OF CONTENTS

Office of Environmental Management	6
Hanford Field Office.....	8
Savannah River Site.....	10
Oak Ridge Office of Environmental Management.....	14
Portsmouth/Paducah Project Office.....	16
Idaho Cleanup Project	18
Waste Isolation Pilot Plant	20
EM Los Alamos Field Office	22
EMCBC Site Progress.....	24





A maintenance mechanic positions a core drill for sampling of piping for storage tanks in the C-333 Process Building at the Paducah Site.



FROM THE EM SENIOR ADVISOR



*EM Senior Advisor
Candice Trummell Robertson*

As we reach the end of 2024, we should reflect on the continued progress we have made in advancing the world's largest environmental cleanup program over the past 35 years. Since its creation, everyone who has worked in EM has focused on performing cleanup safely, efficiently and

with operational excellence for the benefit of the communities near our sites, and for our broader nation. This foundation has served us well, and underpinned all that EM was able to achieve this year.

With a focus on people and partnerships, we have realized a set of accomplishments that have helped to drive down environmental risks and, just as importantly, convert long-standing liabilities into new assets for reuse to drive U.S. security, U.S. energy and U.S. jobs. Thanks to the dedication and efforts of the entire EM workforce—federal and contractor, in the field and at headquarters, we were able to successfully complete the majority of the priorities we set for this year across the entire EM program. You can learn more about our successful priorities, and the full scope of work we performed in 2024 across EM, in this document, but I want to say it is because of the EM workforce we are reducing risks, changing landscapes, enabling new alignment with regulators and stakeholders and benefiting the communities that so many of us in EM call home.

The benefits of our work go beyond just the communities near our sites. We've put a deliberate focus on creating opportunities for broad economic growth, supporting national security priorities, and leveraging our capabilities to assist with other national priorities. In 2024, this thinking was a driving force behind such activities as transitioning landlord responsibilities for the Savannah River Site

to the National Nuclear Security Administration, progressing the Advanced Manufacturing Collaborative at Savannah River National Laboratory, and developing clean energy on U.S. Department of Energy (DOE) land. A great example is the outcome of Vision 2024 at Oak Ridge. The culmination of two decades of cleanup, the Manhattan Project and Cold War-era uranium enrichment complex is gone, contaminated soil has been removed and land has been opened to attract new nuclear missions. What was once a liability is now an asset—boosting the economy by attracting next-generation nuclear companies and new jobs to the region.

Continuing to build and strengthen the EM workforce at all levels is a priority of mine and the EM leadership team. Recognizing that thousands of new workers are needed over the next five years, EM is focused on retaining and developing the knowledgeable workforce we have and building a pipeline of future talent. At Oak Ridge, EM's first-ever agreement with a national labor organization was signed in 2024 as part of efforts to retain and recruit skilled trade workers. Throughout the year, EM partnered with the Energy Communities Alliance and the Energy Facilities Contractors Group to bring conversations about workforce needs to the communities where workers get their start.



EM Senior Advisor Candice Trummell Robertson addresses employees and answers questions at Oak Ridge Office of Environmental Management's all-hands meeting.



DOE Deputy Secretary Turk (center) and EM Senior Advisor Robertson (third from left) take a tour of the WIPP underground.

EM's 2024 accomplishments have helped to drive down environmental risks and, just as importantly, convert long-standing liabilities into new assets for reuse to drive U.S. security, U.S. energy and U.S. jobs. With a deliberate focus on our people, our partnerships and the power of innovation, we are setting the stage for a steady beat of cleanup progress today and into the future."

We are fortunate in EM that our sites are surrounded by communities, local governments, and tribal nations that are engaged, informed and leading the way in shaping their own future. EM is committed to strengthening partnerships to ensure those closest to the mission have a strong voice. These partnerships are foundational to the continued success of the EM mission. Throughout the year, EM sought out a diverse set of views from those most impacted by the cleanup mission and worked collaboratively with stakeholders and regulators to enable better informed decisions and a shared vision for the future.

Taken together, these and other 2024 accomplishments set EM on a positive path for the future—meeting commitments, solving challenges and shaping a bright future for communities that supported the nation for so long.

Candice Inummell @elston



HANFORD FIELD OFFICE

“Our team made significant strides in the Hanford cleanup mission, reaching key milestones that bring us closer to vitrifying tank waste for the first time. Throughout this year we maintained a strong focus on safety and risk reduction, ensuring the protection of our workforce, community and environment. Our 2024 accomplishments reflect the dedication and expertise of our team, and I’m proud of the progress we’ve made as we continue our mission to safeguard the Pacific Northwest for future generations.”

– Brian Vance, Manager, Hanford Field Office

ADVANCING TANK WASTE TREATMENT FOR A SAFER FUTURE

Retrieved waste from Hanford’s 21st single-shell tank. Workers are now starting retrieval activities in the next single-shell tank farm, starting with Tank A-101, where to date 325,000 gallons of waste has been transferred to a double-shell tank.

The Tank-Side Cesium Removal System continued treating tank waste, with approximately 831,000 gallons currently staged and ready for immobilization at the Waste Treatment and Immobilization Plant, supporting the goal of immobilizing tank waste in glass starting in 2025.

DEMONSTRATING ENVIRONMENTAL PROTECTION THROUGH RISK REDUCTION

Demonstrating its commitment to environmental safety, Hanford workers completed dewatering the K West Reactor Basin, removing and processing more than 1.2 million gallons of contaminated water, significantly reducing risks to the nearby Columbia River. The basin was then stabilized with grout, marking major progress in the river corridor cleanup effort. The site also made significant strides in groundwater treatment, processing more than 2 billion gallons for the 10th consecutive year, further protecting the region’s ecosystem and water sources. Since the mid-1990s more than 34 billion gallons of groundwater have been treated.



A glance inside the Central Plateau Water Treatment Facility shows construction progress.

SETTING THE STAGE FOR FUTURE SUCCESSES

The Hanford Field Office consolidated operations once performed by two separate DOE organizations, streamlining efforts across the site. With continued progress in infrastructure, workforce development and cleanup operations, 2025 promises to be another year of accomplishments as Hanford achieves successes decades in the making.

HIGHLIGHTS

- Heated second of two melters and initiated cold commissioning at the Waste Treatment and Immobilization Plant—an EM 2024 priority.
- Installed equipment and treated approximately 2,000 gallons of waste as part of the Test Bed Initiative demonstration project—an EM 2024 priority.
- Dewatered and stabilized K West Basin—an EM 2024 priority.
- Treated more than 2 billion gallons of contaminated groundwater for the 10th consecutive year—an EM 2024 priority.
- Retrieved waste from AX Tank Farm, bringing the total to 21 tanks emptied. Initiated waste retrieval from the first tank in A Tank Farm.
- Completed construction of U Tank Farm surface barrier, providing further protection to groundwater.
- Reached a breakthrough agreement with the state of Washington and EPA on the approach for Hanford's tank waste mission, and working collaboratively to finalize the plan.



To commemorate progress, Hanford workers and stakeholders signed the first container of test glass produced at the Waste Treatment and Immobilization Plant.

INFRASTRUCTURE ENHANCEMENTS SUPPORTING SAFE OPERATIONS

Critical infrastructure upgrades have been a focal point in maintaining Hanford's operational efficiency and safety. A new electrical transmission line—a joint project with the Bonneville Power Administration—is on track to be energized in May 2025. This upgrade enables a reliable power supply to the site for decades to come, enhancing safe and stable operations.

Another major improvement is the construction of a new water treatment plant. When operations begin in late 2025, the plant will supply 3.5 million gallons of potable water per day with the capacity to expand to 5 million gallons per day. This will support operations for tank waste treatment and immobilization and provide treated water to Hanford's Central Plateau.



SAVANNAH RIVER SITE (SRS)

“Over the past year, significant efforts with a steadfast focus on safety ensured a seamless EM-to-NNSA landlord transition at the Savannah River Site, a key EM priority. Despite management changes, the site’s commitment to environmental stewardship remains strong. Progress over the past year includes the successful completion of important initiatives like tank waste cleanup, nuclear materials management and nearing construction completion of the Advanced Manufacturing Collaborative in Aiken, South Carolina.”

– Mike Budney, Manager, DOE-Savannah River Operations Office



All major concrete placements have been completed on SDU 10 (far right); the latest mega-size disposal unit at SRS.

HIGHLIGHTS

- Received authorization to operate Saltstone Disposal Unit (SDU) 9—an EM 2024 priority—and completed all major concrete placements for SDU 10.
- Achieved regulatory milestones designating tanks 9 and 10 waste removal completion, readying them for the next step in the closure process.
- Completed the first direct transfer of decontaminated waste from the Salt Waste Processing Facility to the Saltstone Production Facility.
- Processed more than 10 million gallons of liquid radioactive waste through the Salt Waste Processing Facility since operations began in October 2020.
- The Savannah River National Laboratory completed the installation of the roof and exterior walls to further progress construction of the Advanced Manufacturing Collaborative—an EM 2024 priority.
- Completed canister storage modifications in one of two glass waste storage buildings, effectively doubling storage capacity.
- Began the Fast Critical Assembly non-aluminum spent nuclear fuel dissolution mission.
- Completed the A-Area Groundwater Project.
- Completed 125 plutonium downblends (125 containers of plutonium oxide) in FY24 for packaging into compliant containers for future disposal at WIPP.

SDU PROGRAM CONTINUES SUCCESS AT SRS

In April, EM authorized SDU 9 to begin operations, a priority for the cleanup program. The authorization marked the last step before SDU 9 begins to receive decontaminated material for disposal. The unit was completed approximately \$60 million under budget and seven months ahead of schedule. In June, all major concrete placements, including 25 wall sections, 208 support columns and seven roof sections were completed for SDU 10. Achieving significant construction milestones, such as those for SDUs 9 and 10, is part of EM's 10-year strategic vision for the cleanup program.

AHEAD OF SCHEDULE: TANKS 9 & 10

State and federal regulators concurred on completing Tanks 9 and 10 waste removal required to proceed to sampling and analysis. Tank 9 was the first tank to use drones in the annulus inspection process, providing more flexibility and capability and covering more area quicker than a magnetic crawler.

INNOVATING CLEANUP WITH ADVANCED MATERIALS MANAGEMENT

SRS safely executed and delivered on its 2024 operational commitments to nuclear material management, while safely maintaining five nuclear material facilities.

The Fast Critical Assembly mission began in the H-Canyon Chemical Separations Facility. Crews replaced a condenser in the General Purpose Evaporator critical for continued canyon operations.

Workers at K Area completed 125 plutonium downblends (125 containers of plutonium oxide), the most of any year to date, and made 35 shipments of compliant containers to the Waste Isolation Pilot Plant (WIPP) for disposal. This process involves safely converting plutonium into a compliant form that meets the WIPP disposal requirements, supporting efforts to reduce nuclear materials and their safe disposal. The K Area complex construction also progressed to support the National Nuclear Security Administration's Surplus Plutonium Disposition project.

L-Area operators sampled C-Reactor heavy water moderator tanks for the first time since 1996 to support area completion projects. Characterization of the moderator allows for a disposition path to be



The D-Area Groundwater Treatability Study project team assesses artesian flow into an injection well onsite.

determined. L-Area also completed the routine five-year 85T crane outage, returning it to service without impacting processing schedules.

The Solid Waste Management Facility managed low-level, mixed and transuranic waste inventories, receiving over 400 waste packages from both on-site and off-site partners. Twenty-four TRUPACT-II shipments of legacy and new generation transuranic waste were shipped to WIPP in fiscal year 2024.

Environmental remediation and area completion projects significantly reduced risks through groundwater remediation efforts, Building 235-F demolition activities and 772-F and 772-1F deactivation projects. Notably, the D-Area Groundwater Remediation System injected over 100 million gallons of artesian well water into the subsurface to remediate low pH and heavy metal



contamination underneath a 33-acre former coal storage yard, while well development and pad installation activities were completed for the A-Area Groundwater Project.

For the 31st consecutive year, the Environmental Compliance and Area Completion Projects achieved all Federal Facility Agreement and Resource Conservation Recovery Act permit commitments and milestones on or ahead of schedule.

SAVANNAH RIVER NATIONAL LABORATORY ADVANCES TECHNOLOGY DEVELOPMENT FOR EM MISSION

Savannah River National Laboratory (SRNL) developed a comprehensive groundwater closure strategy, incorporating recommendations from the Environmental Management Advisory Board. This strategy leverages artificial intelligence and machine learning to enhance implementation approaches and advance groundwater cleanup efforts across the EM complex.

SRNL leads a multi-lab effort to provide Advanced Long-Term Environmental Monitoring Systems for the Department's remediation efforts. Using an integrated network of sensors to monitor variables that control contaminant migration, SRNL uses

artificial intelligence and machine learning to optimize monitoring and predict future migration.

At EM's Moab site, SRNL supported the characterization of residual subsurface uranium and ammonium/ammonia sources using soil gas measurements to meet Groundwater Compliance Action Plan requirements.

At SRS, SRNL conducted testing for H-Canyon and tank farm spent fuel dissolving operations in support of the Accelerated Basin De-inventory program. These efforts aim to improve efficiencies and accelerate spent nuclear fuel disposition by reducing the number of high-level waste canisters produced.

EM awarded SRNL \$11 million to support development of breakthrough technologies and approaches to accelerate the Hanford tank waste cleanup mission.

Construction advanced at the 60,000-square-foot Advanced Manufacturing Collaborative facility on the campus of the University of South Carolina, Aiken. Scheduled to open in mid-2025, this facility expands SRNL's advanced manufacturing and workforce development by providing a modern, accessible R&D facility, bringing government, industry and academia together to advance manufacturing technology.



Close-up of the Advanced Long-Term Environmental Monitoring Systems monitoring device.

*H-Canyon employees
replace a 10,000-pound
condenser in the General
Purpose Evaporator, original
to the 75-year-old facility.*





OAK RIDGE OFFICE OF ENVIRONMENTAL MANAGEMENT (OREM)

“Through the hard work of our employees and partners, we recorded another successful year in 2024. OREM completed major field work at the East Tennessee Technology Park, entered a new phase of cleanup at Y-12, and laid the groundwork for the next chapter of transformation at Oak Ridge National Laboratory.”

— Jay Mullis, Manager, Oak Ridge Office of Environmental Management

HIGHLIGHTS

- Completed soil remediation at East Tennessee Technology Park (ETTP)—an EM 2024 priority.
- Processed 94 canisters of uranium-233 material at Oak Ridge National Laboratory (ORNL)—exceeding an EM 2024 priority.
- Began demolition on the Alpha-2 complex at the Y-12 National Security Complex—an EM 2024 priority.
- Completed early site preparation for the Environmental Management Disposal Facility.
- Finalized two Records of Decision related to groundwater at ETTP.
- Signed Natural Resource Damage Assessment agreement with the state.
- Transferred the largest source of legacy radioactive material at ORNL for beneficial reuse.

ACHIEVING AMBITIOUS GOALS

OREM achieved its Vision 2024, the culmination of 20 years of cleanup at the ETTP. This effort—one of the nation’s largest environmental cleanup projects—transformed a former Manhattan Project and Cold War-era uranium enrichment complex into a multi-use industrial park. The cleanup involved tearing down more than 500 buildings and excavating 554,000 cubic yards of impacted soil. With soil remediation complete, OREM is positioned to transfer the remaining parcels of federally owned land at the site to the community for reuse.

REUSING NUCLEAR MATERIAL TO BENEFIT THE NATION

OREM employed two partnerships that found alternative uses for nuclear material originally slated for disposal. Employees are extracting rare medical isotopes from uranium-233 prior to processing and disposal, supporting next generation cancer treatment research. TerraPower received enough isotopes from this partnership for commercial scale production to supply clinical trials across the globe. Another partnership with Zeno Power transferred one of the largest sources of legacy radioactive material from storage at ORNL to recycle into a source of clean energy for new power systems for other federal agencies.



Through an innovative public-private partnership, employees supporting the Uranium-233 Disposition Project, extract thorium-229 to support cancer treatment research.

TRANSFORMING SITES TO SUPPORT ONGOING MISSIONS

Crews began demolition on the Manhattan Project-era Alpha-2 complex, marking the first demolition on a former uranium enrichment facility at the Y-12 National Security Complex. The project removes risks and will open space to support national security missions. Meanwhile, workers are actively preparing 13 buildings for demolition at ORNL. Clearing away these old reactors, isotope labs and waste treatment facilities enhances safety and opens land for research missions.

ADDRESSING PAST IMPACTS

OREM signed a \$42 million agreement as part of the Natural Resources Damage Assessment process for impacts from its historic operations on the Oak Ridge Reservation. The agreement aims to restore or replace natural resources equivalent to what was lost. All funds from agreement will be deposited into an account held by the state of Tennessee to provide grants for a wide range of local projects that either enhance the area's natural resources or provide nature and recreational opportunities.



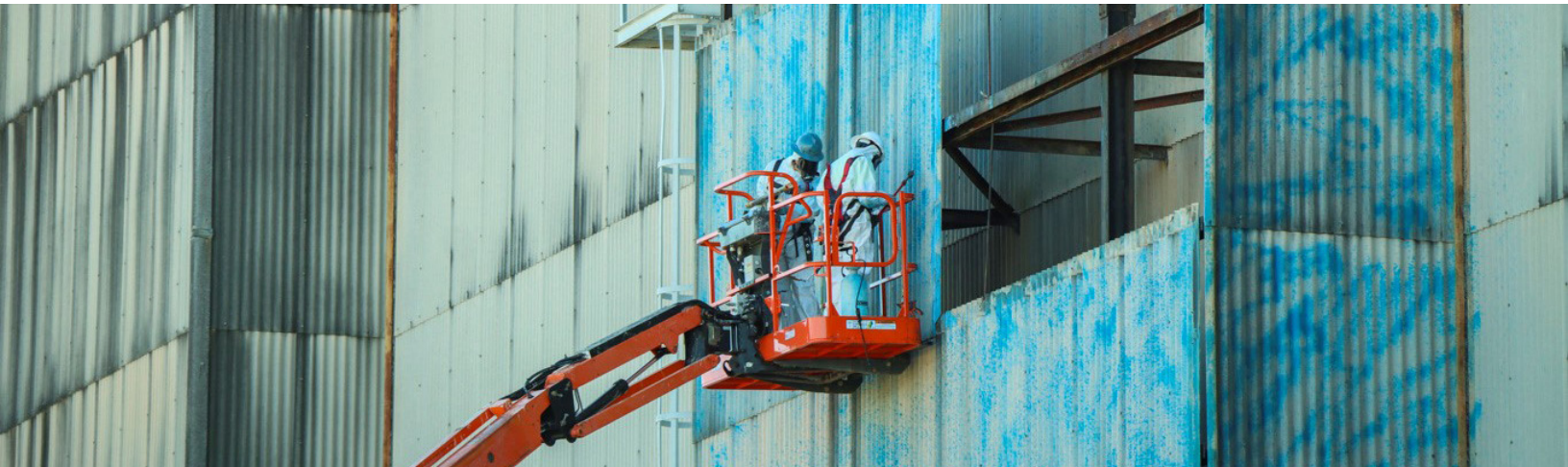
Crews perform deactivation activities at 13 ORNL buildings.



PORTSMOUTH/PADUCAH PROJECT OFFICE (PPPO)

“The dedication and strong work ethic of the PPPO team consistently exceeds expectations by prioritizing tasks to safely and securely execute mission goals, providing value to the taxpayer and setting the stage for a bright future for our Portsmouth and Paducah communities.”

– Joel Bradburne, Manager, Portsmouth/Paducah Project Office



Crews remove panels from the north side of the X-333 Process Building and sprayed “bump out” sections with a fixative for asbestos abatement before removal.

HIGHLIGHTS

- Removed an additional 1 million pounds of hazardous R-114 refrigerant from the Paducah Site—an EM 2024 priority.
- Completed deactivation of the X-333 Process Building in Portsmouth—an EM 2024 priority.
- Placed the final load of deactivation waste from the X-333 Process Building into the On-Site Waste Disposal Facility (OSWDF) in Portsmouth.
- Completed construction of the 1-million-gallon leachate storage tank and other infrastructure items to support OSWDF activities in Portsmouth.
- Completed demolition of 14 excess facilities, including the 300-foot-tall high-pressure fire water tower, in Paducah.
- Segmented 200 converters as part of deactivation activities in the C-333 Process Building in Paducah.
- Completed LED street lighting upgrades in Paducah—a DOE sustainability initiative.
- Processed more than 800 Depleted Uranium Hexafluoride (DUF6) cylinders at the Portsmouth and Paducah DUF6 plants.

PORTSMOUTH – DEACTIVATION AND DEMOLITION PROJECTS ADVANCE

Workers successfully deactivated the X-333 process building, the second massive uranium processing building, enabling demolition to begin.

Construction activities for the next set of on-site waste disposal cells advanced with the completion of the 1-million-gallon leachate treatment system. These cells will support demolition of the X-333 process building.

PADUCAH – DEACTIVATION AND REMEDIATION ADVANCES

Deactivation of the Paducah Site C-333 Process Building continued with 200 converters segmented and 183 converter bundles compacted as part of deactivation activities. The team also characterized and deactivated 22 surge drums and 60 percent of the unit bypass.

Another 1 million pounds of R-114 was dispositioned in 2024, once again meeting an EM priority. Workers have shipped offsite about 69 percent of the approximately 8.5 million pounds of inventory.

Workers continued to shrink the site footprint, demolishing 14 excess facilities, including the 300-foot-tall high-pressure fire water tower, a fixture of the site's skyline for decades.

Following a community request, the Paducah Site began the process for its first land transfer, targeting approximately 250 acres of land for future reindustrialization.

DEPLETED URANIUM HEXAFLUORIDE CONVERSION PLANT

At the depleted uranium hexafluoride (DUF6) plants, workers processed more than 800 cylinders of DUF6.

The team completed key upgrades and modifications at the two first-of-a-kind facilities. These improvements increased throughput, exceeding a project record by operating all four conversion lines continuously for 41 straight days. Additionally, oxide shipping continued at the DUF6 plants with 120 cylinders shipped off site.

Phase 2 site development for the Paducah Uranium Oxide Shipping Facility was completed, advancing efforts to establish dedicated facilities needed to achieve peak shipping throughput.



Ten gondola railcars loaded with six depleted uranium oxide containers leave the Portsmouth Site for off-site waste disposal facility in Texas for final disposition.



EM Principal Deputy Assistant Secretary Jeff Avery (right) and other EM officials tour the Portsmouth Site with the deactivation and demolition contractor.



IDAHO CLEANUP PROJECT

“Our experienced and skilled Idaho workforce continue to advance environmental cleanup at the Idaho National Laboratory Site by further reducing environmental liabilities and protecting the Snake River Plain Aquifer. We are especially proud of the recent completion of decontamination and demolition efforts at the Accelerated Retrieval Project signifying our ongoing commitment to our community, tribal partners, and the state of Idaho.”

– Mark Brown, Manager, Idaho Cleanup Project

LIQUID WASTE TREATMENT & DISPOSAL

Since operations began at the Integrated Waste Treatment Unit in April 2023, more than 225,000 of 900,000 gallons radioactive sodium-bearing liquid waste have been converted to a more stable, granular solid for packaging in stainless steel canisters and storage in concrete vaults.

DEMOLITION OF LEGACY NAVY REACTORS

Demolition of two defueled reactor vessel prototypes and associated buildings at the Naval Reactors Facility continued in 2024 with the removal of the Submarine 1st Generation Westinghouse (S1W) prototype hot cell and the ancillary Aircraft Carrier 1st Generation Westinghouse prototype structures.

EM, the state of Idaho and Environmental Protection Agency released plans to demolish the Submarine Fifth Generation General Electric prototype reactor and associated structures.

SUBSURFACE DISPOSAL AREA

Crews demolished the remaining three Accelerated Retrieval Project enclosures and an associated storage building in preparation for an earthen cover to mitigate contamination migration to the Snake River Aquifer.

TRANSURANIC WASTE

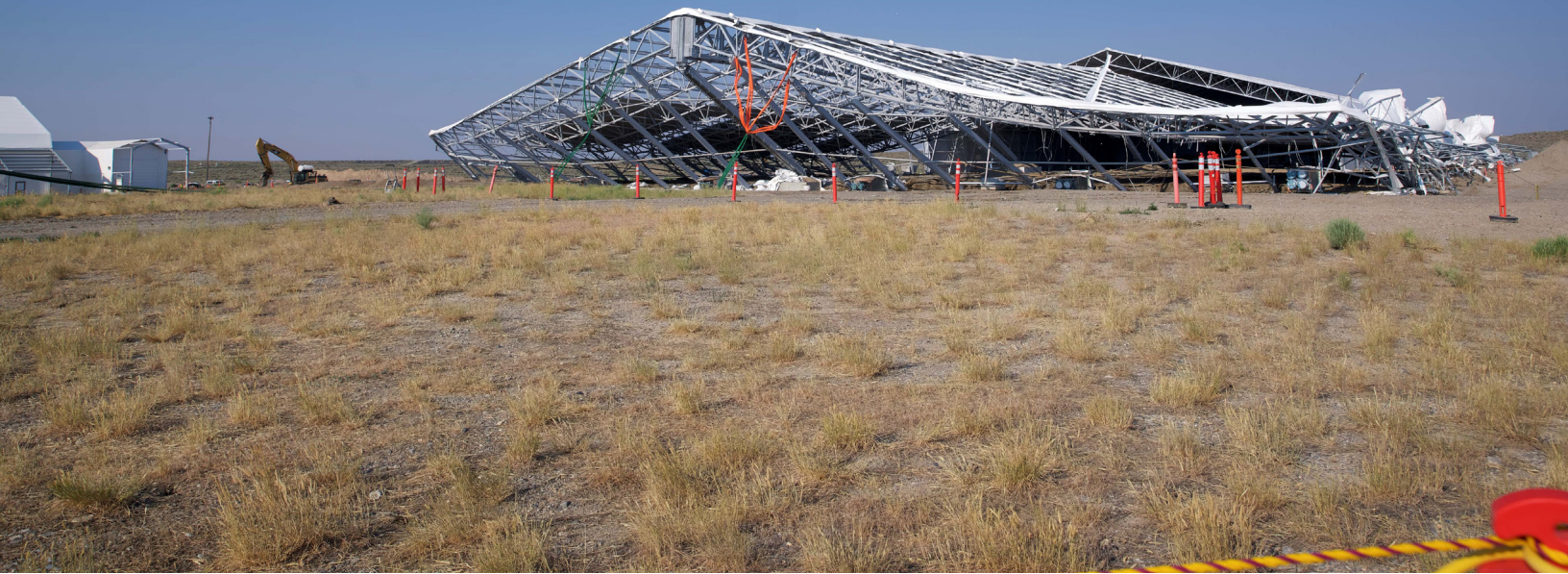
The Advanced Mixed Waste Treatment Project completed the 7,500th transuranic (TRU) waste shipment to the Waste Isolation Pilot Plant representing about 10.5 million loaded miles.

IDAHO CERCLA DISPOSAL FACILITY

Construction of a new landfill cell and evaporation ponds continues at the Idaho CERCLA Disposal Facility. This expansion adds an additional 25 years of safe and cost-effective onsite disposal for ICP-generated cleanup wastes.



A worker uses a plasma torch to cut through a hull at the S1W prototype.



Bulldozers pull over a section of Accelerated Retrieval Project VIII.

HIGHLIGHTS

- Treated a cumulative 100,000 gallons of liquid sodium-bearing waste from three underground storage tanks—an EM 2024 priority.
- Removed remaining three Accelerated Retrieval Project structures and a storage building from the Subsurface Disposal Area—an EM 2024 priority.
- Completed the 7,500th transuranic waste shipment to the Waste Isolation Pilot Plant.
- Continued Naval Reactors Facility demolition of two historic and defueled naval nuclear propulsion plants.
- Continued construction of a new disposal cell and associated evaporation ponds at the Idaho CERCLA Disposal Facility.
- Completed 10 transfers of Peach Bottom spent nuclear fuel from Generation 1 to Generate 2 vaults in a risk-reduction move and continued plans for the design and construction of a spent nuclear fuel staging pad—a capital project—to make progress on an Idaho Settlement Agreement milestone.
- Continued progress on the draft 3116 determination for high-level waste calcine and continued consultation with the Nuclear Regulatory Commission.



WASTE ISOLATION PILOT PLANT (WIPP)

“Tremendous accomplishments were achieved in 2024 by an engaged workforce dedicated to safety—reaching 17 million miles of safely transported transuranic waste and completing construction of the new underground ventilation system that will increase air flow and enhance worker safety and comfort. And, for the first time in over a decade, WIPP began mining a new waste disposal panel—2024 was truly a banner year for the site.”

– Mark Bollinger, Manager, Carlsbad Field Office

HIGHLIGHTS

- Commemorated WIPP’s 25th Anniversary, marking 25 years of safe and successful operation.
- Started mining Panel 11.
- Received 490 transuranic waste shipments, exceeding calendar year goal—an EM 2024 priority.
- Completed construction and began commissioning of the Safety Significant Confinement Ventilation System, which is expected to be operational in 2026.
- Began salt pocket refurbishment and hoisting upgrades.
- Started mining access drifts from utility shafts.
- DOE selected NextEra Energy to enter into negotiations for a carbon-pollution-free electricity generation project at WIPP as part of the Department’s Clean-up to Clean Energy initiative.

CAPITAL PROJECTS ADVANCE

Crews completed construction of the Safety Significant Confinement Ventilation System (SSCVS) marking a milestone in enhancing safety by increasing underground airflow up to 540,000 cubic feet per minute. This included new buildings supporting the HEPA filtration system and salt reduction activities. Commissioning of the SSCVS began and is close to completion.

In addition to the new SSCVS, WIPP continued construction of a new utility shaft to provide higher capacity air intake for the underground in conjunction with the SSCVS.

SUMMING UP SHIPMENTS

WIPP surpassed 14,000 transuranic waste shipments received since the first day of operations in 1999. Shipments received in fiscal year 2024 totaled 490.

MINING IN THE UNDERGROUND

Mining operations in the West Mains continue—cutting passageways, or “drifts,” to connect the existing mine to the Utility Shaft and future panels 11 and 12.

UPGRADING INFRASTRUCTURE

Decades-old infrastructure continue to receive upgrades to ensure the WIPP facility can continue to safely operate for years to come.



Workers install reinforcement bolts into the “back” or ceiling of the mined ancient salt bed in the WIPP underground. The salt formation creeps slowly, so the bolts hold the back of the mined rooms where TRU waste will be emplaced.



EM LOS ALAMOS FIELD OFFICE (EM-LA)

"EM-LA fulfilled our regulatory commitments for fiscal year 2024, demonstrating to the state and the residents of northern New Mexico our dedication to safely, effectively, efficiently and transparently progressing the LANL legacy cleanup mission. Significant progress was made this year with mission-critical work, including disposition of legacy waste and soil investigation and remediation. In addition, we executed a mutually agreed revised 2016 Consent Order with the New Mexico Environment Department. I look forward to continuing to engage in the legacy cleanup with pueblos, stakeholders and the public, and enhance EM-LA's community engagement efforts."

— Jessica Kunkle, Manager, EM Los Alamos Field Office

HIGHLIGHTS

- Retrieved, size-reduced and repackaged 158 buried corrugated metal pipes containing cemented transuranic waste at Technical Area 54, Area G—an EM 2024 priority.
- Completed a demonstration of the Universal Drum Assay and Segregation System to more accurately analyze the contents of legacy radioactive waste drums.
- Installed monitoring well R-76 to acquire additional data for the hexavalent chromium plume.
- Investigated and remediated contaminated soils at Twomile Canyon Aggregate Area.
- Received regulatory approval from the New Mexico Environment Department (NMED) on completion of Middle DP Road Site cleanup.
- Met all 15 fiscal year 2024 Milestones agreed to with NMED under the 2016 Compliance Order on Consent.
- Continued to prioritize legacy transuranic waste shipments to WIPP.

ADDRESSING LEGACY WASTE AT LOS ALAMOS NATIONAL LABORATORY

Completed retrieval, size-reduction and packaging of all 158 buried corrugated metal pipes at Technical Area 54 (TA-54), Area G for shipment to the Waste Isolation Pilot Plant (WIPP) for final disposition.



Truck carrying the final shipment of contaminated soil and debris from legacy operations leaves the Middle DP Road Site.

In fiscal year 2024, EM-LA shipped approximately 50.3 cubic meters of legacy transuranic (TRU) waste to WIPP for disposal, continuing to ensure no shipping backlog, and sent 391 of the remaining 451 containers of above-ground low-level and mixed low-level radioactive waste to off-site licensed disposal facilities.



Waste Operations workers retrieve the final corrugated metal pipe containing cemented TRU waste at TA-54, Area G.

DEMONSTRATING INNOVATIVE CLEANUP TECHNOLOGY

Successfully completed a pilot demonstration of the Universal Drum Assay and Segregation System (UDASS), an advanced gamma assay drum counting system, testing a set of 373 legacy waste drums at TA-54, Area G. Pending final analysis and review, UDASS could be used across the EM complex to more accurately analyze TRU and low-level waste, leading to better utilization of space at WIPP.

PROGRESSING EFFORTS FOR GROUNDWATER PLUME

Installed monitoring Well R-76 to further characterize the hexavalent chromium groundwater plume beneath Sandia and Mortandad canyons, completing a 2024 regulatory milestone.

EM-LA and NMED convened an expert technical review team with members from the Network of National Laboratories for Environmental Management and Stewardship, industry, academia and U.S. Environmental Protection Agency Region 6 to assess current chromium interim measures, plume characterization and groundwater modeling.

Resumed partial operation of the chromium interim measures groundwater treatment system in late September 2024.

COMPLETING CLEANUP AT KEY LOS ALAMOS SITE

In February, NMED approved the assessment report concluding the investigation and remediation of soil and debris at the Middle DP Road Site was complete. During the project, more than 5,917 cubic yards of waste and debris was excavated, packaged and shipped to licensed, off-site disposal facilities. The land is an important part of Los Alamos County's economic development efforts.



Waste Operations workers at TA- 54, Area G place a container of legacy TRU waste in the UDASS to analyze radioactive contents in waste drums.



EMCBC SITE PROGRESS

“Over the past year, the steadfast commitment of EM’s workforce has been evident in their efforts to meet cleanup priorities and milestones while reducing risks to the public and the environment. With a focus on excellence and safety, they successfully tackled complex challenges and made remarkable strides in environmental stewardship, establishing a benchmark for future endeavors.”

– Jack Zimmerman, Director, Environmental Management Consolidated Business Center

HIGHLIGHTS

- The EM Nevada program completed the safe demolition of ancillary structures at the Engine Maintenance, Assembly, and Disassembly and Test Cell C facilities that were part of the historical Nevada National Security Sites Nuclear Rocket Development Station.
- A cumulative 15 million tons of the uranium mill tailings at the Moab site was safely transported to the Crescent Junction disposal site—an EM 2024 priority.
- Removed a program total of more than 54,000 gallons of contaminated groundwater and installed a new automated pump system at the former Sodium Disposal Facility at the Santa Susana Field Laboratory site.
- Completed pre-demolition abatement and hazard removal at Building 251 at Lawrence Livermore National Laboratory—an EM 2024 priority.
- Reached 75 percent completion on the Main Plant Process Building (MPPB) demolition at the West Valley Demonstration Project (WVDP).
- WVDP disposed of a cumulative 20,000 tons of MPPB waste since the start of the demolition project—an EM 2024 priority.

SAFE, COMPLIANT CLEANUP AT THE WEST VALLEY DEMONSTRATION PROJECT

Workers safely shipped more than 40 million pounds of demolition debris from the Main Plant Process Building, the last major facility to be removed at WVDP since starting the project in the fall 2022. For the second year in a row, crews packaged and shipped by rail more than 1,000 waste containers for safe disposal off-site, achieving the annual goal ahead of schedule.

West Valley crews safely overpacked and shipped eight high integrity containers; processed, overpacked, and shipped four Chemical Process Cell specialty containers; and overpacked and shipped 12 oversized legacy waste containers to an off-site disposal facility.

The team also completed the safe demolition of the former security guardhouse. Built in 1965, it was one of the first facilities constructed at the former commercial nuclear fuel reprocessing facility. Workers also completed the demolition of old locker rooms near the former guardhouse, restored the area and installed new sidewalks.

Crews safely collected a liquid sample from an underground tank that once stored liquid waste from spent fuel reprocessing operations to characterize the tank’s content for future disposition and cleanup.

EM NEVADA ACHIEVES GOALS IN DEMOLITION, GROUNDWATER MONITORING, AND WASTE DISPOSAL

The EM Nevada program advanced the demolition of the Engine Maintenance, Assembly, and Disassembly (EMAD) and Test Cell C (TCC) facilities. At EMAD, crews demolished a water tower, an electrical

substation, and two stacks. At TCC, crews prepared for the demolition of four liquid hydrogen dewars. Both facilities were part of the now inactive Nuclear Rocket Development Station.

Model evaluation work continued at the Pahute Mesa groundwater region where crews installed remote data transmission equipment at groundwater wells for more efficient data collection.

In addition, EM Nevada supported the safe and secure disposal of more than 760,000 cubic feet of low-level waste, mixed low-level waste, and classified waste at the Radioactive Waste Management Complex.

MOAB MOVES TOWARD COMPLETION AND CLOSURE

The Moab Uranium Mill Tailings Remedial Action Project continues steady progress toward cleanup completion and project closure. Milestone activities completed include the submittal of a revised Remedial Action Plan and final evapotranspiration cover design to the Nuclear Regulatory Commission, advancement of field investigations to support development of the Groundwater Compliance Action Plan, placement of interim cover on a portion of the disposal cell, and finalization of the end-state vision document.

A cumulative 15 million tons of uranium mill tailings—approximately 94 percent of the estimated total of the tailings surface-pile—were transported to the Crescent Junction site disposal cell. Complete relocation of mill tailings is expected by 2027 with transition and closure in 2029.



An overlook view of the Moab Site tailings pile, with rectangular drying beds.



Workers check the solar skid panel and data on the human-machine interface software used for the automated groundwater interim measures project in Area IV at SSFL.

ENHANCED GROUNDWATER MEASURES AND COMMUNITY ENGAGEMENT DRIVE ENERGY TECHNOLOGY ENGINEERING CENTER ACTION AHEAD OF EXPECTED CLEANUP MILESTONES

Groundwater interim measures, biological and cultural preservation and ongoing soils planning with the state of California continue to drive the Energy Technology Engineering Center's (ETEC) cleanup efforts at the Santa Susana Field Laboratory (SSFL).

A new automated pump system was installed at ETEC's Former Sodium Disposal Facility, removing a program total of over 54,000 gallons of contaminated groundwater from the site.

In preparation for public comment periods on final groundwater and soil cleanup plans, EM participated in a Groundwater University workshop series and engaged with stakeholders in the community to share cleanup information and answer questions.



LAWRENCE LIVERMORE NATIONAL LABORATORY COMPLETES PRE-DEMOLITION HAZARD REMOVAL AND DEMOLITION ACTIVITIES AT MULTIPLE LOCATIONS

EM's deactivation and decommissioning activities supports the Lawrence Livermore National Laboratory and paves the way for new facilities at the lab's one-square-mile footprint.

EM completed demolition and waste removal activities of Building 251 and removed asbestos from the exterior of Building 280.

Two of four high-risk facilities slated for removal will be completed by the end of the year—Building 175 and Building 251.



Crews remove mastic undercoating at Lawrence Livermore National Laboratory Building 280.

DEMOLITION MISSION CONTINUES AT BAYVIEW AND THE BUILDING 71 COMPLEX, PAVING WAY FOR NEW FACILITIES AT LAWRENCE BERKLEY NATIONAL LABORATORY

The Lawrence Berkeley National Laboratory project continued EM's mission to improve health and safety by cleaning up existing contamination and improving seismic standards of buildings within Department laboratory grounds.

EM completed the Old Town Demolition Phase VI Project that removed the Building 4 and 14 slabs, underground structures and associated contaminated soil to provide for a buildable site for future mission use, marking the completion of the Old Town demolition projects which started in fiscal year 2012.

EM also commenced planning activities for demolition of additional Bayview area excess facilities and the Building 71 complex, setting up EM for demolition scoping and activities in 2025.

CONTINUED EXECUTION OF GROUNDWATER MISSION GETS ONE OF THREE PLUMES CLOSE TO TRANSITION AT SANDIA

The Sandia Environmental Restoration Project continued the characterization and remediation of three plumes of contaminated groundwater at the Sandia National Laboratories section of Kirtland Air Force Base, adjacent to Albuquerque, New Mexico. The primary sources of contamination are elevated nitrates derived from man-made and natural sources.

Activities in 2024 included EM acquiring regulatory approval of the Final Remedy as Long-Term Stewardship for the Burn Site Groundwater Area of Concern (AOC). For the Technical Area V AOC, the Corrective Measures Evaluation report was submitted as scheduled on May 30, 2024.

In fiscal year 2025, the Tijeras Arroyo Groundwater AOC is expected to begin transitioning back to the National Nuclear Security Administration (NNSA). EM will continue to manage the long-term monitoring requirements until the work is transitioned to NNSA, which is expected to occur by 2031.

ACRONYMS

AOC	Area of Concern	ORNL	Oak Ridge National Laboratory
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	OSWDF	On-Site Waste Disposal Facility
DOE	U.S. Department of Energy	PPPO	Portsmouth/Paducah Project Office
DUF6	depleted uranium hexafluoride	SW1	Submarine 1st Generation Westinghouse
EM	Office of Environmental Management	SDU	Saltstone Disposal Unit
EMAD	Engine Maintenance, Assembly, and Disassembly	SSFL	Santa Susana Field Laboratory
EM-LA	Environmental Management Los Alamos	SRNL	Savannah River National Laboratory
EPA	U.S. Environmental Protection Agency	SRS	Savannah River Site
ETEC	Energy Technology Engineering Center	SSCVS	Safety Significant Confinement Ventilation System
ETTP	East Tennessee Technology Park	TA	Technical Area
FY	fiscal year	TCC	Test Cell C
MPPB	Main Plant Process Building	TRU	transuranic
NMED	New Mexico Environment Department	UDASS	Universal Drum Assay and Segregation System
NNSA	National Nuclear Security Administration (NNSA)	WIPP	Waste Isolation Pilot Plant
OREM	Oak Ridge Office of Environmental Management	WVDP	West Valley Demonstration Project

For more information on the world's largest environmental cleanup program, visit: www.energy.gov/em



Like us on Facebook

<https://www.facebook.com/doenvironmentalmanagement/>



Follow us on X

@EMcleanup



Follow us on LinkedIn

@EMcleanup



Office of Environmental
Management