

# **2024 Annual Report**



The future begins with cleanup



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Workers prepare a saw to cut out the lower reactor vessel in the Oak Ridge Research Reactor

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IN WAR

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#### Message from Ken Rueter, President and CEO

# Vision 2024 completed \_\_\_\_\_\_ Great strides made in Reservation cleanup

UCOR achieved a major historic milestone in FY 2024 with the completion of Superfund cleanup at the East Tennessee Technology Park (ETTP) Heritage Center. This achievement, known as Vision 2024, comes four years after we finished demolition of all excess facilities at the site. Our work, in conjunction with our client, the Department of Energy (DOE), has transformed ETTP Heritage Center into a thriving industrial center where a key focus has been on clean energy of the future. The site is key to a Nuclear Innovation District that is being developed in Oak Ridge on former DOE land. Many nuclear energy companies, such as Kairos Power, X-energy, and most recently Orano USA, have chosen to locate in Oak Ridge due to available property, skilled workforce, and strong partnerships with industrial and



education institutions. Efforts are also continuing to transform ETTP Heritage Center into a conservation area and historic preservation destination as well.

Across the rest of the Oak Ridge Reservation, UCOR achieved many notable outcomes. At Oak Ridge National Laboratory, we are deactivating and disassembling excess nuclear reactors to prepare them for future demolition. We shipped the reactor vessel that was removed from the Low Intensity Test Reactor offsite for disposal, and we removed the lower reactor vessel from the Oak Ridge Research Reactor. We continued efforts to ready the remaining hot cell structure from the former Radioisotope Development Laboratory for demolition. At the Experimental Gas-Cooled Reactor, we removed almost 40,000 pounds of waste from the facility. At Isotope Row, we are deactivating several facilities that will eventually be demolished to open up more land in ORNL's central campus area.

At the Y-12 National Security Complex, we began demolition of the massive Alpha-2 Complex while continuing to prepare other facilities at the site for demolition. We also made great strides in construction of the Outfall 200 Mercury Treatment Facility, which will be critical in cleanup operations at the site.

To ensure we have onsite disposal capacity to receive the debris generated from cleanup activities, we are constructing the Environmental Management Disposal Facility. We completed early site preparation ahead of schedule and \$3.5 million under budget and were able to repurpose soil and mulch from this project to help with maintenance at another landfill facility. This innovative approach to find use for material that might otherwise have been disposed of underscores our company's commitment to sustainable practices.

All of these project successes were achieved by an outstanding team that understands safety is a prerequisite for all that we do and applied to every activity, every task, every time. That dedication to safety was underscored this fiscal year by UCOR being recertified as a DOE Voluntary Protection Program Star site, a designation given only to the safest sites in the DOE complex.

I'm proud of the continued success UCOR is having as we complete historic projects, delivering one of the largest environmental cleanups in the country, and continue supporting DOE and the community by ensuring the taxpayer dollars are being used as efficiently and effectively as possible. Our cleanup has also been foundational for future nuclear development. We have a lot of challenging, important work ahead, and we will approach it with the same Culture of Excellence that has produced tremendous success since UCOR took over the cleanup work in 2011.

Sincerely,

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# **Organizational Excellence**

UCOR's lines of service play an important role in cleanup, sustainability, and operational efficiency.

#### **Sustainability**

UCOR's Sustainability Strategic Plan was completed in FY 2024, providing guidance to facilitate UCOR organizational excellence in sustainable practices.

Sustainability emphasizes meeting present needs without compromising future generations, urging responsible resource management and reduced carbon footprints. UCOR's sustainability model extends beyond the traditional environmental lens to include other key components such as operations, business excellence, workforce, community, and process systems. This holistic approach is enabled and accomplished by:

- Creating strong internal and external partnerships that result in an expansive impact.
- Institutionalizing sustainable considerations into program and project business decisions and work practices.
- Being an advocate for sustainability within the workforce, community, region, and nation.
- Staying abreast of industry developments and thinking creatively "outside the box" to solve problems.

UCOR continues to have an enhanced focus on mental wellbeing through our well-established Navigate Program. Developed through employee feedback, Navigate's goal is to enable members of the workforce, their families, and the community to achieve a high level of mental health and wellbeing.

People Invest in people. This includes members of the workforce, community, and nation. Sustainability Planet Investment ovest in our Maintaining investment community, enable worthiness while generational resilience implementing both through sustainability mainstream and \*outside and environmental the box" sustainability justice initiatives. initiatives that advance the field and lead the complex.

As mental wellbeing is a multifaceted issue, the program takes a dynamic approach and includes several key components:

- Education and training materials
- An onsite counseling center
- Substance abuse support
- Employee Assistance Programs (EAPs)
- Suicide prevention resources
- Focus on adolescent behavioral health in the community
- Strategic partnerships in the community and across the country

#### Technical, Engineering, and Nuclear Safety

The Technical, Engineering, and Nuclear Safety Group (TENS) updated its strategic plan with four overarching goals that are re-evaluated annually. Teams assigned to each of the goals made significant progress. The 2024 TENS Strategic Plan built off the success of last year's goals—creating an employee development program, chartering a Technology Development team, and strengthening engineering support of construction projects. TENS 2024 goals were to:

- Improve employee experience/workplace, including conducting employee satisfaction surveys, creating a TENS onboarding package and website, and celebrating successes;
- Expand/strengthen the Professional Development Program, including soft skills training, nuclear safety professional development, and mentoring;
- Strengthen TENS Technical/Engineering programs, including identifying opportunities for improvement, developing a Technology Development Program description document in addition to the existing charter; and
- Foster effective communications with projects and DOE Oak Ridge Office of Environmental Management (OREM), including access to project schedules and budgets, greater partnering, and communicating technology needs and development opportunities.

TENS has integrated some project technologies into project schedules, including the use of a mercury vapor suppressant in the Alpha-4 building. The partnering meetings with OREM have helped ensure alignment with the client.

#### **Project Integration and Business Services**

**Task Order Proposals/Negotiations:** During FY 2024, UCOR and OREM achieved a significant task order resolution that enables effective performance. They definitized seven subtask proposals for a total value of \$1.5 billion. Negotiation of these subtasks also included transitioning from an award fee model under Task Order 3 to an incentivized schedule and cost-fee model for new subtasks supporting alignment of priorities for OREM and UCOR.

**Integrated Baseline Review:** A combined OREM and UCOR Integrated Baseline Review (IBR) of six

definitized and awarded task orders across three sites including the East Tennessee Technology Park, Oak Ridge National Laboratory, and Y-12 National Security Complex, was conducted in May 2024. Twenty projects with a Performance Measurement Baseline (PMB) valued at \$1.5 billion were reviewed. The overall objective of the review was to develop a common understanding between OREM and UCOR regarding each Task Order's baseline and the schedule, cost, resources, risks, and confidence in the management processes used to ensure the baselines are executable and can be completed within the established cost and schedule. The review team of 17 was comprised of 11 OREM and six UCOR employees. The review team determined that the UCOR baselines, work breakdown structure, and schedules are in alignment with the contract scopes of work and the durations, logic, and milestones are sufficient. It also determined the budgets are based on historical actuals or defendable estimates and are adequate to complete the work and that resources are identified and available when needed. The review also concluded that management processes are well established.

**Estimating System Certification:** A year-long audit of the UCOR Cost Estimating System was completed in March. A DOE letter determined UCOR's estimating system is acceptable. This determination is for five years.

Accounting System Certification: After eight months of coordinated efforts across multiple departments, the audit of UCOR's Accounting System was successfully completed in May 2024. UCOR's accounting system was found to be adequate for the accumulation and reporting of costs under government cost reimbursable contracts.

#### **Information Technology**

IT and Cyber Security successfully deployed all continuous diagnostics and mitigation tools— ForeScout, Carbon Black, Tenable Security Center, Splunk, and Gigamon—to increase security and visibility into all traffic across the UCOR networks while also providing real-time alerting for potential cyber threats. By implementing the tools in conjunction with Microsoft Sentinel EDR and Defender for Endpoint, the IT and Cyber Security teams have been able to detect and respond to several legitimate threats to the UCOR network. UCOR Cyber Security has also developed comprehensive phishing training and incident response programs, providing simulated phishing training to all users while also providing response training and guidance to UCOR IT personnel.

IT and Cyber Security also created a joint Vulnerability Detection and Remediation Team as a first line of defense against known exploitable vulnerabilities found within the UCOR environments.

IT completed the transition to single-mode fiber optic cabling at all facilities at the Transuranic Waste Processing Center, rolling out 250 end user systems, 30 switches, and 20 guest wireless access points; providing additional service throughput and integrity in the longevity of the telecommunication cabling across the site. UCOR IT successfully deployed 162 UniFi wireless access points providing a broader range of coverage across the UCOR footprint, including the Transuranic Waste Processing Center and Outfall 200 sites.

#### **Mission Assurance & Controls**

The Mission Assurance & Controls (MA&C) organization was established to enhance focus on the independent functions of Quality Assurance, Contract & Performance Assurance, Independent Audits, Business Assurance, and Enterprise Risk Management.

The MA&C organization has significantly improved customer relationships through frequent in-person interactions to ensure alignment on improvement initiatives, prioritization, and approach to resolving issues. MA&C has also improved internal communications and integration among assurance organizations such as enterprise risks and assessments.

Quality Assurance improved partnering with OREM in FY 2024 as evidenced by the successful pilot of OREM shadowing a UCOR assessment. This allows OREM to evaluate both how UCOR conducts assessments and the operations. The result has been increased customer confidence in UCOR assessments and fewer OREM planned audits.

The Quality organization has improved clarity and effectiveness of the overall UCOR Quality Assurance Program, including the approach to supplemental quality programs. Quality Assurance successfully worked with OREM to align on an appropriate approach to the Outfall 200 Supplemental Quality Program to ensure appropriate quality requirements for non-nuclear construction (commercial codes and standards) were applied.

The Outfall 200 Supplemental Quality Assurance Plan (SQAP) was developed with objectives to describe the construction non-conformance reporting (NCR) process, in lieu of the UCOR NCR process, to support the expedited pace of a commercial construction project and clarify that the project is being constructed to the inherent quality-affecting requirements in commercial codes, standards, and specifications, and applying a commensurate graded approach to quality.

The TWPC SQAP was developed with objectives to describe the project-specific quality management systems for personnel to confirm administrative and work control documents during planning and prior to execution of work and describe how qualityaffecting requirements are confirmed and maintained within administrative and work control documents throughout the UCOR/TWPC integration process. All were submitted to OREM for review, and the UCOR Quality Assurance Project Plan and Outfall 200 SQAP have received formal approval.

#### Regulatory

In FY 2024, UCOR met 19 Federal Facility Agreement (FFA) milestones with 20 FFA documents approved by all three parties—DOE, the Environmental Protection Agency, and the Tennessee Department of Environment and Conservation. Under the regulatory framework, UCOR held 101 project team meetings



Groundwater sampling at ETTP

to discuss progress, address concerns, and optimize the regulatory approval process for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) projects on the Oak Ridge Reservation.

Building and managing these regulatory partnerships enabled the ETTP Groundwater Team to achieve approval of two key Records of Decision (RODs): the K-31/33 Groundwater Final ROD and the Main Plant Area Interim ROD. These are the first two groundwater RODs ever approved on the Oak Ridge Reservation and the first RODs to be approved without informal or formal dispute between the FFA parties.

The RODs address groundwater in the K-31/K-33 area where those large uranium enrichment facilities once stood, and the ETTP Main Plant area where other site operations took place. For the K-31/K-33 area, monitored natural attenuation was chosen as the selected remedy. This method involves using current land use controls and monitoring the site with no other formal action. For the Main Plant area, the proposed remedy is enhanced in situ bioremediation, which involves using microorganisms to reduce contamination levels in these specific areas of groundwater.

#### **Contract & Performance Assurance**

UCOR continues to demonstrate a healthy culture of proactively seeking out, identifying, and resolving concerns. As a result, the Contract and Performance Assurance (C&PA) organization has processed over 1,000 issues in FY 2024. UCOR continues to maintain a high on-time completion rate for corrective action plans and corrective actions. UCOR completed 562 corrective action plans and 945 actions on time during the fiscal year.

The C&PA organization continued to focus on programmatic enhancements. This included improving the event fact-finding process known as "The Rest of the Story" (TROTS) by developing facilitator training and workshops. The MA&C organization has assumed the responsibility of facilitating TROTS, resulting in greater consistency in application and allowing the operational organizations to remain focused on providing technical input to the fact-finding process.

The Enterprise Risk Management (ERM) program continues to mature. The ERM program is used to

identify and mitigate UCOR's highest crosscutting organizational risks that may impact the strategic objectives of UCOR, to include strategic, operational, compliance, reporting, and project risks.

Additionally, the ERM program enhances the contractor assurance program by supporting risk-informed decision making through integration with the issues management and assessment program.

#### Communications

UCOR's Communications team kept the workforce up to date through more than 180 issues of *Today's Newsline* and over 70 employee messages. The team also produced the *FY 2023 UCOR Annual Report*, the *FY 2023 DOE Cleanup Progress* publication, and the *UCOR VPP Annual Report*.

Communications generated more than 130 media stories.

UCOR was featured in over 25 articles in DOE's weekly *EM Update.* On social



media, UCOR met or exceeded industry benchmarks in growing the number of followers. Our video team produced more than 75 videos on UCOR's YouTube channel and provided extensive video support to OREM's *Energycast* program. A new television studio with state-of-the-art production equipment was installed in the Communications office to support Energycast and other video productions. UCOR also produced materials for the National Cleanup Workshop, held in Arlington, Virginia, telling the story of cleanup success across the Oak Ridge Reservation. Secretary of Energy Jennifer Granholm noted these cleanup achievements in her keynote address at the workshop, focusing on turning liabilities into assets.

Other major accomplishments included managing the official community observance ceremony for completion of Vision 2024 and promoting UCOR's inclusion in *USA Today*'s first list of "Top Workplaces USA" nationwide for 2024. Communications staff also oversaw the 2024 summer intern program, which drew more than 40 interns from 14 colleges in 10 states the largest class in the company's history.

# **Task Order Delivery**

UCOR's contract is based on completing task orders, a type of contracting that is saving taxpayer dollars while ensuring efficient, effective cleanup.

May 2024 marked the second year of the Oak Ridge Reservation Cleanup Contract and UCOR's delivery via DOE's end state contracting model. The goal of this model is to achieve measurable results toward completion of the OREM mission on the Oak Ridge Reservation by accomplishing the maximum amount of environmental cleanup at the best value to U.S. taxpayers.

Contracts, estimating, and project controls organizations worked with project managers from across the UCOR enterprise to establish scope, schedule, and estimates for new work, then negotiated with OREM to finalize the tasks. The completed subtasks outline OREM's expectations for the desired outcome or "end state" for each project. UCOR then applies its plan to safely, efficiently, and effectively deliver the work, whether self-performing or subcontracting.

In FY 2024, UCOR and OREM negotiated eight subtask proposals as well as 13 other contract actions for a total value of approximately \$1.8 billion. Over the course of the contract, UCOR and OREM have negotiated 18 subtasks, valued at ~\$3 billion.

The team's efforts allow the proper sequencing of work to ensure steady workflow and optimal workforce utilization.



#### **Task Order**

#### **Period of Performance**

Task Order 1	Transition	February 28, 2022 - May 22, 2022
Task Order 2	Contract Implementation	May 23, 2022 - September 30, 2022
Task Order 3	End State Phase In	October 1, 2022 - November 26, 2023
Subtask 4-1	Core Functions and Post-Retirement Benefits/Long - Term Disability and Pension	November 27, 2023 - September 30, 2025
Subtask 4-2	Implementation of DOE O 206.2, Chg 1	November 27, 2023 - November 26, 2024
Subtask 4-3	HQ-Funded Technology Development	May 28, 2024 - August 5, 2024
Subtask 4-4	HQ-Funded Cyber Modernization	January 27, 2025 - September 30, 2025
Subtask 5-1	ORNL Central Campus and Melton Valley Priorities - Phase I	November 27, 2023 - April 13, 2033
Subtask 6-1	Y-12 Former Mercury Use Facilities and Bear Creek Valley Priorities - Phase I	November 27, 2023 - January 21, 2032
Subtask 6-2	Alpha 2 Complex Demolition Project	August 20, 2024 - April 17, 2028
Subtask 7-1	ETTP Soil Remediation End State	August 1, 2023 - July 16, 2026
Subtask 8-1	Environmental Management Disposal Facility - Sub- task 1 (Early Site Preparation)	July 24, 2023 - September 11, 2024
Subtask 8-2	Environmental Management Disposal Facility - Sub- task 2 GWFD and BOC	November 16, 2023 - May 26, 2030
Subtask 9-1	Mission Support Facility - OF200 Mercury Treatment Facility Line Item	July 24, 2023 - January 27, 2025
Subtask 9-2	OF200 MTF, Subtask 2a - Initial Site Responsibility, Procurement, and Construction Activities - Onboard- ing and Training	November 20, 2023 - December 28, 2023
Subtask 9-2a	OF200 MTF, Subtask 2a - Initial Site Responsibility, Procurement, and Construction Activities - Phase 2 and Phase 3	November 17, 2023 - June 30, 2024
Subtask 10-1	ETTP Final RODs/Remedies/Closure - Subtask 1	November 26, 2023 – May 5, 2033
Subtask 13-1	Alpha-5 Complex Initial Preparation for Demolition	March 3, 2025 - February 17, 2027
Subtask 17-1	Infrastructure for ORNL and Y-12 Cleanup	December 4, 2023 - April 28, 2026

# **Cleanup Progress**

Soil remediation was completed at the ETTP Heritage Center as workers continued making great strides at ORNL and Y-12 to remove contaminated, unneeded facilities.

### East Tennessee Technology Park (Heritage Center)

Soil remediation has been completed at East Tennessee Technology Park (ETTP), marking another critical step in the transformation of the site into a community asset.

UCOR excavated and disposed of more than 554,000 cubic yards of contaminated soil at ETTP, the former Oak Ridge Gaseous Diffusion Plant, since the start of soil remediation. Completion of this work, referred to as Vision 2024, comes four years after UCOR completed



UCOR President and CEO Ken Rueter speaks at the Vision 2024 completion event

demolition of more than 13 million square feet of unneeded facilities at the site (Vision 2020), including five massive uranium enrichment buildings. During this cleanup, UCOR worked to transform ETTP into a multiuse industrial park, with 25 businesses currently operating at the site. It also focused on historic preservation and conservation, designating land for these purposes.



UCOR's reindustrialization efforts at ETTP are expected to facilitate 1,400 jobs and \$1.35 billion in investment by the companies locating at the site.

EM and UCOR officials joined local community and elected leaders to celebrate completion of this significant remediation milestone.

Initial estimates indicated that approximately 100,000 cubic yards of soil would need to be excavated, an amount that would increase fivefold as work progressed. This increase did not delay the project, which was completed ahead of schedule.

To complete remediation, ETTP was divided into several parcels, called Exposure Units, or EUs. Workers methodically began excavation activities in these EUs, sometimes deploying unique technologies to complete the work. For instance, to remediate a mudflat that was inaccessible to equipment by land, UCOR teamed with Sevenson Environmental Services to perform remediation of the mudflat working from a floating

### **2024 ETTP** achievements by the numbers





49,499 cubic yards of waste disposed of



20 acres of land remediated



work platform positioned in Poplar Creek. Excavation, soil packaging, and site restoration of the mudflat soils were successfully completed, marking the first ever remediation work of this type performed in Oak Ridge Reservation cleanup.

Another innovative approach involved the use of rail shipments to dispose of hazardous soil requiring offsite shipment. The soil was to be packaged in B-25 boxes that hold up to 3 cubic yards of soil per container. Loading over 1,000 B-25 containers is a very time-consuming effort and would require over 200 over-the-road truckload shipments to complete. Due to constraints in the U.S. supply chain affecting B-25 container construction and long-haul trucking, this loading operation posed a significant challenge. UCOR teamed with Perma-Fix Environmental Services, Inc. to use rail services for disposal of this waste, which reduced the schedule and freed up resources for continued remediation work. "Soil remediation can be challenging with the potential to uncover unexpected contaminants," said Jimmy Hughes, UCOR Area Project Manager. "For instance, we uncovered mercury in one of the EUs. We had to adjust our approach, but thanks to our flexibility and responsiveness, and applying our experience, lessons, and personnel from Y-12 mercury remediation work, we kept that project on schedule and successfully completed remediation of that EU."

To commemorate the historical significance of ETTP, a history center opened at the site in 2020, and a viewing platform to view the footprint of the mile-long, U-shaped K-25 building is under construction. More than 3,500 acres have been set aside for conservation on the Black Oak Ridge Conservation Easement.

With soil remediation completed, UCOR will now focus on groundwater and surface water remediation, the final cleanup efforts at ETTP.



More than 554,000 cubic yards of contaminated soil was removed from ETTP as part of Vision 2024

### ETTP through the years enabled by being investment-worthy







### Oak Ridge National Laboratory

This fiscal year was highly productive for ORNL deactivation and demolition with the final disposition of the 3005 Low Intensity Test Reactor (LITR) vessel. Deactivation work continues on facilities adjacent to the LITR. The Oak Ridge Research Reactor (Building 3042) and the Oak Ridge Graphite Reactor support facilities are nearing demolition next year. Deactivation also continues in the 12 buildings along Isotope Row as they move toward demolition in 2025. Decontamination efforts at the Radioisotope Development Laboratory (Building 3026) progressed with crews completing the remaining hot cell cleanup prepping for demolition in the next fiscal year.

#### Low Intensity Test Reactor (3005)

Workers shipped the 35,600-pound, 30-foot-long reactor vessel from the ORNL LITR that was demolished in Fall 2023 offsite for disposition. Once the vessel was removed from the facility, engineers measured contaminant levels and determined that the reactor was not considered transuranic waste. They developed a new process and procedure for packaging, hoisting, rigging, shipping, and disposing of the vessel. The reactor vessel was removed from its temporary storage container, safely placed into a custom-designed casing and trailer, and subsequently loaded for transport offsite. All facility deactivation and demolition has been completed.

#### Oak Ridge Research Reactor (3042)

UCOR safely removed the top portion of the 32-foot reactor vessel in 2023. In 2024, UCOR segmented and removed the remaining reactor vessel after pumping 19,000 gallons of reactor pool water into tanks for sampling, then dispositioning through the Liquid and Gaseous Waste Operations (LGWO). The reactor vessel sections weighed 5,100 pounds for the lower portion and 6,900 pounds for the upper piece. In addition, over 100,000 pounds of hazardous lead waste from legacy tanks and process systems were safely removed and packaged for disposal. Removing the lower portion of the reactor vessel and draining the reactor pool water allows the facility to be fully deactivated and then eventually demolished.



Reactor pool before deactivation (left) and below after lower reactor vessel removal and cleanup





UCOR workers collaborating with subcontractors like Energy*Solutions* created a crew that took initiative, ingenuity, and years of collective experience to complete the reactor pool deactivation. Resolving the challenges like crane and hose repairs, utilizing a 72-inch diamond cutting saw to remove the reactor section, modifying industry standard tools like the 40-foot-long reach tools to meet the demands of this specific cleanup were unique yet compliant solutions.

# Oak Ridge Graphite Reactor support facilities (3002, 3003)

During the fiscal year, crews made progress at the Graphite Reactor support facilities, removing 238 cubic yards of waste. Workers completely deactivated the Building 3003 Fan House and were continuing to deactivate the 3002 Filter House Facility at the end of the fiscal year. Crews have completed gross decontamination of the filter cells and were preparing to apply fixative to prevent contamination spread during future demolition. Crews are working to isolate

![](_page_17_Picture_3.jpeg)

Workers perform a mock-up to prepare for sludge removal at the Oak Ridge Graphite Reactor support facilities

### Innovation

# Digital twin robotic arms used in hot cells

UCOR continually looks for ways that high hazard work can be conducted more safely. Our Technology Development group is exploring a variety of robotic solutions. One example of that is the potential use of digital twin robotic arms to work in hot cells. Working in partnership with DOE-HQ Offices of Environmental Management and Technology Development, OREM, and Argonne National Laboratory, UCOR and ORNL conducted a "cold" test of such a robotic system that could be used in ORNL Building 3517 to support core cell drilling. The robotic arms will let crews do work in contaminated areas more safely. A further test of the system is planned in FY 2025.

![](_page_17_Picture_8.jpeg)

the Filter House from the main Building 3001 where the Graphite Reactor is located, a requirement prior to initiating support facility demolition. After performing mock-ups, crews began removing water and sludge from an internal building canal.

# Radioisotope Development Laboratory hot cells (3026)

Crews continued deactivating the highly contaminated hot cell structure that was part of the former Radioisotope Development Laboratory at ORNL. The team successfully addressed challenges removing water and sediment from the cell bank floor by suspending sediment through prepackaged filters, capturing the filtrate in waste tote containers for disposal. Crews then prepared and placed 24 inches of a concrete mixture into the hot cell to reduce the overall radiation dose rates by more than ten times the initial readings. After creating access into the cell, workers installed additional radiation shielding so they could safely continue deactivation and packaging remaining waste. This work followed the successful removal in FY 2023 of a wire about the size of a straightened paperclip that was highly irradiated. The structure is scheduled to be demolished next year.

#### Isotope Row and Isotope Development Lab

As the fiscal year drew to a close, workers continued deactivating the 12 Isotope Row facilities, sampling and removing contaminated materials and hazardous waste such as transite ducts, laboratory hoods, glove boxes, ventilation exhaust pipes, process drains, and lead. Significant achievements included the first shipment of transuranic waste from the Isotope Development Laboratory Building 3038, disposing of contaminated equipment, and completely removing the krypton tanks from the 3093 Storage Cubicle. In Building 3029, the Radioisotope Production Laboratory, hot cell cleanup and equipment removal was in progress at the end of the fiscal year.

# Fission Product Development Laboratory (3517)

Workers continued deactivation of the Fission Product Development Laboratory. As the fiscal year closed, crews were working in cells 9 and 10 of 20 hot cells using core drilling and specially designed tools to survey and capture images needed for future deactivation. Performing mock-ups and restoring the 20-ton overhead bridge crane helped to ensure that further hot cell investigation can be performed safely.

![](_page_18_Picture_7.jpeg)

Hot cell in the former Radioisotope Development Laboratory

#### **Process Waste Treatment Plant**

UCOR successfully placed the former Process Waste Treatment Plant building in a cold and dark status over the summer. This effort is vital to the continued operation of the tanker off-loading station supporting Liquid and Gaseous Waste Operations. Early deactivation activities between UT-Battelle, LLC and UCOR electricians removed permanent power and installed temporary power to the complex.

Over the last several years, crews completed multiple activities to facilitate and prep the complex for demolition, including doing support work to enable significant reroutes of potable water and steam lines to the Influent Pump Station, Building 4001. When workers complete deactivation of the last support building, 3518, the facility will be ready for future demolition.

#### **ORNL Experimental Gas-Cooled Reactor (EGCR)**

Throughout the fiscal year, crews worked to complete the last waste loadout of nearly 39,840 pounds of asbestos, metal debris, and hazardous waste materials from the EGCR experimental cells and utility tunnel. This work was made easier by installation prior to this fiscal year of a lift system that had previously been used on the Y-12 Biology Complex project and recycled for this project.

Last waste loadout from experimental cells and utility tunnel at EGCR

![](_page_19_Picture_6.jpeg)

#### Planned and ongoing cleanup work at ORNL

![](_page_19_Picture_8.jpeg)

### **2024 ORNL** achievements by the numbers

![](_page_20_Picture_1.jpeg)

# 435,000

pounds of hazardous, universal, and asbestos waste dispositioned

![](_page_20_Picture_4.jpeg)

250,000 pounds of radiological, low-level waste disposed of

![](_page_20_Picture_6.jpeg)

**6,000** pounds of transuranic material removed from Building 3038

Dire.

### Y-12 National Security Complex

UCOR made remarkable progress at Y-12 during this fiscal year. Not only did the team begin demolition at the Alpha-2 Complex, they also pumped and treated 4 million gallons of water from Beta-1 and removed legacy waste containers from Alpha-4, achieving fiscal year priorities.

#### Alpha-2 (9201-2)

Beginning demolition of the Alpha-2 complex was a top priority for DOE Environmental Management this year. Demolition got underway in Fall 2024 at the Carpentry Shop (480 square feet) on the southwest side of the main Alpha-2 facility. The main building in the complex, the Fusion Energy Building (also referred to as Alpha-2), is a 325,000-square-foot former uranium enrichment facility that has a footprint of 2.5 acres. Because of the size of the facility, deactivation took several years, beginning in 2020. During this final year of deactivation, workers overcame a number of challenges, including developing a process to vent mercury vapors. The engineering-designed ventilation and containment solution mitigated mercury vapors in the facility, allowing workers to remove almost 2,000 liner feet of mercury-contaminated pipe. More than 4 gallons of mercury was recovered.

Deactivation activities in Alpha-2 included removing the last of the hazardous waste and draining oil from equipment. Crews had to clear various areas of the basement to allow it to be filled with controlled lowstrength material (CLSM). The CLSM will provide structural support for heavy equipment that will be on the slab during demolition. Workers also had to plug storm drainage areas around Alpha-2 as one of the last preparatory steps to demolition.

While deactivation was going on inside Alpha-2, a separate project was underway on the outside to reroute

![](_page_21_Picture_7.jpeg)

Workers are installing a hot tap to drain piping in the Alpha-2 basement prior to removal

![](_page_22_Picture_0.jpeg)

Utilities had to be rerouted around Alpha-2 to prepare the building for demolition

Y-12 utilities around the complex. Although rerouting these utilities is under the scope of Consolidated Nuclear Security, LLC (CNS) through the National Nuclear Security Administration (NNSA), CNS entered into a Strategic Partnership Project with UCOR (issuing a Memorandum Purchase Order allowing UCOR to perform this work) to ensure completing critical scheduling milestones on this project did not delay starting demolition of Alpha-2.

![](_page_22_Picture_3.jpeg)

*Demolition begins at Alpha-2 on the Carpentry Shop, meeting a significant DOE milestone for starting demolition of the complex* 

The project involved rerouting several key

utilities, including steam, instrument air, plant air, argon gas, nitrogen gas, and demineralized water. Workers installed four new structural steel bridges across Second Street, which is the main road adjacent to Alpha-2. Each bridge weighs over 2,000 pounds and took over a year to design and build. Installation of new piping systems for Y-12 requires extensive design support, field engineering, and system testing to meet specific system requirements.

![](_page_23_Picture_0.jpeg)

Beta-1 Building

#### Beta-1 (9204-1)

The team working at Beta-1 achieved several deactivation milestones this fiscal year. Beta-1 is a three-story former uranium enrichment facility covering 210,500 square feet. Workers completed deactivating the above-ground floors during the fiscal year. Pumping and treating water from the basement has been a significant undertaking. In FY 2024, crews treated 5.7 million gallons and will continue to mitigate weatherbased water intrusion. In addition, 100 linear feet of old thorium-contaminated piping was safely removed and prepped for disposal.

#### Alpha-4 (9201-4)

Activities moving Alpha-4 closer to cold and dark status began with crews installing a 13.8kV electrical skid last fall. Crews addressed mercury vapors, supporting repackaging containers for eventual waste disposition. Additionally, UCOR placed all of the tray room monorails back in service to support upcoming deactivation activities.

Workers have characterized roughly 50% of the facility's waste and shipped 227 legacy waste containers, with another 260 characterized.

Next fiscal year will move Alpha-4 closer to achieving declassification, cold and dark status, and the completion of legacy waste disposition.

#### Beta-4 (9204-4)

As the fiscal year closed, UCOR was preparing the necessary plans that would allow workers to start work in Beta-4. Once all plans are reviewed and approved, crews will begin to move the facility toward the cold and dark configuration.

![](_page_23_Picture_10.jpeg)

Workers address mercury ventilation vapors at Alpha-4

### 2024 Y-12 achievements by the numbers

![](_page_24_Figure_1.jpeg)

#### Planned and ongoing cleanup work at Y-12

![](_page_24_Picture_3.jpeg)

# **Nuclear Operations**

UCOR's Nuclear Operations team ensure the safety and integrity of nuclear facilities at ORNL as well as at the Transuranic Waste Processing Center.

#### 3608 piping replacement

In FY 2024, UCOR completed the 3608 Above-Ground Piping Replacement project—an extensive piping project to extend the life of the Liquid and Gaseous Waste Operations (LGWO) system at ORNL. This threeyear, \$18 million project at the 3608 Process Waste Treatment Complex (PWTC) makes the system more efficient and reliable, and helps avoid the possibility of disrupting ongoing ORNL operations.

The project safely executed 132 critical lifts, disposed of 115,000 pounds of waste, installed approximately 5,500 feet of piping, conducted heat tracing, and installed insulation. It required 5,000 hours of welding to complete the nearly two miles of welded lines.

The major infrastructure upgrade was completed four months ahead of schedule and \$600K under budget.

#### **3608 Filter Press replacement**

UCOR also completed another extensive effort at PWTC —replacement of the 3608 Filter Press. The filter press is critical to 3608 operations for the ability to press liquids out of waste product for shipment. The old filter press had reached the end of its service life expectancy. The new press's efficiency has resulted in a decreased weight per box by an average 400 pounds, which enables LGWO operations to reduce time and craft resources needed for box loading.

![](_page_25_Picture_8.jpeg)

Workers replacing 3608 piping

After completing the successful startup of the new filter press, crews also fully recovered from over a month of filter downtime.

#### **3039 Stack repairs**

In 2024, ORNL Nuclear Operations completed repairs to the Gaseous Waste System's 3039 Stack, extending the lifespan of this historic structure by at least 10 years.

![](_page_26_Picture_0.jpeg)

Workers performing maintenance on the 3039 Stack to extend the life on this historic structure

![](_page_26_Picture_2.jpeg)

![](_page_27_Picture_0.jpeg)

Workers install a new stack cap after removing the top 5 feet of the structure

![](_page_27_Picture_2.jpeg)

This repair will allow continued ORNL operations by ensuring necessary off-gas and cell ventilation.

Crews repaired duct breechings that had occurred over the years as the system aged and shifted. They completed tuckpoint (removal/repair of grout used to hold brickwork in place) of all grouting between bricks from the top of the stack to the bottom. Then crews removed the top five feet of the formerly 250-foot stack and installed a new stack cap. This removal required an outage in which UCOR worked closely with ORNL prime contractor UT-Battelle and another site cleanup contractor, Isotek, to plan for the outage and ensure the work would have minimal impact on operations.

The Gaseous Waste System's 3039 Stack was constructed in 1949. Physical inspection of the structural integrity of the 250-foot tall Gaseous Waste System's 3039 Stack in FY 2023 identified areas of the stack that had notably deteriorated and required repairs.

#### 2600 Above-Grade Piping Project

The next facility piping replacement project began in 2024 with sampling for waste profiling and moving

immediately into piping fabrication efforts. The first of 14 piping runs were successfully installed. For the first run, the F-2103 tank (1-million-gallon tank, the largest of all the tanks) had to be fully drained and pumped out. During UCOR's planning evolution for this piping run, the project identified that there were five additional piping runs that would require this same level of preparation. Those five runs were evaluated, and it was determined that replacing certain valves associated with the F-2103 tank during the first piping replacement would eliminate draining and pumping efforts, saving the project at least five weeks and, more importantly, eliminating the need to send personnel into a contaminated area and generating unnecessary waste. This forward thinking required revisions to the project schedule but has created the potential for notable efficiencies in the future.

#### **LLLW Strategic Plan**

UCOR has proactively jumped into an area of needed support for strategical planning of low-level liquid waste (LLLW) sludge disposition. Initially UCOR hosted an ORNL LLLW Workshop with OREM, UT-Battelle, the DOE Office of Science, and representatives from the Savannah River National Laboratory (SRNL) to discuss a strategy for managing and dispositioning LLLW and sludge. When OREM asked for a strategic plan for the management, treatment, and disposition of these LLLW, UCOR'S ORNL Nuclear Operations Team provided a high-level assessment of the current system condition, operational efficiency, and a suggested approach for future treatment of LLLW and sludge disposal.

#### **Molten Salt Reactor Experiment Facility**

With the shifting schedules of safety basis implementation and readiness at TWPC, the Nuclear Operations MSRE Continuous Purge System (CPS) project offered increased flexibility with a proposed "early" implementation verification review (IVR) five weeks before declaration of implementation. This also allowed UCOR programs to appropriately schedule personnel and avoid conflicts with respect to multiple large-scale assessments occurring at the same time. Even though the TWPC schedule continued to shift, the MSRE CPS project was able to allocate resources to continue with the early IVR.

Subsequently, the MSRE CPS team completed the CPS management assessment for startup. This endeavor required a 15-person team to cover all elements of the

![](_page_28_Picture_4.jpeg)

MSRE Continuous Purge System

### **Continuous improvement**

#### LGWO winterization process upgraded

After experiencing numerous issues with instrumentation and valves that resulted in a temporary shutdown of LGWO processing at 3608 during a freeze event in December 2022, the ORNL Nuclear Operations team conducted a full evaluation and made numerous improvements to their existing winterization processes the next year. The results of these improvements were seen during the January 2024 winter storm event, which resulted in a number of days with temperatures that fell to 0°F. Thanks to the changes implemented by the team, the 2024 weather event resulted in only seven work orders as well as uninterrupted operations at LGWO.

![](_page_28_Picture_9.jpeg)

CPS operations. Issue resolution is ongoing in support of the Contractor Readiness Assessment start.

#### **Transuranic Waste Processing Center**

Processing and disposing of transuranic waste is TWPC's central mission. 2024 was a busy year as workers completed scheduled waste shipments and added a new waste-treatment process.

During this fiscal year, the TWPC team completed 12 shipments of legacy transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico, totaling 157 drums and 36 standard waste boxes (containing 144 drums) of inventory reduction for burial at WIPP. The TWPC team also completed 12 shipments of mixed low-level waste and low-level waste (MLLW/LLW), and hazardous industrial waste resulting from the processing and certification of TRU legacy waste, totaling 15 boxes and 96 drums of MLLW, 24 boxes of LLW, and 62 drums of hazardous industrial waste inventory reduction for treatment and disposal.

The TWPC team processed and repackaged 4 boxes and 13 drums of challenging Nuclear Fuel Services waste into 140 drums of compliant soil and debris for WIPP and Nevada National Security Site disposal.

TWPC was one of the first in the DOE complex to receive approval from the DOE Carlsbad Field Office

for a new waste-treatment process for non-compliant cellulosic waste (cotton rags, cheesecloth, paper towels, etc.) that potentially contains oxidizing chemicals. In September, the team began processing the cellulosic waste inventory containing more than 100 drums. After sorting cellulosic wastes from compliant waste, the team encapsulates the cellulosic material in grout and repackages the waste into a compliant container for characterization, certification, and shipment to WIPP.

UCOR is also preparing to add a new waste stream for processing. During

this fiscal year, TWPC has been working to complete Documented Safety Analysis (DSA) implementation and readiness activities to support the venting and processing of oxide wastes. These facility modifications and additional controls will provide enhanced protection during processing the oxides in the TWPC glove box.

In the spring, UCOR began a life extension study on TWPC. DOE directed the study to identify actions that would be required to transition the facility into a longer-term mission. The Phase I deliverable completed in April 2024 provided a snapshot of potential waste streams that require a longer operating life and the facility improvements or modifications that would be needed to support handling those streams. At the end of FY 2024, a more thorough analysis will be developed to highlight the current condition of the facilities and make recommendations for improvements/modifications for DOE to consider.

Since TWPC is a Category 2 nuclear facility, the Defense Nuclear Facilities Safety Board (DNFSB) completes an annual review of the facility's safety measures. In January, DNFSB representatives toured TWPC as part of an annual visit to Oak Ridge. A major effort for TWPC that cut across all areas of the company was administratively merging more than 40 TWPC and UCOR programs. That process included integrating all relevant procedures and processes with the programs.

![](_page_29_Picture_11.jpeg)

TWPC waste being prepared for shipment

![](_page_30_Picture_0.jpeg)

Waste from TWPC packaged and loaded to be transported for disposition

![](_page_30_Picture_2.jpeg)

# Waste Management

UCOR's waste factory and hierarchy approach provides efficient, cost effective, and safe disposal of wastes generated during Oak Ridge Reservation cleanup. This approach relies on having sufficient onsite disposal capacity, which took great strides forward during the fiscal year.

UCOR operates and maintains multiple onsite disposal facilities for the waste generated from demolition activities. The Environmental Management Waste Management Facility (EMWMF) receives low-level, hazardous, chemical, and mixed waste. The Oak Ridge Reservation Landfills (ORRL) receive sanitary waste, clean demolition debris, and spoils material. And a new facility, the Environmental Management Disposal Facility (EMDF), is under construction to take over demolition waste once EMWMF fills up — currently at 85% capacity. A small percentage of waste that doesn't meet onsite acceptance criteria is shipped offsite for disposal.

To be able to transport over 10,000 truckloads of waste each year, UCOR has to carefully track each waste shipment to ensure the transportation takes place safely and compliantly until the final disposal destination is reached. The team is dedicated to keeping all waste shipments safe and secure, to reduce and eliminate hazards and risks all along the way, every day.

![](_page_31_Picture_5.jpeg)

![](_page_32_Picture_0.jpeg)

Enhanced operational cover being placed over EMWMF

#### Environmental Management Waste Management Facility

Water management is the greatest operational challenge to landfills. To address that challenge at EMWMF, an enhanced operational cover has been installed over areas of the landfill that have reached the maximum elevation. The enhanced operational cover is comprised of a nominal 12 inches of compacted clay placed directly over the waste, then a synthetic membrane is placed over the clay to prevent erosion and shed stormwater. To further reduce the volume of contact water and leachate generation, workers at EMWMF installed an additional 1.3 acres of enhanced operational cover over the remaining exposed waste areas on the north side of cells 1-3.

Recognizing the need for additional onsite disposal capacity while awaiting the EMDF landfill, UCOR began exploring ways to extend the life of the EMWMF landfill

![](_page_32_Picture_5.jpeg)

#### Waste disposed of in FY 2024

Location	Cubic yards
EMWMF	19,870
ORR Landfills	36,924
Other onsite	18,609
Offsite	5,597
Total	81,000

in early 2015. In May 2018, the regulators approved a redesigned final cap that raised the authorized disposal capacity from 2.2 million to 2.331 million cubic yards, extending the facility's life up to two years and ensuring continuing disposal capacity for the Oak Ridge Reservation cleanup program. Waste placement in the newly acquired airspace began in earnest in FY 2024 and will continue until the landfill is closed.

#### **Oak Ridge Reservation Landfill**

Early in the fiscal year, UCOR finished building the final permitted cell in Landfill V ahead of schedule. The 5.7-acre expansion provides almost a half million cubic yards of additional disposal space to support ongoing cleanup at Y-12 and ORNL. That equates to approximately 50,000 dump truck loads of added capacity. The buildout extends the life of the landfill for another 15 to 20 years.

During the fiscal year, workers conducted maintenance work at Sanitary Landfill II to improve stormwater drainage from the landfill cap. Sanitary Landfill II has been closed for almost 30 years without much concern. However, more recent post-closure inspections determined that the landfill cap needed maintenance to more effectively shed stormwater.

Sanitary Landfill II was designed to have a vegetative cover. Therefore, as a sustainable and cost-effective approach, topsoil was removed from the cap, staged, and later placed back onto the cap when maintenance was complete. This maintenance activity will have a longterm benefit to the landfill and surrounding ecosystem.

#### Partnership Allows Reuse of ORNL Power Source

During the year, UCOR facilitated the successful transfer of the Byproduct Utilization Program (BUP)-500 radioisotope thermoelectric generator to Pennsylvania and Zeno Power Systems. The generator had been sitting unused at the ORNL Fission Product Development Laboratory (Building 3517) since the 1980s and was expected to be in storage for another 30 years. The normal paths for disposition were not available because the device was "too hot" due to the thermal wattage

![](_page_33_Picture_8.jpeg)

Workers load the BUP-500 radioisotope thermoelectric generator for transport

from its strontium-90 (Sr-90) power source.

A partnership among DOE, UCOR, and Zeno put the BUP-500 on a path for safe disposition and its Sr-90 source on track for beneficial reuse. Zeno will use the material to build radioisotope power sources for small satellites.

#### Legacy waste

The Waste Operations and Logistics team disposed of numerous large pieces of legacy wastewater treatment tanks and equipment stored on a Bear Creek Valley surveillance

and maintenance site. This waste, some of which was almost 50 years old, presented numerous waste characterization and disposal challenges due to the equipment's age and the limited information left by

![](_page_34_Picture_5.jpeg)

Pictured at a BUP-500 celebration event are, from left, UCOR President and CEO Ken Rueter, DOE EM Senior Advisor Ike White, OREM Manager Jay Mullis, Zeno Power CEO Tyler Bernstein, and NASA Planetary Science Chief Technologist Leonard Dudzinski

the previous operating contractors who generated this waste. Most of the waste was disposed of offsite as lowlevel waste. Workers shipped 334 cubic yards of legacy waste offsite for compliant disposal.

### **Continuous improvement**

#### Mulch and soil from EMDF repurposed

Applying the principles of UCOR's Environmental Management System, excess mulch and soil generated in EMDF construction was used at Sanitary Landfill 1 (SL1). This 12-acre landfill was closed by grading to promote drainage, capping with two feet of soil, and establishing a vegetative cover. Since closure, the site has been routinely inspected and maintained. Typical of this type of landfill from that era, differential settlement and waste decomposition resulted in soft spots and changes to the surface topography. Almost 600 cubic yards of mulch was placed around SL1 for erosion and sediment control, and about 40,000 cubic yards of soil was placed as a maintenance action to recontour the area, improving drainage.

![](_page_34_Picture_11.jpeg)

# **Critical Projects**

To ensure successful cleanup operations, two projects that facilitate cleanup are essential to safe and effective operations. The Environmental Management Disposal Facility will provide onsite storage capacity, and the Outfall 200 Mercury Treatment Facility will process mercury removed from buildings slated for demolition.

#### **Environmental Management Disposal Facility**

Early site preparation construction activities were completed in FY 2024 for the Environmental Management Disposal Facility (EMDF). This project removed interferences from the EMDF site to support follow-on construction activities.

These activities included rerouting segments of Bear Creek Road and Haul Road, as well as preparing a borrow area, spoils area, and construction support area. Workers cleared trees and brush from 46 acres, realigned 1.57 miles of road, and installed 1.3 million square feet of liner. This work was completed three months ahead of the UCOR Performance Management Baseline schedule and \$3 million below the subtask awarded value.

Construction for the groundwater field demonstration to determine the elevation of the groundwater after installation of an impermeable landfill liner system also began in 2024. This is critical information needed for the landfill design to determine the elevation of the cell floor. The EMDF landfill and water treatment facility design is in progress and will ensure waste remains isolated from the surrounding environment.

EMDF is essential in providing storage capacity for cleanup work that will take place at ORNL and Y-12.

#### **EMDF** construction focus areas

#### **Early Site Preparation**

This effort involved rerouting of Bear Creek Road and the Haul Road. It also involved constructing a support area for future work crews, a borrow area, and a spoils area.

![](_page_35_Picture_11.jpeg)

#### Groundwater Field

#### Demonstration

This effort involves understanding how groundwater levels adjust when landfill construction installs an impermeable landfill cell liner. The study will span two wet seasons to capture data.

![](_page_35_Picture_15.jpeg)

UNDERWAY

#### **Balance of Construction**

This effort includes completing the final design, constructing the first two waste disposal cells, and building support facilities (wastewater treatment, tanks, piping, etc.).

![](_page_35_Picture_19.jpeg)

![](_page_36_Picture_0.jpeg)

UCOR has completed early site preparation at EMDF

![](_page_36_Picture_2.jpeg)

![](_page_36_Picture_3.jpeg)

![](_page_37_Picture_0.jpeg)

#### **Outfall 200 Mercury Treatment Facility**

In November 2023, UCOR assumed responsibility for completing the Outfall 200 Mercury Treatment Facility at Y-12. UCOR transitioned 90 members of the project to UCOR. This critical infrastructure project is the key to future deactivation and demolition work at Y-12 as it will capture and treat mercury released by future cleanup work at numerous facilities on the Y-12 footprint.

The members of the Outfall 200 team who joined UCOR took advantage of a safety refocus and training period as part of their onboarding process. During this onboarding time frame, the UCOR team performed due diligence activities at the site, developed work packages, and began developing a new Performance Management Baseline that was delivered in October.

The workforce returned to the site and successfully completed the first concrete placements under UCOR in April 2024. Concrete pours continued into the summer at both the Treatment Facility and at Headworks. Progress was made throughout the year on these structures with approximately 600 cubic yards of concrete poured to bring the project total to 2,400 yards of concrete.

At the end of the fiscal year, the team placed the first of three sludge settling tanks at the Treatment Facility and started premobilization activities for steel erection.

![](_page_37_Picture_7.jpeg)

![](_page_38_Picture_0.jpeg)

Construction activities at the Headworks and Treatment facilities

![](_page_38_Picture_2.jpeg)

# **Reindustrialization and Reusue**

Cleanup of ETTP has provided more economic possibilities for a site that once housed numerous contaminated, unneeded structures. Land transfers are supporting economic development as clean energy moves to the forefront at the site. Historic preservation efforts are also underway.

The Reindustrialization and Reuse vision for economic development, historic preservation, and natural resource conservation continues to be realized at ETTP Heritage Center and in other areas of the DOE Reservation. ETTP Heritage Center is a key component of a Nuclear Innovation District being established in Oak Ridge. Many nuclear energy companies such as Kairos Power, X-energy, and most recently Orano USA have chosen to locate in Oak Ridge. Much of this new development is on land that UCOR previously remediated.

#### **Economic Development**

After UCOR successfully completed cleanup on a 365acre tract at ETTP where a powerhouse complex was once located, the DOE Oak Ridge Office of Environmental Management (OREM) transferred the property for commercial and industrial use. This transfer is part of OREM's ongoing efforts to transform ETTP, the former Oak Ridge Gaseous Diffusion Plant, into a multi-use industrial center, national park, and conservation area.

![](_page_39_Picture_5.jpeg)

![](_page_40_Picture_0.jpeg)

Construction of the K-25 Viewing Platform

OREM has transferred over 1,700 acres for economic development use at ETTP, including 470 acres over the past fiscal year. OREM and UCOR also completed the final transfer of major utilities, marking a significant milestone for the Reindustrialization Program. ETTP is now entirely served by a public infrastructure system of water, sewer, electric, and natural gas utilities. Invested landowners, tenants, and a growing number of prospective companies are attracted to the ETTP location because of its existing infrastructure, local workforce development, and business-friendly environment.

In an announcement by the Tennessee Governor in September 2024, a large land parcel within the Oak Ridge Reservation and close to ETTP Heritage Center was selected by Orano USA to build one of the largest uranium enrichment facilities in North America. The endeavor sends a strong signal that Oak Ridge is a hub that attracts nuclear energy industry.

This announcement followed the ground breaking for the Hermes Low-Power Demonstration Reactor at ETTP in July 2024. This new facility, being constructed by Kairos Power, is the first non-light-water reactor to be permitted in the United States in more than 50 years. Thanks to UCOR's successful cleanup operations that made land available for economic development, ETTP and the Oak Ridge region are becoming a hub for clean energy and a nuclear renaissance.

#### **National Historic Preservation**

Adjacent to the K-25 History Center, the footprint of the K-25 Gaseous Diffusion Plant is transforming to become an anticipated destination within the nation's Manhattan Project National Historical Park. Over the past fiscal year, the U.S. Army Corps of Engineers has overseen the site work and construction of the Viewing Platform building overlooking the footprint, which is scheduled to be completed in 2025. A subcontractor for UCOR will then install multimedia exhibits to demonstrate historical site operations and context, and additional interpretive features will be added to the grounds following the completion of the K-25 Viewing Platform.

![](_page_40_Picture_7.jpeg)

Construction underway for the new Kairos reactor

# **Safety and Health**

Safety is a prerequisite for all work we do at UCOR. UCOR's total recordable injury rate of 0.28 and days away restricted or transferred rate of 0.14 are significantly lower than the industry average rates, illustrating a strong integrated safety management system and a mature safety culture.

#### **Operational Excellence**

As a learning organization, UCOR incorporated lessons learned from a non-UCOR tree-felling-related fatality to improve tree felling, trimming, limbing, and bucking safety performance. Requirements for the use of chain saws/pole saws and reciprocating saws for the purpose of performing tree removal operations from ground level or by working aloft have been procedurally formalized. Training modules for chain saw/pole saw safety, arborist qualifications, tree-work-competent person designation, and tree felling qualifications were created. An additional procedure was developed to establish and implement requirements for the acquisition, distribution, use, training, maintenance, and inspection of trauma kits.

![](_page_41_Figure_4.jpeg)

### FY 2024 Safety Performance

![](_page_41_Picture_6.jpeg)

Tree-felling class

#### **DOE VPP Recertification**

A concerted effort to prepare the UCOR workforce for the DOE Voluntary Protection Program (VPP) triennial assessment culminated in UCOR's demonstration of alignment with VPP elements that include management leadership, employee involvement, work site analysis, hazard prevention and control, and safety and health training. DOE-VPP certification encourages contractors to surpass compliance with DOE and other regulatory requirements to achieve excellence through systematic approaches that emphasize creative solutions through cooperative efforts with managers, employees, and DOE. The highly successful review granted UCOR the esteemed honor to continue as a DOE VPP Star level, which recognizes outstanding protectors of employee safety and health.

#### **Subcontractor Safety**

Armed with the knowledge that subcontractor success is essential for the completion of mission-critical DOE objectives, UCOR has risen to the challenge of managing high-risk subcontracted activities. The implementation of UCOR's subcontractor safety program, which enhances communication of safety requirements and expectations through mentoring and oversight efforts, strengthens subcontractor performance.

At the end of FY 2024, more than 30 UCOR subcontractors that managed more than 50 lower tier subcontractors had worked 50 months (approximately 400,000 hours) without a recordable injury. This impressive record was achieved while performing high-hazard work activities in high-risk environments. Working together, UCOR and its subcontractors collaborate to identify best-in-case solutions. Safety and health compliance verification and inspection plans are used to ensure that the highest standards of protection are provided to the workforce and environment.

#### **Mercury Treatment Facility Construction**

A comprehensive transition plan was created to ensure the safe, efficient, and compliant transition of Outfall 200 Mercury Treatment Facility construction scope to UCOR in early FY 2024. As a learning organization, UCOR capitalized on lessons learned from other project transitions within the DOE complex to mitigate risks and establish operational expectations. The transitioning workforce participated in an immersive five-week safety and health training program that introduced them to UCOR's safety culture, integrated safety management system, and conduct of operations.

# Award-winning performance

UCOR received several accolades for its safety performance in FY 2024. Some of the safety awards it received, detailed further in the Recognitions section, are:

- DOE Voluntary Protection Program Star of Excellence
- Voluntary Protection Program Participants' Association Innovation Award – Fall Protection Program
- Tom Perkes DOE VPP Champions Award
- Melissa McKenzie ASSP President's Award
- Ryan Cannady NSC Rising Star Award

#### Safety Fest TN

As a Safety Fest TN founding partner and Defender Sponsor, UCOR assisted with planning and managing Safety Fest TN 2024, an event that provides free safety and health training. Approximately 1,100 individuals who represented 190 organizations from 18 states and the District of Columbia registered to attend the event. In addition to technical safety and industrial hygiene topics, the event was heavily focused on safety culture and integrated safety management. With more than 1,300 class seats filled, nearly 3,000 contact hours of free training were provided during the week-long event.

![](_page_42_Picture_14.jpeg)

Safety Fest TN featured a variety of classes, exhibits, and demonstrations, such as this Blackhawk helicopter being exhibited by the Tennessee Air National Guard

# Performance

Information in this section reflects UCOR's performance since UCOR began work (August 2011) through the end of FY 2024, covering both the original ETTP Cleanup Contract and the Oak Ridge Reservation Cleanup Contract. The numbers reflect the continued exceptional performance in cleaning up the Oak Ridge Reservation.

![](_page_43_Figure_2.jpeg)

More than 9.4 million square feet of facilities demolished

More than 1.84 million cubic yards of waste safely disposed More than 9.58 million safe miles traveled

82 percent of subcontracted work awarded to small businesses (\$2.53 billion)

#### Investment Worthy

![](_page_44_Figure_1.jpeg)

![](_page_44_Figure_2.jpeg)

![](_page_44_Figure_3.jpeg)

41

# Community

UCOR understands that supporting the local community is an important part of being a responsible employer and neighbor.

UCOR's Community Outreach Program oversees the donation of more than \$300,000 to community organizations each year and a total of \$4.2 million since 2011. The program focuses on four key areas:

- Children's advocacy
- Education and workforce development
- Health and wellness, with an emphasis on mental and behavioral health
- Conservation and historic preservation

A few of the agencies we support include East Tennessee Children's Hospital, Emory Valley Center, Second Harvest of East Tennessee, Foothills Land Conservancy, Legacy Parks Foundation, Covenant Health, Methodist Medical Center of Oak Ridge, and the United Way of Anderson County. UCOR sponsors a yearly mini-grants program that provides funding for science, technology, engineering, and math (STEM) projects at local schools. We also support higher education initiatives as part of our university partnerships.

#### **Children's Advocacy**

UCOR teamed up with the Oak Ridge Police Department to bring a brighter Christmas to local children and their families during the annual Shop with a Hero event. Children from local schools were paired with police officers, sheriff's deputies, and firefighters along with

UCOR's support for the Shop with a Hero event created a larger shopping allowance for local children

![](_page_45_Picture_12.jpeg)

![](_page_46_Picture_0.jpeg)

UCOR's participation in local STEM educational events helped provide unique learning opportunities to local children

a UCOR elf who helped them shop for gifts for their families. Thanks in part to UCOR's donation, the Shop with a Hero program was able to provide a larger shopping allowance for 42 recipients.

The Ridge View Elementary School Pantry, the first school pantry opened in Roane County, continued to serve students and their families in its sixth year. The pantry, made possible by UCOR's sponsorship with Second Harvest Food Bank, provided food to an average of 89 families per month. The pantry continued food distribution during the summer months when school was out.

UCOR continued a multiyear tradition as carousel sponsor of East Tennessee Children's Hospital (ETCH) Fantasy of Trees. Proceeds from the 2023 event will help support the neurology program, including ways to introduce enhanced services, like epilepsy monitoring and other neurological opportunities. UCOR also participates in ETCH's Adopt-A-Family program, providing support to two patient families during the holiday season. The UCOR Elevate organization held its annual Coloring Spirits Bright campaign, collecting more than 2,000 games, toys, and books. Gift items donated are separated by age, put into a "Santa Sack," and handdelivered to the patients.

#### **Education and workforce development**

UCOR continued to partner with OREM to participate in local STEM (Science, Technology, Engineering, and

Mathematics) Nights, including an elementary STEM Night at Midtown Elementary School. The UCOR/DOE booth features a hands-on D&D lesson that younger students could relate to and participate in—clearing contaminants from a building before demolition and soil remediation once the building demolition is complete as well as fire protection and geology exhibits.

UCOR's annual STEM Education Mini-Grants Program continued to support STEM-related projects in area schools. The program supports K-12 teachers in Anderson, Blount, Campbell, Knox, Loudon, Morgan, Roane, Scott, and Union counties (and the city systems in those counties). Grants are available for both traditional STEM classes as well as for STEM-enhancing projects in all areas (English, social studies, music, etc.). This year, UCOR awarded a total of \$45,000 to 41 projects in 29 schools. UCOR has given a total of \$395,000 to fund STEM and STEM-related projects since the company began its mini-grants program in 2012.

In 2024, UCOR connected with middle and high school students through Junior Achievement and career days. At the Junior Achievement Get Hired! Event, UCOR representatives spoke with Oak Ridge 8th graders about future careers on the Oak Ridge Reservation. The annual event focuses on the skills necessary to get and keep a job. The Roane Career Day, hosted by the Roane Alliance, provided exposure to future career options for high school and middle school students from ten different Roane County schools. The Combined Career Day featured hands-on demonstrations and ORNL's

![](_page_47_Picture_0.jpeg)

UCOR Community Outreach Coordinator Shannon Potter talks with students at the Get Hired! event

traveling science fair exhibit. UCOR partners Cooperative Agreement of Labor and Management (CALM), Laborers' International Union of North America, and Roane State Community College were on hand to further discuss local training and education opportunities in preparation for Oak Ridge Reservation careers.

#### Health and wellness

UCOR and its business partners Strata-G, RSI, and Longenecker & Associates are making a combined donation of \$645,000 over the next five years to East Tennessee Children's Hospital to expand regional behavioral health outreach at Children's Oak Ridge Pediatrics facility.

Oak Ridge Pediatrics will be the first primary care location in the Children's Hospital network to offer behavioral health care. The donation will allow ETCH to hire two full-time behavioral care clinicians, purchase new technology, and offer mental health outreach education and first aid.

ETCH will partner with UCOR to promote mental health services at its Oak Ridge Pediatric Primary Care site and in the Oak Ridge community, The partnership will help them identify children and youth who need mental health services and get them the help they need.

UCOR continued support of Covenant Health's Artsclamation!, a fine-arts show and sale benefitting Peninsula Hospital, including the Senior Behavioral Health Center at Parkwest and the Peninsula outpatient services at Methodist Medical Center. Peninsula's mission is to help people recover from mental disorders and dependencies so they can lead healthy, positive, and productive lives. The event includes artwork created

UCOR and its business partners are donating \$645,000 to Children's Hospital for behavioral health outreach programs

![](_page_47_Picture_9.jpeg)

by mental health consumers in Peninsula's Recovery Education Center's therapeutic programs. UCOR served as a Master Circle sponsor of the event, which has provided almost \$1 million for Peninsula's mission over the past 20 years. Funds generated through the 2024 art sale will enhance patient care programs and support counseling and therapy services provided at Peninsula Hospital and outpatient clinics across our region.

UCOR was a benefactor sponsor of Emory Valley Center's (EVC) 11th Annual Compassion Fund Raiser. Proceeds supported a variety of EVC programs, including the Early Learning Center, Early Intervention Emergency Crisis Fund, Community Participation (passes to local attractions), Behavioral Health, Innovation (e-bikes), household items for residential support, and Medicaid Alternative Pathways to Independence (MAPs) home safety packages. The UCOR table raised over \$5,000 at the event, which will support EVC's Behavioral Health Services and the purchase of e-bikes. In 2024, UCOR continued increasing its community investment focus on mental and behavioral health in alignment with the company's commitment to mental health as they relate to pediatric, adult, and occupational medical needs. UCOR contributed an additional \$15,000 toward new behavioral health programs at EVC.

The class of 2024 interns chose supporting the Methodist Medical Center (MMC) Hospitality Houses

relieving the financial burden of hotel stays, the houses help guests focus on physical and emotional healing. So far, the houses have been used by patients and their families from 36 states.

#### **Conservation/historic preservation**

UCOR supports several historic preservation partners, including the Oak Ridge Children's Museum, the American Museum of Science and Energy (AMSE), and the K-25 History Center. UCOR was proud to support the 24th Lavender Festival held in historic Jackson Square. In addition to sponsoring the event, UCOR sponsored the official Lavender Festival Water Bottle, a clean and recyclable bottle filled with RAIN pure mountain spring water. Water refill stations were available throughout the festival for free refills and sales of the bottles benefitted the Oak Ridge High School Dance Cats. The company also supported AMSE and the K-25 History Center by sponsoring the second annual gala fundraiser in 2024. In addition, UCOR continued to support the Legacy Parks Natural Asset Plan and initiatives of the Clinch Valley Trail Alliance at Haw Ridge Park.

A "cover charge" was collected at an intern lunch & learn session as a fundraiser. The effort raised \$250, which was used to purchase approximately 75 half-gallons of milk, along with eggs and jars of jelly for UCOR's school pantry at Ridge View Elementary School in Rockwood.

as their community outreach project. UCOR workforce donations totaled 1,789 items, including paper towels, pudding cups, soup, garbage bags, etc.—one of the largest donations ever made to the houses. Located behind the hospital in Oak Ridge, the houses include 12 fully furnished apartments with an Americans with Disabilities Act (ADA) accessible apartment in each house. The houses provide temporary lodging for patients and families who travel to Oak Ridge for extended medical treatment, primarily serving patients of the Thompson Cancer Survival Center at Methodist, Thompson Oncology Group, and their caregivers. By

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UCOR interns with items collected for Hospitality Houses

# Recognition

UCOR's exemplary performance was noted several times in FY 2024, both locally and nationally. The company was recognized by USA Today as a Top Workplace nationwide. The company as a whole, and individuals and teams within the company, were honored for their efforts.

#### **UCOR named Top Workplace**

USA Today named UCOR as one of the Top Workplaces in the nation for 2024. Also, for the third consecutive year, the *Knoxville News Sentinel* named UCOR as one of the Top Workplaces in East Tennessee. UCOR was one of nine large businesses named to the list. UCOR was also named to the Top

Workplace Culture Excellence list for Compensation and Benefits.

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partners, communities, and developers in restoring and reusing contaminated land at federal facilities.

With hundreds of acres of federal land transferred to the local community, dozens of nuclear-based companies are locating at ETTP Heritage Center. Many of these companies are leading the national renaissance for nuclear energy in advanced reactor concepts and new fuel sources.

To date, more than 1,700 acres have been transferred to the community. This land now serves as home to companies like Kairos Power, Ultra Safe Nuclear,

## EPA recognizes UCOR for site reuse

OREM and UCOR received a major award from the Environmental Protection Agency (EPA), recognizing successful cleanup of the K-25 gaseous diffusion plant site. EPA's Superfund National Priorities List award was presented to OREM and UCOR as part of the seventh annual National Federal Facility Excellence in Site Reuse Awards. The awards highlight the accomplishments of federal agencies, states, Tribes, local

![](_page_49_Picture_10.jpeg)

UCOR officials accept EPA award for site reuse at ETTP Heritage Center

TRISO-X, and others. As they pioneer innovative reactor concepts, the companies are bringing in \$1.35 billion in investments and generating an anticipated 1,400 jobs.

# Secretary of Energy recognizes UCOR team for EMDF support

Secretary of Energy Jennifer Granholm recognized 10 members of the UCOR team for their support of the Environmental Management Disposal Facility (EMDF). Granholm presented the 10, who were part of the Oak Ridge Regulatory and Community Engagement team, with the Secretary's Honor Award, one of the highest forms of internal recognition DOE's Federal and contractor employees can receive.

In addition to the UCOR staff, the team also included members from OREM and Pro2Serve. The Secretary honored the team for its work to achieve approval of, and community support for, the decision to move forward with construction of EMDF. To achieve approval of the project, the team conducted multiple public meetings and used their expertise to work with regulatory agencies over a period of years to address any potential environmental impacts.

UCOR team members receiving the award are Eric Abelquist, Kent Fortenberry, Sid Garland, Jeff Grindstaff, Matt Hagenow, Jennifer Linton, Mary Magleby, Robin Manning, John Patterson, and Annette Primrose.

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EMDF under development

#### Tennessee Chamber Honors UCOR's Environmental Excellence

UCOR was presented the Tennessee Chamber of Commerce and Industry's (TCCI) Outstanding Achievement in Environmental Excellence Award at the Tennessee Sustainability Conference in

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UCOR Sustainability Manager Brad Russell with Chamber award

Gatlinburg in August. The TCCI Environment and Energy Awards recognize businesses that have demonstrated outstanding achievement in environmental protection and enhancement. The Environmental Excellence Award was given for the best overall efforts in environmental innovation and improvements.

UCOR was chosen as the winner of this award for its work on the Environmental Management Disposal Facility—a low-level contaminated waste landfill being constructed with a high degree of environmental sensitivity. ORNL Natural Resources scientists identified the area as having wetlands with a large population of four-toed salamanders, a species of special concern in Tennessee, and tubercled rein orchids, a Tennessee threatened species. Both species were relocated, ensuring environmental responsibility for constructing and maintaining an onsite landfill.

#### UCOR achieves ninth EPEAT award

The Global Electronics Council presented UCOR with the EPEAT (Electronic Product Environmental Assessment Tool) Purchaser Award for the ninth consecutive year. The award recognizes organizations for purchasing and reporting EPEAT-registered products and services.

EPEAT is a globally recognized ecolabel for electronics that evaluates a product's environmental impact throughout its lifecycle. By choosing EPEAT-registered products, UCOR helps to reduce greenhouse gas emissions, conserve energy, and minimize waste. UCOR's commitment to sustainability is exemplified by its purchase of over 1,400 EPEAT-registered products in 2023, including gold-certified laptops and monitors.

This achievement not only demonstrates environmental responsibility but also yielded significant cost savings of approximately \$47,000.

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UCOR team members instrumental in fleet sustainability efforts include, from left, Brad Russell, Tee Duncan, Caleb Baird, Leah Beckworth, and Matt Coleman

#### UCOR receives Green Fleet, GreenBuy awards

The NAFA Fleet Management Association, the vehicle fleet industry's largest membership association, presented UCOR a Green Fleet Award. The Green Fleet Awards recognize peak-performing fleet sustainability efforts and honor fleets that have enhanced practices to make a positive impact on the environment.

UCOR was also recognized with a DOE Bronze-level GreenBuy sustainability award for excellence in "green purchasing" that extends beyond minimum compliance requirements. This is the second time ETTP has won a GreenBuy Award for demonstrating exceptional achievements in Sustainable Acquisition.

#### EMWMF awarded for water management

DOE presented UCOR with a national Sustainability Award for the unique and innovative water management practices at the Environmental Management Waste Management Facility (EMWMF). Over the past decade, the enhanced operational cover has returned nearly 175 million gallons of clean water back to the local ecosystem, which means this water does not have to be actively managed or transported to a treatment facility.

#### UCOR gets Top Site Score in Sustainability

UCOR received the "Top Site Score" among DOE complex-wide program participants at the DOE Office of Sustainable Environmental Stewardship (EHSS-21) Sustainability Performance Division virtual awards ceremony. In honor of Earth Day, the awards highlight the Sustainable Climate-Ready Sites (SCRS) program. This inaugural year SCRS program recognized excellence in 15 categories, including air quality, cultural resource protection, fleet, habitat quality, pollution prevention, and water management. UCOR's Patrick Mullen gave a presentation on our SCRS efforts during the online program.

#### Vajda receives ANS Special Award

Joshua Vajda, a project engineer in UCOR's site integration and cleanup engineering group, received the 2024 American Nuclear Society (ANS) Special Award. This award recognizes an individual for meritorious contributions in research and/or developing understanding in important areas of current activity. Each year, the ANS Board of Directors selects a topic.

This year's topic was "achievements and contributions to advancing peaceful applications of nuclear technology and addressing future challenges." Vajda is recognized for his notable contributions that have significantly advanced regulatory aspects of the nuclear fuel cycle and for his admirable leadership in nuclear deactivation and decommissioning efforts.

#### Tom Perkes recognized by VPPPA

UCOR Program & Sustainability Project Manager Tom Perkes received the DOE VPP Contractor Champions

Award at the Voluntary Protection Programs Participants' Association (VPPPA) 2024 Safety+ Symposium in Colorado. Recipients are honored for their dedication and total commitment to the principles of the Voluntary Protection

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Tom Perkes, left, receives award

Program (VPP). They have achieved an outstanding level of performance in meeting established safety and health goals, actively conducting outreach to others, and achieving an injury and illness rate significantly below the average of similar businesses.

#### UCOR intern program honored

A six-person UCOR team was honored with the Amentum Athlon Award for the company's successful summer intern program. This past summer, UCOR expanded its intern participation to 40 students from 14 colleges in eight states, representing a 40% increase in the program from 2022. This dramatic growth coupled with the program's multi-year success was the basis for the award from Amentum, UCOR's parent company. The team was recognized in the People category, which honors "embracing inclusion and collaboration."

#### McKenzie receives ASSP President's Award

Mel McKenzie received the President's Award at the American Society of Safety Professionals (ASSP) Safety24 Conference and Expo, which was held in Denver. As a member of the Leadership Conference Planning Committee, Mel received the award "for transforming ASSP's Leadership Conference into a yearround offering that engages and empowers our Society's leaders to meet member needs."

## UCOR Wins Star of Excellence and Innovation awards

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Athlon award winners, from left, are Allison Lloyd, Jeremy Harley, Charlie Malarkey, Shannon Potter, Sierra Generette, and Jon Campbell

fifth consecutive Safety Innovation Award. The award recognized UCOR's Fall Protection Program designed to help workers perform tasks safely at heights.

In partnership with renowned industry experts, the UCOR Fall Protection Program was extensively revised to comply with ANSI Z359, Fall Protection & Fall Restraint. A core group of individuals became qualified to train UCOR Fall Protection Competent Persons and Authorized Persons.

More than 600 members of the workforce have completed the immersive hands-on training fall protection training modules. These improvements have facilitated the achievement of UCOR's goal to create a best-in-class fall protection program.

UCOR was a repeat winner of the VPP Star of Excellence Award in 2024. The award recognizes UCOR's outstanding level of performance in meeting established safety and health goals, actively conducting outreach to others, and achieving an illness and injury rate that is at least 75 percent below the average of similar businesses and operations.

VPPPA National Board of Directors recognized UCOR with the company's

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UCOR team with VPPPA Innovation Award

# Partnerships

UCOR's philosophy is that everyone has a seat at the table. We rely on numerous partnerships to be successful and value the working relationships we have with various entities.

#### UCOR, NABTU sign National Project Labor Agreement

The effort to retain and recruit skilled construction trade workers took a major step forward in FY 2024 with the signing of a Project Labor Agreement between UCOR and the North America's Building Trades Unions (NABTU).

This agreement marked DOE Environmental Management's first-ever agreement with a national labor organization, establishing a template other EM cleanup sites across the

DOE complex can use. The agreement allows greater flexibility in wage increases and other incentives for approximately 550 trade workers. It replaces the Construction Labor Agreement that was in place. That agreement was with local building trades and limited UCOR's ability to adjust wages to remain competitive in today's labor market. That disparity resulted in an attrition rate of more than 20 percent for craft workers at the company.

The new pact offers a 20% wage increase over a three-year period plus paid holidays, a contract ratification bonus, and a retention incentive program. It also ensures jurisdictional issues are resolved by national union leadership.

#### UCOR supports launch of Nuclear Engineering Program

UCOR supported Tennessee Technological University's successful effort to obtain formal state approval to begin classes for its new bachelor of science degree in nuclear engineering. After receiving formal state approval in 2024, Tennessee Tech expects to enroll nearly 50 nuclear engineering majors by the program's fifth year. This would increase the number of career-ready nuclear graduates in the state by approximately 30 percent.

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UCOR President and CEO Ken Rueter and OREM Manager Jay Mullis tour the new Tennessee Tech engineering building with College of Engineering Dean Joseph Slater

Tech's public announcement recognized UCOR's 2023 partnership to support the new degree program with expanded internship and "cleanup to clean energy" career opportunities at the Oak Ridge Reservation. UCOR is also providing executive support to the program's newly established External Advisory Board. UCOR's summer intern class included five Tennessee Tech students.

#### UCOR interns advance deactivation project

UCOR engineering interns advanced a project in a partnership between UCOR and Sandia National Laboratory. Under the direction of Josh Vajda, interns completed Light Detection and Ranging (LiDAR) scanning at the Oak Ridge Research Reactor (ORNL Building 3042). The Technology Development team is partnering with Sandia on a variety of new and safer ways to conduct deactivation and demolition activities, including LiDAR. Sandia provided the equipment for this project. LiDAR is a remote sensing method that uses light in the form of a pulsed laser to measure ranges. Because Building 3042 is a contaminated area, gathering test results with LiDAR decreases the amount of time and exposure to hazards that are inherent to completing the work. The success of this project will allow UCOR and Sandia to demonstrate actual proof of concept for LiDAR use in a live deactivation setting.

#### UT engineering students partner with UCOR

A six-person interdisciplinary team of students from the University of Tennessee—Rocky Top Remediation (RTR) worked with UCOR engineering mentors Beth Fowler and Matt Alley throughout the 2023-24 school year on a project designed to capture and reuse mercury from Y-12 National Security Complex.

RTR identified available technologies and developed innovative solutions to separate and treat mercury from excavated soil. The team also developed a business analysis comparing the cost of transporting contaminated soil for out-of-state treatment and disposal versus building a treatment facility utilizing onsite landfill disposal. The Interdisciplinary Senior Design program is a twocourse sequence where teams of students from the Tickle College of Engineering and Haslam College of Business

### Innovation

#### Drone video used to conduct inspections

UCOR partnered with ORNL's drone team to inspect the top of several Sealand containers stored at ORNL—a process that otherwise would have to be performed by personnel climbing ladders. This safer method of inspection is another innovative approach that helps keep our workforce safe.

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UCOR interns participate in LiDAR scanning at ORNL's Oak Ridge Research Reactor in partnership with Sandia National Laboratory

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partner with industry sponsors to design and build authentic products and processes. Working closely with an industry liaison and a faculty coach, students gain practical experience in teamwork and communication, problemsolving and engineering design, and develop leadership, management, and people skills. Students learn firsthand how to develop products and processes that meet customer requirements on time and within budget.

#### Partners join "Nuclear and Innovative Energy Day"

UCOR representatives attended the inaugural "Nuclear and Innovative Energy Day" at the Cordell Hull Building in Nashville. Hosted by State Rep. Monty Fritts from Loudon, the event brought many of UCOR's partners together to share the latest in energy technology. Among those attending were representatives of TRISO-X and Kairos, both of whom are taking advantage of reindustrialization opportunities made possible by UCOR's cleanup efforts, and representatives from ORNL and Y-12. Rep. John Ragan and Sen. Ken Yager also attended to help spread awareness of nuclear workforce training and achievements in East Tennessee.

#### UCOR partners address low-level waste

During the year, UCOR hosted an ORNL Low-Level Liquid Waste (LLLW) workshop with OREM, UT-Battelle, the DOE Office of Science, and representatives from the Savannah River National Laboratory (SRNL) to discuss a strategy for managing and dispositioning of LLLW and sludge. UCOR's ORNL Nuclear Operations Team provided a high-level assessment of the current system condition and operational efficiency, which aided the approach for future treatment of LLLW and disposal of sludge. SRNL is an industry expert in LLLW and agreed to assist UCOR and OREM in developing a road map to an end state strategy.

## UCOR partners with Perma-Fix to reach a solution on hard-to-treat waste

For more than 30 years, the last of a long list of legacy wastes on the Oak Ridge Reservation has been awaiting a final solution for disposition. Twenty-five drums holding up to 55 gallons each of mixed low-level liquid chemical waste have been safely stored at ORNL. Until now, no treatment options were available, challenging the team to find solutions for this hard-to-treat waste and develop a comprehensive disposition plan. UCOR partnered with contractor Perma-Fix<sup>®</sup> Environmental Services Inc. to develop a treatment pathway for this waste. Collaborating with the right partner to meet regulatory standards and protocols has led to a breakthrough technology.

The unique class of chemicals, called dioxins and furans, required a specialized treatment to prepare it for disposal. This new innovative process is a milestone for waste management and another example of UCOR tackling decades-long hazardous waste issues.

The next step is to have the treatment vendor submit a petition for Determination of Equivalent Treatment to EPA. Approval of this petition will be EPA's authorization to move forward with treatment of the waste.

Once approved, the waste will be shipped to Perma-Fix in Gainesville, Florida, for treatment.

#### **Completion of Vision 2024: a partnering success**

Partnering brought success during the course of Vision 2024 work. To complete this massive soil remediation project, UCOR relied on partnering with other companies whose expertise allowed safe, efficient removal of contaminated soil. UCOR worked with Sevenson Environmental Services to perform remediation of a mudflat working from a floating work platform position in Poplar Creek. The area was inaccessible to equipment by land, so this partnership allowed for successful completion implementing this unique remediation method. UCOR also teamed with Perma-Fix Environmental Services Inc. to use rail shipments to dispose of hazardous waste requiring offsite shipment.

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UCOR's partnership with Perma-Fix helped to identify a means to dispose of legacy waste that did not have an identified path for disposal

# The future begins with cleanup

This document looks back at key accomplishments during FY 2024, but UCOR is always looking forward. Our past cleanup efforts have significantly reduced environmental risks and helped turn the Oak Ridge region into an industrial and economic hub, and the work performed during the next several years will continue providing local and nationwide benefits.

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**Facilitating site missions** 

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**Promoting economic development** 

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**Restoring environments** 

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#### **Supporting historic preservation**

#### Mission

Implement strategic and operational initiatives to complete major environmental cleanup on the Oak Ridge Reservation

#### Vision

Enable an Oak Ridge free of legacy contamination that creates an enduring environmental, social, and economic future

#### Values

Safety Partnership Integrity Stewardship Acceptance

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