Advocate

A publication of the Oak Ridge Site Specific Advisory Board – a federally appointed citizens panel providing independent recommendations and advice to DOE's Environmental Management Program

Oak Ridge Sets Pace of Cleanup Nationwide

Oak Ridge Office of Environmental Management has completed 40% of all federal facility remedial actions in the U.S. Environmental Protection Agency's Region 4 since 2018. These tasks are eliminating risks to the environment. Workers are pictured conducting soil remediation projects at the East Tennessee Technology Park. That work is scheduled for completion next year.

Recent figures from the U.S. Environmental Protection Agency (EPA) show the Oak Ridge Office of Environmental Management (OREM) and its contractors are conducting cleanup at a rate leading the nation among federal facility sites.

Government-sponsored environmental cleanup in the United States extends far beyond DOE's 15 active EM cleanup sites. It also includes scores of U.S. Department of Defense sites, and those overseen by other federal agencies, such as the U.S. Department of Interior.

There are 175 federal facilities, or sites, on the Superfund National Priorities List where cleanup is needed across the country. Those sites require cleanup tasks, known as remedial actions, which can range from tearing down buildings to digging up contaminated soil and treating groundwater plumes.

Remedial action completions are an important national target for EPA, and they are reported to Congress annually.

The latest reports show that from fiscal years 2018 to 2022, OREM accounted for 13 percent of all completed federal facility remedial actions in the U.S., and 40 percent of all completed actions in EPA's Region 4, which includes Tennessee, Alabama, Florida, Georgia, Kentucky, North Carolina and South Carolina.

EPA's Region 4 includes 20 federal facilities located at EM's Oak Ridge, Savannah River and Paducah sites, in addition to 17 military bases.

"Remedial actions can vary in size and complexity across different federal facilities, but even with those considerations, these figures highlight a special focus and diligence from our employees that set us apart," said OREM Manager Jay Mullis. "Their approach continues to reinforce our reputation as a site where federal investments lead to visible progress and enhanced safety."

Crews in Oak Ridge were the first in the world to remove a former uranium enrichment complex that operated during the Manhattan Project and Cold War. That effort, completed at the East Tennessee Technology Park (ETTP) in 2020, involved removing more than 500 buildings with a total footprint that could cover 225 football fields.

Today, workers are in the final stages of removing all contaminated soil at ETTP. They're also taking down old reactors at the Oak Ridge National Laboratory (ORNL) and preparing former enrichment facilities for demolition at Y-12.

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Reservation Update

Large machinery, known as a soil screener, removes rocks to ensure the construction of the Landfill V expansion meets clay liner requirements. The Landfill V expansion project is on schedule to be completed by the end of the year.

Crews Kick Off Landfill Expansion Project

OREM lead cleanup contractor, UCOR, has started constructing the final permitted cell in Landfill V.

Landfill V is part of the Oak Ridge Reservation Landfills, which accept sanitary, industrial and construction waste generated from cleanup across the site.

With an expansion of five acres of land, Landfill V will provide almost half a million cubic yards of disposal space to support ongoing cleanup at the Y-12 National Security Complex and Oak Ridge National Laboratory. That equates to approximately 50,000 dump truck loads of added capacity.

The Oak Ridge Reservation Landfills have seen a 170 percent increase in waste receipts over the last five years. That rise is due in large part to the amount of soil being received from OREM remediation projects at East Tennessee Technology Park, which are all slated for completion next year.

The new landfill cell being constructed ensures on-site disposal availability. Expanding Landfill V's disposal capacity also will extend the life of the Environmental Management Waste Management Facility (EMWMF), an important on-site disposal facility for low-level waste.

OREM disposes of sanitary, industrial and construction waste in Landfill V, while sending low-level contaminated waste to EMWMF. These complimentary efforts ensure space at EMWMF is used efficiently.

The expansion effort underway is being implemented under a UCOR-issued small business subcontract using a Tennessee Department of Environment and Conservation (TDEC)-approved design.

UCOR, TDEC and an independent quality assurance company are providing oversight, reviews and independent testing.

CTI and Associates, Inc. is a small business supporting the effort.

The landfill expansion is on schedule to be completed by the end of the year.

OREM has also started early site preparations for its Environmental Management Disposal Facility. That facility, which is slated to begin operations in the late 2020s, will provide an additional 2.2 million cubic yards of waste disposal capacity for low-level contaminated waste.

OREM Crews Prepare Y-12 Facility for Teardown

OREM and UCOR recently completed major deactivation efforts at the multi-story former uranium enrichment facility spanning nearly 325,000 square feet. The work had begun in 2020.

EM's deactivation and demolition (D&D) work at Oak Ridge presents unique challenges amid ongoing missions at Y-12. Alpha-2 is co-located with other active facilities at Y-12, requiring utilities to be rerouted prior to demolition. UCOR has been working closely with Y-12 management and operations contractor Consolidated Nuclear Security (CNS) on that task.

A precursor to demolition, deactivation is the process of placing an excess facility into a stable condition to minimize existing risks and protect workers, the public and the environment.

Before the Alpha-2 demolition begins next year, workers must deactivate the basement and reroute nearby utilities. UCOR is helping CNS create a design for the rerouting, which will also enable demolition of the Old Steam Plant at Y-12. EM crews finished preparing the plant for teardown in 2021.

Deactivation at Alpha-2 included clearing asbestos-contaminated piping, removing floor and ceiling tiles and draining oil from equipment. To date, crews have disposed of nearly 3,000 cubic yards of waste and removed 280,000 pounds of lead-shielding blocks.

UCOR is on schedule to begin demolition in the spring.

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In the final step of the Low Intensity Test Reactor demolition project, a crane raised the 37,600-pound reactor structure from its housing, placing the 30-foot-long reactor vessel in a specialized carbon metal container for shipment for disposal.

Crews Demolish Low Intensity Test Reactor at ORNL

OREM and cleanup contractor UCOR have safely completed demolition of the Low Intensity Test Reactor at Oak Ridge National Laboratory (ORNL), checking off a second EM 2023 priority at the site in as many months.

This latest successful teardown also marks the second reactor EM crews have taken down in ORNL's central campus over the past year, following the removal of the Bulk Shielding Reactor last fall.

Scan the above QR code with your smartphone to watch video of the demolition on YouTube.

The Low Intensity Test Reactor, also known as Building 3005, was built in 1949 as a criticality testing facility that used highly enriched fuel with water as a coolant. It operated until 1968.

Teardown of the three-story facility began in March, when crews removed the outer structure and various ancillary facilities. Next, workers used a high-reach crane to remove a trolley and bridge crane from the building. They then removed precast cement slabs and shield blocks to access and address the main reactor structure.

Once the slabs and shield blocks were removed, crews used a crane to raise the 37,600-pound reactor structure out of its housing. They placed the 30-foot-long reactor in a specialized carbon metal container for shipment for disposal.

In total, the demolition project produced more than 1.1 million pounds of waste. Workers will ship the reactor to an approved waste disposition site within a few weeks.

In the final step of the Low Intensity Test Reactor demolition project, a crane raised the 37,600-pound reactor structure from its housing, placing the 30-foot-long facility in a specialized carbon metal container for shipment for disposal.

Crews Clear Water from Building Set for Demolition

EM crews recently removed more than 1 million gallons of water from the basement of the Beta-1 building at Y-12.

OREM cleanup contractor UCOR is ridding the building's basement of water as it prepared the Manhattan Project-era building for eventual demolition.

In previous years, sump pumps failed, causing groundwater to fill the basement.

Workers removed this significant volume of water in 42 working days, with approximately 450,000 additional gallons of water still needing to be pumped from the basement as cleanup progresses.

The Beta-1 building was constructed in 1944 to enrich uranium during World War II. It was later converted to laboratory space for fusion-energy technology.

Demolition of the massive structure will eliminate old, unused infrastructure and open land to support future DOE missions.

To complete the work safely, UCOR built a water treatment skid outside the facility. The skid uses micron bag filters and carbon vessels to filter the water to meet stringent water quality standards. After treatment, the water is discharged.

Deactivation of the building will continue in the above-grade areas before progressing into the basement areas when they're pumped dry.

A worker lowers a hose to pump water from the basement area of the Beta-1 facility. Crews pumped 1 million gallons over the 42 work days.

Advocate

OREM Breaks Ground on EM Disposal Facility

Taking part in the Environmental Management Disposal Facility groundbreaking last week, from left, were Steve Arnette, president, Critical Mission Solutions Business, Jacobs; Mark Whitney, president, National Security, Amentum; Wade Creswell, county executive, Roane County; Brent Booker, Laborers' International Union of North America; Kevin Adkisson, North America's Building Trades Unions; Jeaneanne Gettle, acting regional administrator, U.S. Environmental Protection Agency; Randy McNally, Tennessee lieutenant governor; David Salyers, Tennessee Department of Environment and Conservation commissioner; Ken Rueter, president and CEO, UCOR; Jay Mullis, manager, Oak Ridge Office of Environmental Management; Chuck Fleischmann, U.S. representative; and William "Ike" White, EM senior advisor.

National, state, and local leaders joined OREM and its lead cleanup contractor, United Cleanup Oak Ridge (UCOR), this summer to celebrate the groundbreaking for the Environmental Management Disposal Facility (EMDF).

The $550-million project will provide a new onsite disposal facility that is essential for OREM and UCOR to maintain environmental cleanup momentum at the Y-12 National Security Complex (Y-12) and the Oak Ridge National Laboratory (ORNL). Cleanup projects at those sites are eliminating old, dilapidated facilities and clearing land that is being reused to support scientific research and national security missions.

OREM's current onsite disposal facility is nearing full capacity after 20 years of safe operations; however, hundreds of buildings still require demolition at Y-12 and ORNL. The Environmental Management Disposal Facility will provide the capacity needed for OREM to complete cleanup at those sites.

Dignitaries and officials at the event held in August included U.S. Representative Chuck Fleischmann, Lt. Governor Randy McNally, Senior Advisor for the Office of Environmental Management Ike White, U.S. Environmental Protection Agency (EPA) Acting Regional Administrator Jeaneanne Gettle, Tennessee Department of Environment and Conservation (TDEC) Commissioner David Salyers, OREM Manager Jay Mullis, and UCOR President and CEO Ken Rueter.

"As the leader for the cleanup program for the Department of Energy, I very much feel the responsibility that we have to address the legacy of the past", said Ike White, Senior Advisor for DOE's Office of Environmental Management. "This facility is an incredibly important part of making sure we can continue to do that here, and the teams doing cleanup in Oak Ridge are some of the best in the country."

In his remarks, U.S. Representative Chuck Fleischmann also discussed the importance of the project.

"Because of what we are doing here today, legacy cleanup will continue in Oak Ridge for the next 30 or 40 years until it's complete", said Fleischmann, "That means that Oak Ridge National Laboratory will be able to take down excess facilities. That means that our friends at NNSA will be able to do the critical work on our nuclear arsenal to keep our country safe."

DOE is complying with all federal and state requirements, and it is also incorporating numerous engineering features into the facility's design, under the oversight of EPA and TDEC, to ensure the waste remains isolated from the environment. Additionally, DOE will continue sending all highly contaminated waste out of state for disposal.

This week's event marked the start of early site preparation for the facility. The project will be conducted in three phases, and it is scheduled for completion in 2029.

Phase 1: Early site preparation includes moving utilities and rerouting portions of Bear Creek Road and the Haul Road.

Phase 2: The groundwater field

(See Groundbreaking on page 5)

OREM Welcomes New Staff

OREM welcomed **Abby Newberry** in April as a general engineer in Program Support branch of the Quality and Mission Support Division (QMSD).

Newberry's role will include assisting ORSSAB's deputy designated federal officer (DDFO), as well as helping with groundwater and soil remediation at ETTP, Y-12, and ORNL. She will also support National Environmental Policy Act (NEPA) compliance and sustainability efforts for the Oak Ridge Reservation.

Newberry was born in Knoxville, and grew up in the Athens, Tenn., area.

Abby Newberry

She holds a bachelor's degree from the University of Tennessee at Knoxville in chemical engineering, with a concentration in biomolecular studies.

Before joining OREM, Newberry spent two years doing coatings research and development at Eastman Chemical Company and a year doing quality analysis checks on chlorine, caustic, and bleach products in the private sector.

OREM welcomed **Leah Alexander** in September as a general engineer as part of the EM Pathways Recent Graduates Program.

A native of Maryville, Alexander graduated with a bachelor's degreee in biomedical engineering from University of Tennessee, Knoxville, in May.

Leah Alexander

Alexander's role will include supporting Integrated Project Teams, developing or performing assessments and perfomance evaluations, readiness reviews, and improvement initiatives. Her role will also include supporting QMSD activities, as well as other activities related to the Federal Facilities Agreement, ORSSAB, groundwater, and reindustrialization.

Cleanup

(Continued from page 1)

Together these projects are eliminating hazards and opening land for reuse. Cleaned land at ETTP is transferred to the community for economic development, and it is helping support expanding research and national security missions at ORNL and the Y-12 National Security Complex (Y-12).

"Regional and national data show OREM has an incredibly high-performing Superfund cleanup program," said Cathy Amoroso, EPA Region 4 Superfund Division manager for DOE coordination. "Oak Ridge's numbers showcase how our teams are working together through complex issues and producing tangible successes that are resulting in meaningful risk reductions for nearby residents."

Since 1995, the Oak Ridge Site Specific Advisory Board (ORSSAB) has been part of that team, providing stakeholder input on OREM's remedial actions, final use and long-term stewardship, and historic preservation at local DOE sites. Board members – all unpaid volunteers and most with no prior expertise in the topic – have devoted thousands of hours of time to offer thoughtful recommendations to DOE, and that work continues today.

This year alone, board members have participated in industry conferences such as RadWaste Summit 2.0 in Las Vegas, Nev., the National Brownfields Training Conference in Detroit, Mich., and the National Cleanup Workshop in Washington, D.C., gaining additional insights into the cleanup process and new developments and then bringing those insights back to share with other board members to better inform future recommendations.

Additionally, board members participated in the most recent Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Five-Year Review. The five-year, multi-agency review is designed to determine if remedies that have been implemented continue to protect human health and the environment. Required by CERCLA, the review covers the three DOE sites in Oak Ridge — ETTP, ORNL, and Y-12.

The board meets the second Wednesday of most months at 6 p.m. at the DOE Information Center, 1 Science.gov Way in Oak Ridge. Meetings of the board and its committees are open to the public.

Groundbreaking

(Continued from page 4)

demonstration study will help OREM confirm modeling of how groundwater levels will adjust when construction begins. This phase will capture data for two years and inform the facility's final design.

Phase 3: Balance of construction includes completing the final design and constructing the first two disposal cells. There will be four total disposal cells.

"I made a commitment to you—our stakeholders, our community, our client, our labor brothers and sisters—that we would be standing here today because of how important this is and that what you saw happen at the East Tennessee Technology Park would then be eclipsed by what we will see take place at Y-12 and ORNL," said UCOR President and CEO Ken Rueter.

Recent Recommendations

Recommendation 255: Recommendations on Groundwater Remedy Selections in the Main Plant and K-31/K-33 Areas at ETTP

As a result of past research and industrial activities on the Oak Ridge Reservation (ORR), groundwater beneath several areas of the reservation has become contaminated. Groundwater investigations have been done on and adjacent to the ORR since the 1980s. OREM, in partnership with regulators at the U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC), used findings from groundwater research, sampling, and analysis over the decades to develop a groundwater strategy document (DOE/OR/01-2628). Several strategy objectives were identified to guide the path forward for groundwater remediation on the ORR and these strategies were integrated into the Federal Facility Agreement (FFA), which sets milestones for cleanup actions on the ORR.

Early actions were taken in the 1990s for off-site contamination and high-risk/high-priority releases. In the 2000s, Watershed Interim Records of Decision (RODs) were signed to address contaminant sources and building demolition projects.

In 2020, OREM completed removal of all contaminated and unneeded buildings at East Tennessee Technology Park (ETTP) as part of the Vision 2020 project, with soil remedial actions slated for completion within the following year. Now, the site will be the focus of the first large-scale decisions on groundwater for the Oak Ridge Reservation (ORR).

ETTP is divided into three sections for groundwater remediation planning. One section is the Main Plant Area, which encompasses most of the operations area at the former enrichment complex. Another section is the area where the large K-31 and K-33 uranium enrichment buildings once stood. The third section is called Zone 1, which is the area immediately surrounding the Main Plant and K-31 and K-33 areas.

The Proposed Plan for an Interim ROD for Groundwater in the Main Plant Area at ETTP (DOE/OR/01-2921&D2/R1) was released for public input in January 2023. The scope covered by the Proposed Plan includes six areas of groundwater contamination (i.e., groundwater plumes) within the Main Plant Area. These areas are located below the water table in the unconsolidated weathered soil/rock and bedrock zones.

The Proposed Plan for the Record of Decision for Groundwater in the K-31/K-33 Area (DOE/OR/01-2922&D2) was released for public input in March 2023.

The proposed plans describe the alternatives analyzed, identify the preferred alternative for each respective area, and explain the rationale for each preferred alternative.

DOE accepted public comments on both proposed plans, with comments accepted on the Main Plant Area plan from April 5, 2023, through May 19, 2023, and on the K-31/K-33 Area plan from April 26, 2023, through June 12, 2023.

ORSSAB has been interested in the status of groundwater on and around the ORR for several years, and during that time OREM and contractor experts have provided several presentations on groundwater conditions. Most recently, Regulatory Affairs Specialist and FFA Projects Manager Roger Petrie presented board members with information on groundwater at ETTP on May 10, 2023, and June 14, 2023, with the presentations covering the Main Plant Area proposed plan and the K-31/K-33 Area proposed plan, respectively.

ORSSAB members also toured groundwater sites at ETTP on June 6, 2023, and the EM & Stewardship Committee had detailed discussions on May 24, 2023, and June 28, 2023.

Recommendations

Main Plant Area

Based on previous positive outcomes using enhanced in-situ bioremediation and its relatively low cost, ORSSAB supports its selection as the preferred alternative as detailed in the "Proposed Plan for an Interim Record of Decision for Groundwater in the Main Plant Area at the East Tennessee Technology Park, Oak Ridge, Tennessee" – dated January 2023. However, our concerns remain about the predictive positive outcomes being complicated by the uniquely complex hydrogeology in the area combined with additional contaminants of concern within the six targeted TCE plumes. Therefore, ORSSAB recommends the following after the first significant injection:

1. In addition to monitoring the six treated plumes, monitor downgradient and around those plumes to determine if the contaminants have migrated.
2. Monitor the microorganisms to evaluate continued viability.
3. Report the results of monitoring and evaluation to ORSSAB once this information is available.

K-31/K-33 Area

Based on information presented showing that the forces of nature appear to be lowering concentrations of contaminants in the K31/K33 area to acceptable levels, ORSSAB supports the selected alternative of monitored natural attenuation along with land use controls in this area.

EM SSAB Chairs Recommendations on Recommendations

According to the EM SSAB charter (Section 3), the EM SSAB provides EM senior management "with advice and recommendations concerning issues affecting the EM program." The EM SSAB has made at least 10 recommendations to DOE since 2018, often at the request of DOE. The recommendation process includes three parts: (1) the EM SSAB recommendation, (2) the DOE response to the recommendation, and (3) the final policy action or implementation of the recommendation by DOE. While parts (1) and (2) are well recognized (e.g., in public postings on the EM SSAB website and responses distributed to local Boards), it is part (3), implementation, that makes EM SSAB recommendations meaningful and the recommendation process an effective use of time and other resources, those of both EM SSAB members and DOE.

It is important to review the implementation of recommendations for several reasons:

1. **Ensuring accountability:** Recommendation implementation reviews help ensure that DOE is held accountable for the advice it requests and/or receives from its volunteer Board members. By examining whether recommendations have been implemented as written, EM SSAB can assess how its efforts are valued and identify areas where further deliberations and recommendations are needed.
2. **Improving effectiveness:** Recommendation reviews provide an opportunity to assess whether recommended activities are working as intended and identify areas for im-provement. By examining the results of recommendation implementation, EM SSAB and DOE can make adjustments to recommended activities to ensure they achieve their intended goals.
3. **Enhancing transparency:** Reviews of recommendation implementation increase trans-parency by providing a clear understanding of how recommendations are being imple-mented and the outcomes they are producing. This transparency is critical for building trust in DOE and ensuring that the public has confidence in DOE and its clean-up activities.
4. **Promoting learning:** Recommendation implementation reviews provide an opportunity for EM SSAB and DOE to learn from their experiences and identify best practices for making and implementing recommendations. By sharing these best practices, EM SSAB and DOE can promote more effective and efficient recommendation making and implementation in the future.

Recommendations

1. DOE provide clear and publicly accessible information regarding implementation of EM SSAB Chairs recommendations for the last five years. In addition to a clear statement about im-plementation status (e.g., "Implementation of the recommendation is complete (or "ongoing", "suspended", or "discontinued"), the information should include an explanation of any devia-tions from the DOE response to the recommendation.
2. DOE report to the EM SSAB at least annually a summary of the status of all EM SSAB Chairs recommendation items and any recommendation action item completed during the re-porting period.

Join ORSSAB for a Discussion on Assuring Waste Disposal Capacity

6 p.m. Wednesday, February 14
1 Science.gov Way and
Virtually via Zoom

OREM is in the planning stages for a new waste disposal facility on the Oak Ridge Reservation known as EMDF. It will replace a nearlyfull facility and allow OREM to complete its cleanup mission.

Join us to hear the latest on project design, and how the new facility will allow future cleanup of ORNL and Y-12.

Questions? Want to attend virtually? Contact us at 865-241-4584 or orssab@orem.doe.gov

Advocate
Oak Ridge Site Specific Advisory Board
October 2023

ORSSAB Board Member Recruitment Kicks off Soon

ORSSAB is seeking new board members to take open seats in 2024. OREM appreciates advice from a broad spectrum of those who live or work in the area. All adult residents of the multicounty area surrounding Oak Ridge are encouraged to apply.

The board generally draws from Anderson, Blount, Campbell, Knox, Loudon, Meigs, Morgan, Roane and Union counties, but may also consider other locations. Applications are available on the board's website, www.energy.gov/orssab, and can be requested by phone or email.

Board membership will take some time — two or three hours in months the board meets, and there are opportunities for exclusive site tours or educational travel occasionally, which can vary in their time commitments.

Recommendations from the board have shaped the final form of projects like recreational green spaces and trails at the Heritage Center and ETTP, among others. Both the American Museum of Science and Energy and its new counterpart, the K-25 History Center, had board input. The board historically weighed in on the land transfer program that now helps bring employers like Kairos Power and Ultra Safe Nuclear Corp. to Oak Ridge.

Whether you were born and raised in the area or recently decided to call East Tennessee home, we invite you to join us as we continue to contribute.

Want even more information? A detailed guide and much of the new member training packet are available online and staff can answer questions at orssab@orem.doe.gov or 865-241-4584.

Scan the above QR code with your smartphone for more information.

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UPCOMING MEETINGS

Meetings are 6 p.m. at 1 Science.gov Way, Oak Ridge & virtually via Zoom. Email orssab@orem.doe.gov to attend virtually.

Board: Full Board Monthly Meeting, February 14, 2024
EM & Stewardship Committee: November 29, 2023

ABBREVIATIONS

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund
DOE – Department of Energy
EM – Environmental Management
EMWMF – Environmental Management Waste Management Facility
ETTP – East Tennessee Technology Park
OREM – Oak Ridge Environmental Management
ORNL – Oak Ridge National Laboratory
ORR – Oak Ridge Reservation
ORSSAB – Oak Ridge Site Specific Advisory Board
TDEC – Tennessee Department of Environment & Conservation
UCOR – United Cleanup Oak Ridge
Y-12 – Y-12 National Security Complex

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