

ORSSAB Resumes with Input on FY 23 Budget Request

Board confirms new members, plans virtual meetings for 2021

After nearly a year’s hiatus, ORSSAB reconvened in a virtual format in March with a newly-filled slate of members and a schedule for the year that includes revisiting several missed topics from 2020 as well as addressing new cleanup efforts from DOE.

DOE’s Oak Ridge Environmental Management (OREM) Manager Jay Mullis joined the group to offer an update on the status of current cleanup projects, to present OREM’s plans for its next federal budget request, and to discuss projects the board feels should be a priority for the resulting funds.

The federal budget process is a complex multi-year cycle. OREM is currently in fiscal year (FY) 2021, and expects feedback from Washington, D.C. soon on its FY 2022 request, which begins in October. ORSSAB was unable to provide input on that request due to the pandemic, so this year’s input is especially important to its members. The budget currently beginning development and for which ORSSAB’s input is needed is for FY 2023.

Over the last several years, the Oak Ridge cleanup program has received approximately \$640 million to \$680 million in funding from Congress each year. However, the funding comes with specific directives for how it can be used. The majority, nearly \$485 million, comes from the Defense Environmental Cleanup appropriation, which is targeted to sites involved in national security – Oak Ridge National Laboratory and Y-12 locally. The rest comes from the Uranium

OREM Cleanup Goals



1

At East Tennessee Technology Park:
Complete remedial actions consistent with CERCLA agreements; fully implement the ongoing land transfer and reindustrialization process..



2

At Oak Ridge National Laboratory:
Complete down-blending and shipment of remaining uranium-233 wastes for disposal off-site.



3

Complete disposition of transuranic waste and begin construction of the Sludge Processing Facility



4

At Y-12 National Security Complex:
Reduce mercury in surface water exiting the site and continue construction of the Outfall 200 Mercury Treatment Facility

Enrichment Decontamination and Decommissioning Fund (UE D&D) that is solely for remediating former enrichment sites like Oak Ridge’s East Tennessee Technology Park (ETTP).

Progress at ETTP, particularly last year’s completion of Vision 2020, means that funding amount has slowly decreased and eventually will entirely move to other cleanup sites. But some funds are still needed and will be requested for various tasks remaining at the site, including soil and groundwater remediation, Mullis said. ORSSAB heard some initial information on the ETTP groundwater plan last year,

but intends to discuss the matter in-depth and begin a recommendation on specific remedies at its June meetings.

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Reservation Update



A view of the demolition of a hot cell inside a protective cover at the former Radioisotope Development Lab at ORNL.

Hot cells demolition removes high-risk site from lab campus

Workers have begun removing the last two of six hot cells from the former Radioisotope Development Lab at ORNL. The structures were built as part of the Manhattan Project and were used to handle radioisotopes from the Graphite Reactor and other facilities as well as to produce isotopes for medical, research, and industrial use.

Known as “hot cells,” the structures being demolished are heavily shielded concrete rooms that provided researchers protection from highly radioactive material. Because of its past uses, OREM is taking additional precautions to ensure no materials interfere with modern operations on the ORNL campus.

First, underground tunnels that were part of the facility’s processing activities were pumped full of grout to remove any contamination pathway. Next, a six-story industrial tent was erected over the site. Finally, crews constructed an intermodal rail system to quickly and safely ship boxes of demolition debris to the entrance of the protective area and onto trucks for transport.

The project is one of the first of several planned major cleanup activities

following OREM’s shift of the cleanup workforce away from ETTP. One hot cell was recently removed, and the final structure’s teardown will be complete next year.

Progress continues on Biology Complex demolition at Y-12

Cleanup crews in February completed demolition of Building 9210 at Y-12.

They now move on to Building 9207, the last and largest of 11 structures that once made up the complex. It includes six stories and more than 250,000 square feet. It is scheduled to be completed by this summer.

The Biology Complex was built as part of the Manhattan Project and was used to recover uranium from processing. It was later used for genetics and other biological research. When operational, the facilities once housed more individuals with doctorates than anywhere in the world.

Removing the buildings will allow the space to be reclaimed and used for Y-12’s modern national defense missions.

Additions to ORNL building will speed U-233 processing

OREM and contractor Isotek Systems are collaborating on major improvements to Building 2026 at ORNL that will enable processing of high-dose uranium 233 materials scheduled to begin this fall.

Construction is complete on a 35-foot tall cement silo that will allow downblended materials to be mixed into



Workers built a multi-story temporary building to shield active-research areas of ORNL from demolition activities at two remaining hot cell structures. An intermodal rail system assists in efficient loading of debris for removal and disposition.



Workers install a backup diesel generator at Building 2026. If there is a loss of power, it can produce enough power to maintain operation of equipment necessary to process uranium-233 at Oak Ridge.

a solid form making it safe for transport and disposal. Workers also installed a backup generator to ensure work continues through any loss of power at the site once it is fully connected to the equipment.

The building, originally constructed in the 60s to analyze radioactive materials, already contains hot cells, or radiation containment chambers, necessary to process the U-233. However, the facilities will be upgraded with new portals and current remote-handling technology. A large crane to transport canisters must also be installed before processing can begin.

In the meantime, Isotek continues to use gloveboxes, a different type of shielded containment equipment, to safely process lower-dose materials. As part of the processing campaign, workers are extracting rare isotopes, which nuclear innovation company TerraPower is using to support next-generation cancer treatment research. Hot cell

processing will allow workers to process larger amounts of material, which in turn will provide more isotopes for the company's life-saving research.

The partnership between DOE, Isotek, and TerraPower -- known as the "Thorium Express" -- received the Secretary of Energy's Achievement Award for its success in accelerating a cleanup priority, saving taxpayer dollars, and advancing cancer research.

UCOR partnerships provide new cleanup tools, workforce

Commitments by UCOR and OREM to collaborate with labor, develop the workforce, embrace diversity, and continue education has led to historic cleanup achievements at ETTP and is creating new opportunities for success associated with future cleanup at Y-12 and ORNL.

Earlier this year, the organizations partnered with students from the University of Tennessee's nuclear engineering department on qualifying a new type of gamma-ray imaging system.

The system will give cleanup workers a unique resource to better analyze and plan for the new and unique challenges of cleaning up ORNL's many former research reactors and isotope production facilities. The students will receive experience and mentoring to

prepare them for employment following graduation. The senior design project team will complete its work by the end of the spring semester, while a graduate research assistant will work on the project until November.

But that's just one of many outreach and workforce development activities underway. Ken Reuter, UCOR president and CEO, recently gave a virtual presentation on other projects that help train and attract the next-generation workforce to advance cleanup at the site. Reuter detailed collaborations with national and local union leaders on initiatives to continue to ensure a pipeline of trained metal trades and craft construction personnel for cleanup work.

Graduates of some of the programs discussed their experiences with programs like the East Tennessee Apprenticeship Readiness Program, which is offered through the North America's Building Trades Unions; a chemical engineering technology program at the nearby Roane State Community College; and additional partnerships with programs at UT.

The full presentation can be seen at https://youtu.be/4UcWx_yOWQ

Kairos Power plans test reactor for former K-33 site at ETTP

Kairos Power, a nuclear energy technology and engineering company, recently announced its plans to deploy a test reactor at ETTP pending completion of due diligence and the results of discussions with state and local officials.

Kairos cofounder and CEO Michael Laufer cited the site's available infrastructure and its proximity to ORNL as key factors in the decision.

Kairos Power has executed a Memorandum of Understanding with Heritage Center, LLC, to acquire the former K-33 gaseous diffusion plant site at ETTP, subject to ongoing due diligence evaluations.

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The outside of 'isotope row' at ORNL, left. Below: Workers are currently removing debris and equipment inside the buildings, which were labs used to produce radionuclides for a variety of purposes from the 1940s to the late 1980s.

Budget

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DOE and its agency partners expect a proposed plan for soils, which is released prior to a decision, will come later this year. A Record of Decision is planned early next year for the main plant groundwater plan. An example of ongoing cleanup is the excavation of exposure unit (EU) 19, where more than 10,000 cubic yards of contaminated soil has been removed and replaced with clean fill dirt.

The overall cleanup budget should remain relatively steady. Defense cleanup funds have increased as cleanup activities shift to ORNL and Y-12 – from \$418 million in FY 2018 to nearly \$485 million in FY 2021. In addition to cleanup, funds will be needed to begin or continue several major infrastructure projects, Mullis said, and the associated office and equipment storage facilities.

Together, those sites have more than 200 excess, contaminated facilities that no longer serve national security or science missions. This inventory also includes the highest number of high-risk facilities in the DOE complex.

At ORNL, current and incoming funds for the next several years will be put toward removing former research



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Budget

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reactors and isotope production facilities, eliminating the inventory of uranium-233, and shipping transuranic waste for disposal.

Workers recently started deactivation procedures at ORNL's Isotope Row facilities. The area includes several former laboratories. Most were built in the 1940s and operated through the 1980s. Prior to demolition, contaminants including asbestos, radiological materials, and chemicals must be removed.

Construction continues on the Sludge Processing Mock Test Facility, which is expected to be complete this fall. The facility will test two of six technologies being studied and perfected for use in an up-scaled site later this decade. The larger facility will allow OREM to process Oak Ridge's 500,000-gallon inventory of transuranic sludge waste.

Also in the works is an upgrade to the Haul Road so the increased cleanup wastes from ORNL can be easily and safely transported for disposal at on-site facilities without using public roads.

For Y-12, the focus is on removing mercury from the environment and demolishing unneeded and aging buildings, Mullis said. Progress continues on the demolition and removal of the Biology Complex, but the key to large-scale removal of some of the more mercury-contaminated buildings is the completion of the construction of the Outfall 200 Mercury Treatment Facility. Construction has continued on schedule despite winter weather. In a March update, UCOR photos show walls beginning to rise from the foundations.

Crews have removed more than 10,000 pounds of mercury from column exchange or COLEX equipment at the Alpha-4 Building at Y-12 so far, but some will remain unrecoverable prior to demolition. And two other major mercury-using facilities, Alpha-5 and Beta-4, will also need similar focused cleanup efforts to be eventually

FY 2021 ORSSAB Workplan Topics

Board recommendations are based on topics presented by DOE at the board's monthly meetings.

The board meets the second Wednesday of most months. In-depth discussion follows in the EM & Stewardship Committee meeting on the fourth Wednesday.

In order to practice social distancing, ORSSAB meetings will be held virtually until further notice.

To receive an invite to the virtual meetings, members of the public are asked to sign up at least one week in advance by emailing board staff at orssab@orem.doe.gov.

April

On April 20-21 the board will attend the national EM SSAB Chairs meeting, which will be held virtually. ORSSAB officers will share updates with sister advisory boards from around the country. The public may attend. Check

www.energy.gov/emssab for the latest information.

May

Waste disposal capacity for the OREM cleanup program and the planned EMDF disposal site.

June

Groundwater remedy options and selection for ETTP

July

No meeting

August

ORSSAB Annual Planning Meeting

September

Open - topic to be announced.

deactivated and demolished.

The proposed Environmental Management Disposal Facility (EMDF) is key for all future cleanup on the Oak Ridge Reservation. The current disposal facility is more than 75 percent full and much of the remaining space will be taken by soils coming from remediation at ETTP.

DOE continues to discuss the EMDF construction plan with regulators. In particular, a new regulatory framework with the EPA and Tennessee Department of Environment and Conservation (TDEC) has benefitted the project. Teams on the framework resolved comments on a section of an upcoming draft record of decision for EMDF, which is crucial in the approval process for the facility.



A worker conducts deactivation activities at Y-12's Alpha-2 Building in January 2021.

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Cleanup, Transformation at ETTP in the Home Stretch for Site Re-Use

Oak Ridge crews are removing building foundations and remaining contaminated soil areas at ETTP to achieve EM's ultimate vision for the site: a multi-use industrial center, national park, and conservation area.

The latest work is not as pronounced as the massive demolition projects that took place there over the past two decades, but it's just as critical as EM transforms the former Manhattan Project and Cold War-era enrichment complex into open land that's able to be transferred to community partners for new uses.

All building removals and many major soil remediation projects at ETTP, which is the former Oak Ridge Gaseous Diffusion Plant, were completed last year in a project known as Vision 2020. "Completing building demolition at ETTP significantly altered the site, eliminated numerous risks, and enabled new economic development at



A view of the site where crews removed the building slab for the Centrifuge Complex.

the site," said Acting ETTP Portfolio Federal Project Director James Daffron. "However, there are some remaining building slabs and soil and groundwater remediation projects to complete. These efforts are enhancing safety and making

more land available to the community for reuse in the future."

The former Centrifuge Complex area, which had a footprint of 235,000 square feet, is the largest slab removal taking place at ETTP. Crews are breaking up and removing the concrete slab, sampling soil to identify potential contamination, and backfilling excavated areas with clean soil.

The project, scheduled to wrap up this spring, will convert the site into a grassy field available for transfer from government ownership for economic development.

Crews with OREM cleanup contractor UCOR are also removing contaminated soil and backfilling sites in other ETTP areas. At the location of the former K-1401 facility, workers have removed thousands of cubic yards of contaminated soil and backfilled the area with clean soil. K-1401, one of the site's early facilities, was used as a cleaning and decontamination facility, leaving a variety of contaminants.

In another area where tanks associated with the site's former power infrastructure stood, crews placed a two-foot protective soil cover over a nine-acre tract that contained asbestos-contaminated soil.



Employees collect samples at exposure unit 19 at ETTP to identify areas of soil that require removal. They will also conduct confirmatory sampling to ensure the removal of all contamination following completion of the project.

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ETTP

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They are also placing a two-foot cover on an adjacent 21-acre site and contouring it to ensure proper stormwater drainage.

OREM is also working with regulators on an interim record of decision to address groundwater cleanup at the site. It will accompany two existing records of decision addressing soil remediation of the site's main plant and the area surrounding it.

Cleanup at ETTP is paying dividends for the region. More than 20 businesses are already located there. Future industrial development projects include a medical radioisotope pharmaceutical company, Coquí Radio Pharmaceuticals Corp., and Kairos Power, which has announced plans to build a nuclear test reactor facility -- more on the Kairos facility on page 3.

Budget cont.

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The new draft should be available this summer, said Mullis.

This year's budget talks will be the beginning of a new era for DOE's Oak Ridge operations in Congress. Over almost two decades, Senator Lamar Alexander was a vocal supporter of DOE's missions in Oak Ridge, including cleanup. His seniority provided a strong platform to advocate for the programs.

However, both current Senator Marsha Blackburn and newly-elected Senator Bill Hagerty have been active and engaged in learning about OREM and other DOE activities. In February, Hagerty met with leadership from ORNL, Y-12, and UCOR, among other organizations, to update them on his committee assignments and hear about the needs of those sites.

Current Officers Maintain Positions After Election



Michelle Lohmann



Leon Shields



Bonnie Shoemaker

Michelle Lohmann was re-elected to a second term as chair of ORSSAB following a March election. Also re-elected were vice chair Leon Shields and secretary Bonnie Shoemaker.

The three have been members of the board since 2017. Lohmann is human resources director for U.S. Cellular. Shields is supervisor for field operations at the Lenoir City Utilities Board and also owns a small business. Shoemaker is retired following more than three decades in operations and technical support and emergency management at ETTP and ORNL

Members

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from Middle Tennessee State University. He also has numerous certifications from the State of Tennessee, including as a water and wastewater treatment plant operator. Mr. McCormick lives in Jacksboro, Tennessee and is interested in city/county government and environmental issues.

Michael Sharpe (Loudon County). Mr. Sharpe is a SharePoint administrator and performs other technology- and web-based tasks for Oak Ridge Associated Universities, which manages the Oak Ridge Institute for Science and Education for DOE. It provides science, education, workforce development, and health services that include some Oak Ridge EM areas such as decontamination verifications to support cleanup. He received an A.S. in Computer Programming from ITT Technical Institute and is pursuing a B.S. in Business Administration from Tusculum University.

Thomas Tuck (Knox County). Mr. Tuck is a banking executive with TNBANK. He served as president of the bank since 1995 and in March

of 2020 transitioned to part-time employment as part of a leadership transition/retirement. Mr. Tuck received a B.S. in Business and Marketing from the University of Tennessee (UT), Knoxville and is a Certified Banker through the School of Banking of the South. Mr. Tuck is a member of the board of directors for local organizations including the Oak Ridge Chamber of Commerce, Oak Ridge Heritage and Preservation Association, and the East Tennessee Economic Council. He is a member of the Y-12 Community Relations Council.

Zachary Wilkins (Morgan County). Since November 2019, Mr. Wilkins has been a senior industrial hygiene technician with DOE subcontractor Value Added Solutions, Inc., which provides professional services to support the cleanup and reindustrialization efforts at the Oak Ridge site. From August 2018 to November 2019, he was a laborer for UCOR. Mr. Wilkins received an A.A.S. in Environmental Health from Roane State Community College. He is interested in environmental issues.

ORSSAB Welcomes Group of New Members During Virtual Meeting

ORSSAB welcomed six new members with a virtual onboarding in February. The new members, as yet unable to meet fellow board members in-person due to ongoing social-distancing guidelines, have been using technology to get up-to-speed on their new roles.

Members received their normal information packets, but were also able to view a virtual tour of Oak Ridge's three cleanup sites as well as various video updates until a tour can be arranged in person. These resources have now been made available to everyone via the board's YouTube page, www.youtube.com/orssab under the member education playlist.

Members were formally introduced during the board's March monthly

meeting, held virtually via Zoom. A recording of that meeting, which featured a presentation on future budget priorities for the cleanup program, is also available at the YouTube page.

The new members are:

Chris Hampel (Roane County).

Mr. Hampel owns and operates a small business, Pressure Washing Solutions, which he formed in 2016. He previously worked at Energy Solutions, which is a contractor to DOE at the Oak Ridge site. Mr. Hampel has a high school education and trade skill training related to his work experience. He is interested in minority and business issues.

Gregory Malone (Roane County).

Mr. Malone is a retired medical products development consultant.

He operated Malone and Associates, Inc., an independent consulting firm, until 2019. Mr. Malone received a B.S. in engineering with a welding and manufacturing concentration from Ohio State University. He is a member of the Oak Ridge Sportsmen's Association and a volunteer for the Great Smoky Mountains National Park. He is interested in environmental and economic development issues.

Thomas McCormick (Campbell County). Mr. McCormick is the city manager for the town of Oliver Springs, Tennessee, which includes portions of Anderson, Roane, and Morgan counties. He received a B.S. in Political Science

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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
EFTP – 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 – URS CH2M Oak Ridge
Y-12 – Y-12 National Security Complex

UPCOMING MEETINGS
Meetings are held at 6 p.m. virtually until further notice. Email orssab@orem.doe.gov for information to attend or comment.
Board: Wednesday, May 12
EM & Stewardship Committee: Wednesday, May 19

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