

Annual Report 2020



Oak Ridge
Site Specific Advisory Board
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An aerial photo of East Tennessee Technology Park show progress made to remove unneeded facilities from the site and further the goal of turning most of the site into an industrial park.

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Our Mission

The Oak Ridge Site Specific Advisory Board (ORSSAB) is a federally appointed citizens' panel that provides independent recommendations to the Department of Energy's (DOE) Oak Ridge Environmental Management (OREM) Program.

The board provides advice to the DOE EM program regarding environmental restoration, waste management, long-term stewardship, land use, and economic development among other topics.

Recommendations regarding environmental justice, health and safety issues, historic preservation, and other concerns may also be developed at the request of the DOE assistant secretary for EM or the OREM manager. ORSSAB is one of eight site specific boards across the nation that comprise the EM SSAB and may also participate in joint recommendations with that organization.

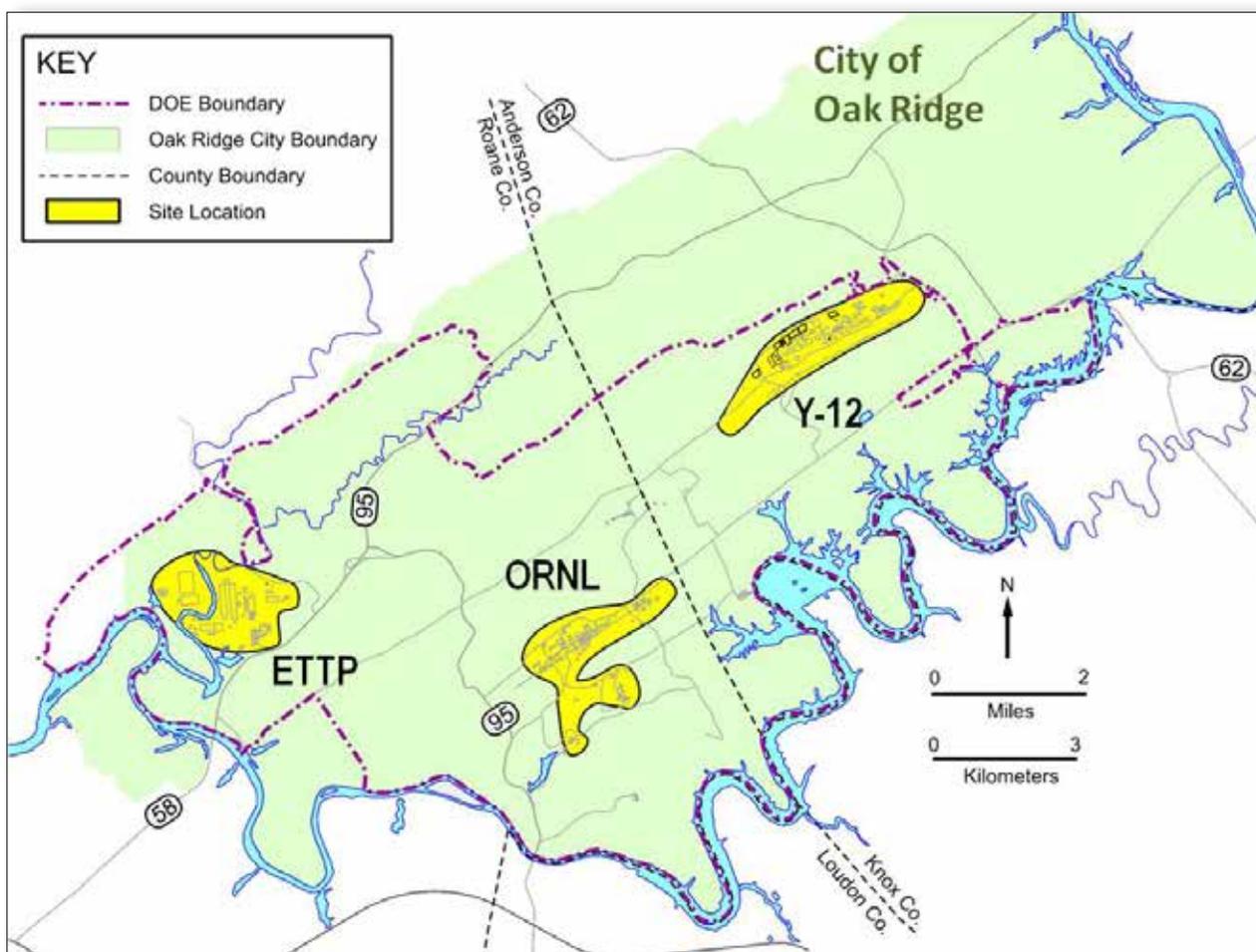
The board is committed to reflecting the concerns of the communities impacted by EM activities on the Oak Ridge

Reservation (ORR) and serving as a communications link between the public and relevant government agencies, including local governments.

ORSSAB provides a number of avenues for the public to learn about and express views on OREM's cleanup work. All board and committee meetings are open to the public and are announced in the Federal Register, newspaper advertisements, on our website, and various social media outlets.

Meetings are held at the DOE Information Center in Oak Ridge at 1 Science.gov Way, unless noted otherwise. The first hour of board meetings is filmed and broadcast on local cable TV stations and uploaded to YouTube at www.youtube.com/user/ORSSAB.

The board maintains a web site at www.energy.gov/orssab. Information is also available by calling the ORSSAB support office at 865-241-4583 or 865-241-4584 or email us at orssab@orem.doe.gov.



Unlike most other DOE facilities, the ORR is almost entirely within the city limits of Oak Ridge. It contains three main facilities: East Tennessee Technology Park, Oak Ridge National Laboratory, and the Y-12 National Security Complex.

ORSSAB was chartered under the Federal Advisory Committee Act in 1995. The board is composed of up to 22 members, chosen to reflect a diversity of gender, race, occupations, views, and interests of persons living near the ORR. Members are appointed by DOE and serve without compensation. Members may serve up to three two-year terms.

At the close of the year, the board consisted of 22 voting members from Anderson, Campbell, Knox, Loudon, Morgan, and Roane counties. More about members who served, including some who resigned mid-year, can be found in the “Members” section starting on Page 13.

Non-voting participants include liaisons from DOE, the U.S. Environmental Protection Agency Region 4 (EPA), and the Tennessee Department of Environment and Conservation (TDEC), which advise the board on their agencies’ policies and views, as well as two high school student representatives.

FY2020 Board Officers

ORSSAB officers for FY2020 were Shell Lohmann, chair; Leon Shields, vice chair; and Bonnie Shoemaker, secretary. Amy Jones was chair of the EM & Stewardship Committee.

Board Meetings

The board meets the second Wednesday of most months at 6 p.m. in Oak Ridge to hear presentations by EM per-

sonnel working on relevant projects, listen to and discuss input from concerned citizens, consider recommendations to DOE, and conduct other business. In August, an annual meeting is held to evaluate the board’s work during the year and plan activities for the next year.

The board conducts its deliberations under ORSSAB bylaws and Robert’s Rules of Order and strives to consider all relevant positions in reaching decisions.

Committees

General board business is handled at the monthly Executive Committee meeting, which is composed of the elected officers of the board and the chair of the EM & Stewardship Committee. This committee holds general administrative authority to set board agendas, coordinate the work of other committees, and transact business as necessary.

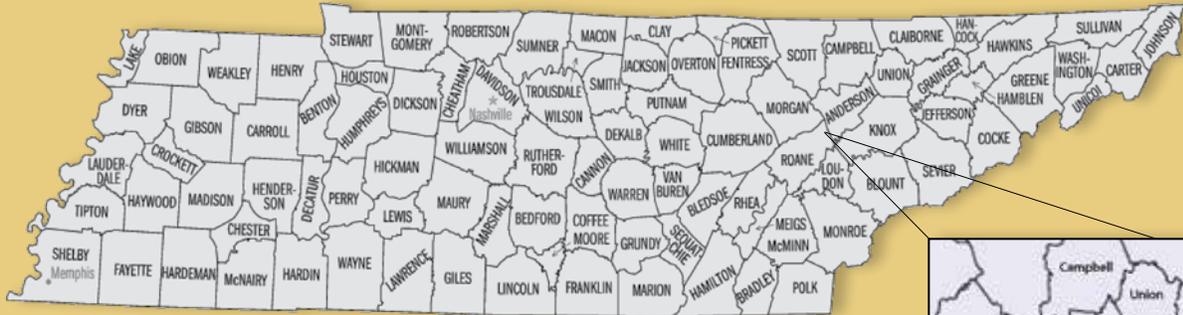
The EM & Stewardship Committee is responsible for monitoring the major cleanup activities on the ORR as well as stewardship requirements for areas of the reservation that have been remediated, but remain contaminated long-term. It originates recommendations to be considered at full board meetings. All board members are part of this committee.

Committees usually meet monthly, and all meetings are open to the public.



The Oak Ridge Site Specific Advisory Board

REPRESENTING NINE COUNTIES IN EAST TENNESSEE



Board members from each county at the close of 2020:

Anderson - 8	Loudon - 3
Knox - 5	Roane - 4
Morgan - 1	Campbell - 1

Join the Board

A broad spectrum of backgrounds and viewpoints is desired for board membership; technical expertise is not required. Applications for membership are accepted at any time and are actively solicited through a variety of media during specific recruitment periods.

Residents from the counties affected by DOE operations are encouraged to apply. These counties include Anderson, Blount, Campbell, Knox, Loudon, Meigs, Morgan, Roane, and Union.

Applications may be obtained by emailing the ORSSAB support offices at orssab@orem.doe.gov or visiting our webpage at www.energy.gov/orssab.

Abbreviations

CAB	Citizens Advisory Board	ORNL	Oak Ridge National Laboratory
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	ORR	Oak Ridge Reservation
DDFO	Deputy Designated Federal Officer	ORSSAB	Oak Ridge Site Specific Advisory Board
DOE	U.S. Department of Energy	TDEC	Tennessee Department of Environment and Conservation
EM	Environmental Management	TRU	Transuranic
EMDF	Environmental Management Disposal Facility	TWPC	Transuranic Waste Processing Center
EMWMF	Environmental Management Waste Management Facility	WIPP	Waste Isolation Pilot Plant
EPA	U.S. Environmental Protection Agency	Y-12	Y-12 National Security Complex
ETTP	East Tennessee Technology Park		
OREM	Oak Ridge Office of Environmental Management		

The Year's Top News



EM's cleanup has transformed the former Oak Ridge Gaseous Diffusion Plant into a multi-use industrial park that is providing new economic opportunities to the community.

Crews Complete Historic Cleanup at ETPP

A decades-long effort to clean and transform the former Oak Ridge Gaseous Diffusion Plant, now known as ETPP, is complete, resulting in a historic first-ever removal of a uranium enrichment complex.

In the early 1940s, when the U.S. Army Corps of Engineers began acquiring farmland that would later become Oak Ridge, few could envision the massive facilities that would be constructed there, including the largest building in the world at the time. Using the code name K-25, the site produced enriched uranium to power the weaponry that ended World War II.

Renamed the Oak Ridge Gaseous Diffusion Plant, the site expanded with new buildings constructed to produce enriched uranium for defense and commercial purposes and later to explore new enrichment technologies. Those operations continued until the mid-1980s, and the site was shut down permanently in 1987. This left hundreds of contaminated facilities that had to be remediated and removed — among them five large gaseous diffusion enrichment buildings, including the mile-long, U-shaped K-25 Building.

By the 1990s, EM formed a plan to clean up and transform the site into an asset that could generate new economic opportunities for the community. In 1996, the site was renamed the East Tennessee Technology Park to reflect its new trajectory.

EM's goal to complete demolition of all five gaseous diffusion buildings by 2016, called Vision 2016, was successfully realized. Then EM set out for its next goal, Vision 2020, to take down the remainder of the facilities in the former enrichment complex by the end of 2020.

Since cleanup operations began, hundreds of buildings measuring more than 13 million square feet have been demolished. More than 1.7 million cubic yards of waste — enough to fill up 515 Olympic-size swimming pools — have been disposed, including nearly 30,000 truckloads of soil. This progress has paved the way for EM to transfer 1,300 acres of land back to the community for economic development and another 100 acres have been set aside for historic preservation.



After a decades-long effort, EM has completed demolition of all buildings at ETPP.



Holding an oversized pair of scissors, DOE Under Secretary for Science Paul Dabbar and Oak Ridge Mayor Warren Gooch cut a ceremonial ribbon to mark the grand opening of the K-25 History Center.

K-25 History Center opens to the public

In February, OREM and its contractor UCOR hosted a grand opening for the new K-25 History Center.

The center, located next to the original foundation for the K-25 Building, was built to honor and preserve the stories of the workers who constructed and operated the K-25 uranium enrichment complex during World War II and the Cold War.

Uranium enrichment operations ceased at K-25 in 1985, and the site was shut down in 1987. EM then began a massive environmental cleanup effort to transform the site into a multi-use private-sector industrial park, known as ETTP.

The cleanup program also signed a multi-project agreement to preserve and share the building's historical

significance. The K-25 History Center was a major component of that agreement, and the grand opening marked the fulfillment of a significant commitment to the community. The K-25 footprint is part of the Manhattan Project National Historical Park.

The history center offers visitors 7,500 square feet of exhibits with more than 250 original artifacts on display. Nearly 1,000 oral histories were collected over a 10-year span from former Manhattan Project and Cold War-era workers that museum professionals used to develop the exhibits and interactive galleries.

Originally constructed in 1944, K-25 was the largest structure in the world with a 44-acre footprint. It produced uranium for the world's first nuclear weapon, and at its peak, the K-25 enrichment complex employed 12,000 workers. Despite its massive size, the complex was kept secret from the public until the end of World War II.

The K-25 History Center will be open seven days a week when normal operations resume. Admission will be free to all visitors.

Visitors explore the many exhibits and interactive displays in the K-25 History Center.



Upgrades Prepare Way for Oak Ridge to Process Remaining Uranium-233



A Building 2026 hot cell before crews remove old equipment.

Crews in January performed renovations to prepare a facility to process a high-dose portion of the site's uranium-233 inventory, enabling EM to convert the material into a disposal-ready form after extracting an unprecedented amount of thorium for next generation cancer research.

Oak Ridge Office of Environmental Management contractor Isotek performed the work to support EM's highest priority project at DOE's Oak Ridge National Laboratory: to eliminate the nation's uranium-233 inventory.

Stored in the world's oldest operating nuclear facility, Building 3019, uranium-233 is an isotope that had been created as an alternative fuel source for nuclear reactors in decades past.

The high-dose uranium-233 canisters, which make up the majority of the remaining uranium-233 inventory, will be processed in Building 2026 hot cells with protective shielding and remote mechanical arms needed to handle the material.

Workers performed upgrades to the hot cells, which had radiological contamination from previous DOE research missions. Crews wore protective suits and constructed containment tents to prevent the spread of radiological contamination once a hot cell was opened.

Crews also removed old equipment to make way for new installations, including a cell portal to make material entry easier, cutting tools to open uranium-233 storage canisters, pumping systems for chemicals, filtration systems to extract the thorium, and remote manipulators.

Oak Ridge Begins Takedown of Last Standing ETTP Lab Facility

Crews in February demolished the last laboratory facility remaining at Oak Ridge's East Tennessee Technology Park (ETTP), as EM moved toward completing all major teardowns at the former uranium enrichment complex by the end of the year.

EM and cleanup contractor UCOR demolished the K-1006 Building, which was constructed in 1962 to support operations at the former Oak Ridge Gaseous Diffusion Plant. The structure was among the few unneeded buildings still standing at the site.

As part of a deactivation process, teams removed asbestos and other waste from the building. Asbestos abatement presented challenges due to densely packed asbestos piping, making it difficult to access, but crews finished the work successfully.

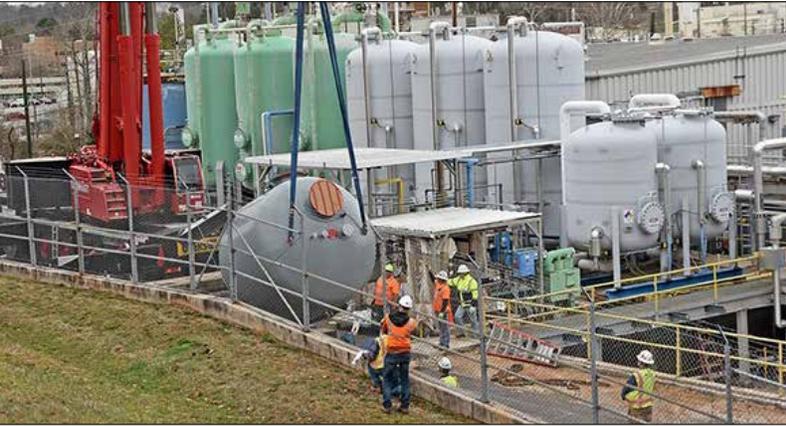
From 1998 to 2019, a portion of K-1006 was leased to Material and Chemistry Laboratory, Inc., a commercial applied research company providing consulting and analytical testing for industrial forensics, materials characterization, and environmental chemistry.

EM is transforming the former uranium enrichment complex into a multi-use industrial park, national park, and conservation area. The cleanup program has already transferred almost 1,300 acres at ETTP for economic development, with another 600 acres slated for transfer in the years ahead. EM has also set aside more than 100 acres for historic preservation and placed more than 3,000 acres in conservation for community recreational use.



Oak Ridge crews knock down the K-1006 Building at the East Tennessee Technology Park.

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A crane lowers one of the five new vessels for a new modernized zeolite treatment system at Building 3608 in Oak Ridge National Laboratory's central campus area.

Crews Modernize Critical Wastewater Treatment System

EM workers in March made progress upgrading aging radiological wastewater treatment infrastructure essential to ORNL operations, installing a new zeolite treatment system designed to remove cesium and strontium from wastewater.

Installation of that system is the latest modernization effort funded by a \$17 million EM investment over the past two years to extend the life of the Liquid and Gaseous Waste Operations infrastructure. Crews have replaced deteriorated piping, antiquated equipment, and failing electrical systems.

The infrastructure consists of numerous interconnected facilities that support crucial waste treatment activities for EM and DOE's Office of Science. Due to its age and deteriorated condition, Building 3544 presented one of the largest risks to the Liquid and Gaseous Waste Operations. For more than four decades the building had served as a radiological wastewater treatment facility, housing the previous zeolite treatment system.

EM investigated several alternatives before choosing to install a modernized zeolite treatment system at Building 3608, which formerly served as a non-radiological wastewater treatment facility.

OREM cleanup contractor UCOR installed the new treatment system. It includes five vessels – two dual media filters and three zeolite columns – and dewatering equipment. The vessels were assembled and tested by the manufacturer prior to being transported to the facility.

Following testing, Building 3544 will go into standby status for up to a year, serving as a backup for the new treatment system at Building 3608.

Workers Resume Demolition on Oak Ridge's Centrifuge Complex

In June, demolition resumed on the Centrifuge Complex at ETTP after an almost two-month pause in field work due to protective measures in response to the COVID-19 pandemic.

Spanning 235,000 square feet and reaching 180 feet in height, the complex was the largest and tallest collection of structures remaining at ETTP. It was built in stages to develop, test, and demonstrate the capability of centrifuge technology for uranium enrichment. The last of these facilities ceased operation in the mid-1980s.

UCOR returned employees to the site in phases, with the demolition crews being among the first to resume cleanup based on the social distancing inherent in this type of work.

Crews took down the final two sections of the Centrifuge Complex. Those included the K-1210 Complex, which served as a pilot plant for testing feed, withdrawal, and depleted uranium hexafluoride transfer systems, and the K-1220 Complex, which was used primarily to test production centrifuges.

At 180 feet in height, K-1220 was too tall to be safely torn down with conventional heavy equipment. Instead, workers pulled down the facility using giant mechanical devices known as winches.

The complex was comprised of four sections. Before work was paused due to COVID-19, workers brought down the K-1004-J laboratory section, an original Manhattan Project facility built for research and development. They also finished tearing down the second section, the K-1200 facility, known as the Advanced Machine Development Laboratory and Component Preparation Laboratory.



At 180 feet tall, K-1220 was too tall to be safely torn down with conventional heavy equipment, so it was torn down using giant winches.

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Crews are manually adding 12,000 square feet of fabric to the trusses to complete the cover for the protective tent at the Building 3026 demolition project at Oak Ridge.

EM Prepares for Demolition at ORNL

Crews in July prepared to demolish the remaining structures associated with Building 3026, the former Radioisotope Development Lab.

Workers finalized the installation of a six-story protective tent to keep nearby research facilities protected while the final two hot cells from Building 3026 were demolished. Hot cells are thick, concrete rooms that are heavily shielded to provide researchers protection from highly radiative material.

Using a 175-ton crane, crews set a foundation of 92 16,000-pound blocks for the protective tent. Workers then began using the crane to erect 20 steel trusses to create the frame. To complete the structure, nearly 12,000 square feet of fabric is being added in two sections.

Building 3026 was originally built in 1945 to support isotope separation and packaging, but it was later used to examine irradiated reactor fuel experiments and components. The outer structure and four of the facility's hot cells were demolished using funds from the American Recovery and Reinvestment Act of 2009. However, work has continued on the remaining structures.

In fall 2019, UCOR completed tasks to eliminate contamination pathways and prepare the remaining structures for demolition. That included pumping and grouting a 47-foot-long underground transfer tunnel formerly used to load radioactive material into the hot cells.

As major cleanup was completed at ETTP, OREM was transitioning its skilled, experienced workforce to ORNL and Y-12 to ramp up large-scale cleanup at those sites.

Crews will work across ORNL's central campus area to deactivate former research reactors and other radioisotope laboratory facilities in preparation for demolition. This work will eliminate hazards across the site and clear land for future research missions.

Crews Finish Takedown of Centrifuge Complex

EM's cleanup at ETTP took a major step forward with removal of the Centrifuge Complex in late July.

Tearing down the sprawling 235,000-foot complex marked one of the final demolition projects at ETTP.

The Oak Ridge Gaseous Diffusion Plant, now called ETTP, was closed permanently in 1987. EM had been conducting large-scale demolition at the site since 2006, resulting in the removal of hundreds of old, contaminated facilities totaling more than 13 million square feet.

The Centrifuge Complex – one of the most recognizable structures in ETTP's skyline – was built to develop, test, and demonstrate the capability of centrifuge technology for uranium enrichment. The last of these facilities ceased operation in the mid-1980s.

OREM and its cleanup contractor UCOR began tearing down the Centrifuge Complex in October 2019. This task presented challenges due to the structures' size and height. Some buildings stood at 180 feet in height, which is too tall to be knocked down by conventional demolition equipment.

The Centrifuge Complex contained four major sections. The K-1004-J lab section was an original Manhattan Project facility built for research and development in 1944. The K-1200 section, known as the Advanced Machine Development Laboratory and Component Preparation Laboratory, was used from 1975 to 1985 to develop machines and manufacturing processes for centrifuges.

The K-1210 section was referred to as Component Test Facility and Advanced Equipment Test Facility. It operated from 1975 to 1985 to test the reliability and operability of centrifuge machines. The facility also served as a pilot plant for testing feed, withdrawal, and depleted uranium hexafluoride transfer systems.

The fourth section – the K-1220 Complex Centrifuge Plant Demonstration Facility – was used from 1981 to 1985 primarily to test production centrifuges to be used in the Gas Centrifuge Enrichment Plant.



Demolition of the Centrifuge Complex at Oak Ridge presented challenges due to the size and height of its structures.

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OREM Constructing Test Facility for Sludge Processing



Crews moved a massive 50,000-gallon tank into position to support efforts at the Sludge Processing Mock Test Facility under construction at Oak Ridge.

Crews in September worked on constructing the \$10 million Sludge Processing Mock Test Facility, which will play a vital role in maturing technologies needed to begin processing Oak Ridge's 500,000-gallon inventory of transuranic sludge waste.

Transuranic waste contains elements heavier than uranium, hence the name "trans," or "beyond" uranium. Oak Ridge's inventory of that waste was generated and stored onsite from years of defense-related research, conducted primarily at the Oak Ridge National Laboratory (ORNL).

OREM has been working since 2003 to process, repackage, and ship Oak Ridge's inventory of contact-handled and remote-handled transuranic debris waste for permanent disposal at the Waste Isolation Pilot Plant near Carlsbad, New Mexico. With that processing scheduled for completion in 2022, OREM is now working to address the site's inventory of transuranic sludge waste.

Crews had already placed footers and poured the foundation for the mock test facility. They took another major step forward in September when they transported a 50,000-gallon tank to the worksite that will be used during testing.

OREM will test six critical technology elements to gather the data necessary to complete the final design and construction of the Sludge Processing Facility later this decade. Two of those technologies will be tested at the mock test facility, which is now under construction.

Engineers at the mock test facility will focus on testing pump technologies and instrumentation measurement technologies. Advanced pump technologies are needed to pull the sludge wastes out of their storage tanks for

processing. The instrumentation measurement technologies will inform operators what material is moving through the pumps, including its contents and density, to assist with processing needs.

Site preparation began for the Sludge Processing Mock Test Facility in January 2020, and construction is slated for completion in October 2021. OREM anticipates approximately two years of testing to gather the data needed to determine the best designs and approaches for the Sludge Processing Facility's final design.

Crews Implement Upgrades Before Resuming U-233 Processing at Oak Ridge

After a pause due to the COVID-19 pandemic, DOE's OREM and its contractor Isotek resumed U-233 processing and downblending operations using gloveboxes.

During the pause in operations, OREM and Isotek worked collaboratively to install upgrades and identify and implement numerous prevention methods to ensure workers remain safe while they eliminate the inventory of U-233 from ORNL, which is EM's highest priority at that site.

The project is removing a significant risk by eliminating the inventory of highly enriched fissile material stored in Building 3019, the world's oldest operating nuclear facility located in the heart of one of the nation's most important scientific research sites.

At the restart of U-233 processing, employees went through training again to ensure they were prepared and mindful to handle the radioactive material. They also trained on new procedures that incorporated COVID-19 related safety precautions.

During the suspension of work, a new filter was implemented for the dissolved U-233 that would catch undissolved particles. This filter will prevent undissolved



Employees, known as fissile material handlers, use shielded gloveboxes to dissolve uranium (U)-233 into a low-level form so it can be mixed with grout for safe transportation and disposal.

particles from plugging up transfer lines, decreasing the time employees use the gloveboxes.

Another new implementation was an extended waste transfer line. This new line extends from the glovebox all the way to a negative pressure area so waste can be transferred directly to a safe zone. Before this, employees transferred waste to a drum and then moved the drum to the safe zone.

In conjunction with glovebox processing restarting, construction continued on getting Building 2026 ready for hot cell processing. Hot cells are needed to handle high-dose U-233 canisters, while gloveboxes are used for the low-dose portion of the inventory. Entry tubes were fitted for remote manipulators to handle material inside the hot cells. And an entire floor was reconstructed for an air pallet that will be able to move 30 tons of waste after it has been processed for disposal.

November



EM regularly conducts sampling across the Oak Ridge Reservation. The five-year review uses groundwater, surface water, soil, sediment, and data from plant and animal life from FY 2016 through FY 2020 for its evaluations.

Team Conducts Vital Five-Year Review of Cleanup Measures in Oak Ridge

OREM and its cleanup contractor UCOR conducted a critical review of remediation measures in place across the Oak Ridge Reservation virtually as they adapt to challenges from the COVID-19 pandemic.

The five-year, multi-agency review underway is designed to determine if remedies that have been implemented continue to protect human health and the environment. Required by CERCLA – the Comprehensive Environmental Response, Compensation and Liability Act – the review covers the three DOE sites in Oak Ridge – ETTP, ORNL, and Y-12. This is the fifth review since the start of remedial actions in Oak Ridge in the 1990s.

The review included more than 40 interviews held this summer followed by virtual site visits in August and September. Those interviewed included facility managers, engineers, system operators, project managers, subject-

matter experts, and site personnel. Regulators, stakeholders, ORSSAB members, and others participated in the virtual site visits. Interviews and visits were conducted using online conference systems.

All three Oak Ridge sites will be evaluated on their performance of cleanup remedies. This evaluation continued into 2021, with results scheduled to be delivered by May 31, 2021.

Cleanup remedies address the legacies remaining from more than 50 years of energy research and weapons production. The measures includes environmental remediation, removing deteriorated and radioactively contaminated facilities, and disposing legacy low-level, mixed low-level, transuranic wastes, and hazardous and non-hazardous industrial wastes.

The review, which will be finalized and released in 2021, uses groundwater, surface water, soil, sediment, and data on plant and animal life from fiscal 2016 through fiscal 2020 as the basis for its evaluations. Sampling is conducted as part of the review.

OREM, UCOR, the U.S. Environmental Protection Agency, and the Tennessee Department of Environment and Conservation will evaluate that data to ensure that the cleanup and remediation that are conducted to fulfill regulatory commitments are protective of human health and the environment.

December

Oak Ridge Uses GPS Technology to Remediate Former Oil Tank Farm

In December, crews laid protective soil over a 9-acre parcel at ETTP where an oil tank farm once sat, and they were preparing 21 acres of adjacent land for soil cover to improve site drainage.

The oil tank farm, which operated in the 1940s and 1950s, was used to house fuel for the former K-770 Powerhouse. That facility powered early operations at the former uranium enrichment site.

The tank farm was dismantled in the mid-1950s. Asbestos on the tanks and piping was buried at the site. Years ago workers attempted to remove the buried asbestos but not all of it could be located. The new soil cover is intended to prevent future exposure of any remaining asbestos.

Oak Ridge and its cleanup contractor, UCOR, used innovative GPS technology in the K-770 remediation project to establish proper drainage of the tract while ensuring a 2-foot soil cover.

The precise GPS technology helped workers place soil over the site's various contours. The system was installed in a handheld device as well as the bulldozer used in the project. The system maps out contours and informs the operator of how much soil is needed to achieve desired contours. This practice allows for appropriate drainage on the site.

Key Issues

In FY 2020, ORSSAB was one of the SSABs at the Spring Chairs' Meeting in May to jointly endorse the following two items. More information about the other boards organized under the EMSSAB umbrella can be found at energy.gov/emssab.

Full text of the recommendations and responses is available on the ORSSAB website at energy.gov/orem/listings/orssab-recommendations-responses.

Recommendations on Public Engagement in the EM Budge Process

Each Department of Energy Office of Environmental Management (DOE-EM) site is unique in its stage of cleanup – some are smaller, some are closer to the end of their cleanup and some have decades to go. Because of the uniqueness, difference in size, complexity, Federal Facility Agreements and length of cleanup the level of budget detail needed by each board may be different.

The eight citizen advisory boards that make up the EM Site-Specific Advisory Board (SSAB) that provide recommendations, advice and public perspectives to their local DOE-EM management believe that it is important to provide well-informed and timely recommendations, advice and comments regarding priorities at their sites. In order to do that they need to have an adequate level of priority planning detail provided in time to deliberate, develop and transmit timely recommendations to their respective local DOE-EM management. Consideration of our recommendations while the local EM offices are developing their priorities and budget requests and prior to local offices transmitting their priorities and budget request to DOE-EM HQ is in the spirit of transparency and collaboration.

Recommendations

1. The EM SSAB Chairs recommend DOE engage the local boards that make up the EM SSAB in the December-January-February timeframe in the budget process to ensure adequate time for the boards to be able to provide informed advice/recommendations for submittal to their local DOE EM management for review and consideration as local priorities and budget requests are being developed.
2. Local EM site offices work with their advisory board early in the December-January-February timeframe to identify the level of priority and budget detail that each Board needs to discuss and develop informed advice/recommendations in time for DOE consideration as they develop their budget request submittal to DOE-EM HQ. For larger sites with multiple cleanup actions the detail should include an integrated priority planning list that identifies those cleanup activities that would be delayed if funding levels are not sufficient or if unplanned/emerging issues must be addressed.
3. DOE-EM HQ relay to the local EM offices whatever guidance is required in the December-January-February timeframe to ensure that the information local advisory boards need in order to understand and develop priorities and budget advice, recommendations are submitted to local EM management for review and consideration prior to their budget request submittal to HQ deadlines.

Recommendations on the Disposition and Transport of Nuclear Material

The Waste Isolation Pilot Project transport program has been incredibly successful in helping accomplish the task of safe movement of transuranic (TRU) waste, to Carlsbad, New Mexico, from multiple Department of Energy's Environmental Management (DOE-EM) sites, beginning in the spring of 1999.

As members of the EM Site-Specific Advisory Board (EM SSAB), we laud the collaborative work between DOE and the Western states in the development and execution of this plan and the ongoing cleanup, transportation and disposition of TRU waste and other shipments thus far. We understand that the program includes common sense elements that exceed regulatory requirements.

The EM SSAB Chairs agree that safe transport of waste material to its permanent disposition addresses one of the most important goals that the DOE-EM complex has undertaken. We urge you not to undervalue the importance of this program which will be needed far into the future in order to address remaining TRU at all DOE-EM sites.

DOE activities are funded by Congress through its annual appropriation process. Within that appropriation framework, DOE requests funds necessary to support long-term obligations within its statutory and regulatory requirements.

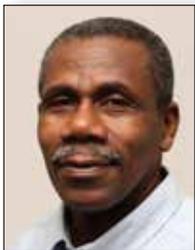
It is important to the EM SSAB Chairs that DOE-EM, when dispositioning waste off-site, strive to move all DOE-EM regulated waste material, including TRU waste, once to its final disposition.

We appreciate this opportunity to share our observations and applaud DOE-EM's continued focus on solutions for nuclear waste disposition and safe transport to permanent repositories.

Recommendations

1. Prioritize development of final disposition sites with the goal of reducing the interim storage footprint at each of the sites.
2. Specify Waste Acceptance Criteria for all forms of waste and Spent Nuclear Fuel in a manner that will allow all sites to proceed with waste processing confidently, efficiently, and without delay.
3. Continue to insist on a compliant budget that will provide sufficient funding to act without delay, nor impediment, to prepare waste for shipment.
4. Create a transportation program for the safe and uneventful shipment of all EM waste material.

Members & Liaisons



Leon Baker

Leon Baker works in industrial hygiene with Value Added Solutions, which provides professional services to support the cleanup and reindustrialization efforts at ETTP. He was previously a health physicist with ARS, Inc. Leon received an A.A.S. in Mechanical Engineering Technology from Pellissippi State Community College, an A.A.S. in Environmental Health Technology

from Roane State, a B.S. in Healthcare Management from Southern Illinois University, an M.Ed. in Education from South College, and an M.B.A. in Business Administration from Brenau University. Leon is a member of the Tennessee Valley Section- American Industrial Hygiene Association, the East Tennessee Health Physics Society, the Knoxville Area Rescue Mission, and Habitat for Humanity. He is a resident of Oak Ridge.



Amy Jones

Amy Jones is the national business manager of InvoPeo, a workers' compensation and payroll service, and she is also a licensed insurance agent for Madison Insurance Group and a real estate agent at Stephenson Realty & Auction. She also owned her own business, Double J Enterprises of TN, in Rocky Top, Tennessee until mid-2018.

A high school graduate, Amy has also received her real estate license and insurance license. She is active in a variety of community organizations, including serving as vice chair for: the Anderson County Republican Party, the Anderson County Headstart Policy Council, and Chairman for the State of Tennessee Order of Amaranth Diabetes Charity. She is a committeewoman on the State Executive Committee for the Tennessee Republican Party, chair of the Women's Ministry Banquet at Main Street Baptist, and president of two groups in the Order of the Eastern Star. Amy is interested in environmental and economic development issues. She lives in Briceville.



Andrea Browning

Andrea Browning is an HR business partner with ORNL Federal Credit Union, which is an East Tennessee credit union founded as a financial institution for ORNL employees that has since expanded to serve a broader audience. She has been in that position since October of 2013. She received a master's degree in industrial/organizational

psychology from Clemson University and a bachelor's in psychology from Millsaps College. She is a member of the Tennessee Valley Human Resources Association as well as a member and outgoing president of the Oak Ridge Human Resources Association. Andrea is interested in civic and environmental issues. She lives in Lenoir City.



Noah Keebler

Noah Keebler is a nuclear electronics technician with Ametek, which is a manufacturer of electronic instruments and electromechanical devices. Prior to that he was a radiological instrumentation specialist with Perma-fix Environmental Services. Mr. Keebler received an A.S. in Electrical Engineering from Roane State Community College. He holds a

certification in Instrumentation from Ludlum Measurements and several other work-related certifications. Noah has Occupational Safety and Health Administration training, electrical safety experience and radiation worker training and is a member of the East Tennessee Chapter of the Health Physics Society. He has an interest in environmental issues. He lives in Knoxville.



Richard Burroughs

Richard Burroughs most recently served as chief of staff for Anderson County, Tennessee, Mayor's office since 2012. Prior to that post, his professional experience included working as a registered professional geologist on aquifer characterizations and remediation in soil and groundwater environments. His employment history includes 25

years working primarily with RCRA and CERCLA projects in various states. Richard received a B.S. in Geology from Southern Illinois University and an M.S. in Geology from the University of Arkansas. Richard lives in Oak Ridge and has an interest in environmental issues.



Shell Lohmann

Michelle (Shell) Lohmann is the human resources director for U.S. Cellular. Previously, she was the program manager for the University Recruiting and Graduate Education Programs for Oak Ridge National Laboratory/University of Tennessee in Knoxville. Shell is a member of the United Way of Greater Knoxville and has an interest in labor and environmental issues. A high school graduate, Shell lives in Lenoir City.



Harriett McCurdy

Ann (Harriett) McCurdy retired in 2014 after more than 40 years as a teacher for middle- and high-school students both in the United States and abroad, with a focus on the sciences. Most recently she served as a teacher of science and biology for grades 6-10 at Yangon Academy in Yangon, Myanmar. Prior to that, she taught a variety of science courses and environmental studies courses in China, Morocco, Kuwait, and Ecuador. Harriett received an M.A. in teaching biology and her teaching certificate from Washington University and a B.A. in biology from Earlham College. She is president of the Oak Ridge League of Women Voters and a member of Tennessee Citizens for Wilderness Planning, which is dedicated to achieving and perpetuating protection of natural lands and waters by means of public ownership, legislation, or cooperation of the private sector with a focus on the Cumberland and Appalachian regions of Tennessee. Harriett lives in Oak Ridge and is interested in educational and environmental issues.

Tennessee Valley, Lenoir City High School Technical Advisory Board, the local chamber of commerce, and others. Leon lives in Lenoir City and has an interest in civic issues.



Georgette Samaras

Georgette Samaras is director of community outreach for the local hospital system Covenant Health. She has also served as an adjunct instructor of Psychology at Pellissippi State Technical Community College since mid-2018. She is pursuing a Doctorate in Educational Leadership and Organizational Development, received an M.S. in Behavioral Psychology from Walden University, and a B.S. in Molecular, Cellular, and Developmental Psychology from the University of Colorado. She is also a certified mind-body instructor through the Center for Mind Body Medicine. She is a volunteer with the USA Track and Field Federation and the Cancer Support Community. She is interested in environmental issue and lives in Clinton.



Marité Pérez

Marité Pérez is a mortgage loan officer at First Community Mortgage. Previously, she worked with Latin and Haitian communities in the Dominican Republic as a Community Economic Development Advisor through the Peace Corps. She has also worked a Business Development Manager for a solar firm. Marité is a volunteer with Centro Hispano of East Tennessee, which promotes empowerment and civic participation of the multicultural community. She has a B.A. in International Affairs/International Business from Florida State University and an M.B.A. in Global Social Sustainable Enterprise from Colorado State University. Marité lives in Knoxville.



Bonnie Shoemaker

Bonnie Shoemaker retired in 2008 after 34 years at the DOE East Tennessee Technology Park and ORNL working in a variety of capacities, including chemical laboratory analyst, environmental compliance specialist, plant shift superintendent, emergency management specialist, and engineering technician. She is the recipient of two awards for operations and technical support in environmental compliance and emergency management. Bonnie received her B.S. in Biology from UT. She has an interest in environmental and public health issues. Bonnie lives in Clinton. She was appointed to the board in June 2017.



Leon Shields

Leon Shields is the supervisor for field operations for the Lenoir City Utilities Board. He is also the owner of Instructional Concepts, which provides training in industrial, public, and private application of firearms, explosives, vehicle extrication, and rescue operations. He is a firearms instructor/deputy for the Loudon County Sheriff's Office, an instructor/third party examiner for the State of Tennessee, a firefighter director with Loudon County Fire Rescue, Chairman of the Lenoir City Planning Commission/Board of Zoning Appeals, a Commissioner with the Lenoir City Housing Authority/Rural Development, and a Commissioner with the Loudon County Regional Planning Commission. A high school graduate, Leon is a member of a number of civic organizations, including the Boys and Girls Clubs of



Fred Swindler

Fredric (Fred) Swindler retired as a vice president and consultant for quality assurance and regulatory affairs with IsoRay Medical, Inc. in Richland, Washington. He was previously employed as a vice president for quality assurance and regulatory affairs with two other medical manufacturing companies. Fred received a B.S. in Biomedical Engineering from Rose Hulman Institute of Technology in Terre Haute, Indiana, and an M.B.A. from the University of Evansville, Indiana. He is a senior member of the American Society for Quality and has an interest in environmental and public health issues. Fred lives in Rockwood.



John Tapp

John Tapp is a civil and environmental engineer with nearly 50 years of experience in all areas of environmental protection and restoration, including private and public utility management, civil and environmental engineering, strategic planning, budgeting, and project development. John has recently worked as a Technical Assistance Consultant for

FEMA in the water and wastewater field with deployments to the US Virgin Islands and the California Camp Wildfire. Prior work included HDR-ICA Engineering, where he provided consulting in a broad range of areas, including environmental permitting and interaction with state and federal regulatory agencies, and work with the Kentucky Infrastructure Authority, where he managed the statewide planning effort for the Authority. He spent the majority of his career as a founding partner in Commonwealth Technology, an environmental and engineering consulting firm, and previously worked with the Kentucky Division of Water, the EPA, and the U.S. Public Health Service. John received his B.S. and M.S. degrees in Civil Engineering and his Ph.D. in Agricultural Engineering from the University of Kentucky. He has published more than 50 publications and papers. John has an interest in environmental and economic development issues. He is a member and past president of the Kentucky-Tennessee Water Environment Association, and a member of the Water Environment Federation, the Karns Community Club, and the Enhance Powell Committee. John lives in Powell.



Robert Whitaker

Robert Whitaker is currently a subsidy specialist in the Tennessee Department of Children's Services, where he has worked since 2001. He received a B.S. in Health Science/Physical Education from Carson Newman University. He has an interest in civic and business issues. Robert lives in Oak Ridge.



Dennis Wilson

Dennis Wilson is a retired technology manager who most recently was employed by Johnson Diversey Products (now Sealed Air) as the director of technology and intellectual property until 2009. While much of his 39-year career was focused on technology and intellectual property management, his early career included work as a resin and polymer chemist, for which he was awarded seven global patents. He received a B.S. in Chemistry from the University of Wisconsin in Parkside, an M.S. and Ph.D. in Material Science from the University of Connecticut, and certifications in a wide range of technology and management courses. Dennis has an interest in economic development and environmental issues. Dennis lives in Rockwood.

The board also welcomed new members Chris Hampel of Kingston, Gregory Malone of Rockwood, Thomas McCormick of Jacksboro, Michael Sharpe of Lenoir City, Thomas Tuck of Knoxville, and Zachary Wilkins of Wartburg at the close of 2020.



Rudy Weigel

Rudolf (Rudy) Weigel is a retired industrial hygienist who most recently worked for Concurrent Technologies Corporation in Arlington, Virginia, conducting industrial hygiene surveys at various Army installations in support of the Army Public Health Command until 2015. From 2002 to 2011 he served as a senior industrial hygienist/safety

and health representative with Bechtel Jacobs Company in Oak Ridge. His 36-year career has included work as a bioenvironmental engineer, environmental scientist, and hazardous waste program coordinator. Rudy received a B.S. in Occupational Health and Safety from Utah State University, and an M.S. from East Tennessee State University. He was a member of the American Conference of Governmental Industrial Hygienists. He has an interest in environmental and decontamination and decommissioning issues. Rudy lives in Oak Ridge.

Agency Liaisons

These individuals serve as points of contact between the board and their respective agencies. A DOE liaison must be present at all board meetings. TDEC and EPA liaisons are often on hand to contribute to discussion and answer board member questions.



Jay Mullis

John Arthur (Jay) Mullis II is the Manager of the Department of Energy's Oak Ridge Office of Environmental Management (OREM). He was selected to this position in November 2017. He is responsible for safely executing the environmental cleanup of the 32,400-acre Oak Ridge Reservation.



Connie Jones
EPA

Constance (Connie) Jones represents Environmental Protection Agency. She is part of the Superfund Division in the agency's Region 4 Office, which covers the Southeast.



David Adler

David Adler serves as the Deputy Designated Federal Officer for ORSSAB. He is director of the Quality and Mission Support Division for the Oak Ridge Office of Environmental Management.



Kristof Czartoryski
TDEC

Kristof Czartoryski is an environmental consultant with the Tennessee Department of Environment and Conservation. He is part of the agency's Division of Remediation in Oak Ridge.



Melyssa Noe

Melyssa Noe serves as the board's Alternate Deputy Designated Federal Officer. She is branch chief of program support in the Quality and Mission Support Division for OREM.