

Annual Report 2019



Oak Ridge
Site Specific Advisory Board
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Message from the Chair



Dennis Wilson

It is my pleasure as chair of the Oak Ridge Site Specific Advisory Board (ORSSAB) to present the board's 2019 Annual Report.

The board's mission is to provide independent advice and recommendations to the Department of Energy on its environmental cleanup program to remediate the Oak Ridge Reservation from hazardous and radioactive wastes leftover from the Manhattan Project and the Cold War era.

In 2019 the board submitted three recommendations to DOE, including budget priorities for cleanup projects and two chairs' recommendations. You'll find summaries of these key topics starting on page 11.

Board members participated in both of the semiannual SSAB chairs' meetings: In the spring in Augusta, Ga., and in the fall in Sun Valley, Idaho. Part of the work product from these meetings were two chairs' recommendations, one in response to a U.S. Government Accountability Office (GAO) report on cleanup milestones and another in response to a National Academies of Sciences (NAS) report on the Department of Energy's Office of Environmental Management (DOE-EM) Science and Technology Program.

Through participation in national conferences such as the National Environmental Justice Conference in Washington, D.C., the National Cleanup Workshop in Washington, D.C., and the RadWaste Summit in Henderson, Nev., board members gained valuable insights into the environmental cleanup process.

Additionally, improvements made in 2019 by board leadership to the board's issue group guidelines increased member engagement and streamlined the recommendation workflow. These improvements will continue to enhance the board's effectiveness as it addresses DOE's 2020 priorities:

- Completing East Tennessee Technology Park (ETTP) cleanup
- Dispositioning Oak Ridge National Laboratory (ORNL) uranium-233 inventory
- Addressing Y-12 mercury contamination

I hope you find this report informative and helpful in your understanding of the board and its place in the decision-making process for DOE in its cleanup and stewardship responsibilities for the Oak Ridge Reservation. We always welcome input from members of the public on environmental management and stewardship activities on the Oak Ridge Reservation and offer a public comment period at each meeting. The board meets the second Wednesday of most months at 6 p.m. at the DOE Information Center, 1 Science.gov Way, Oak Ridge, Tenn.

Join us!

Dennis Wilson

A handwritten signature in black ink that reads "Dennis Wilson". The signature is written in a cursive, flowing style.



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.

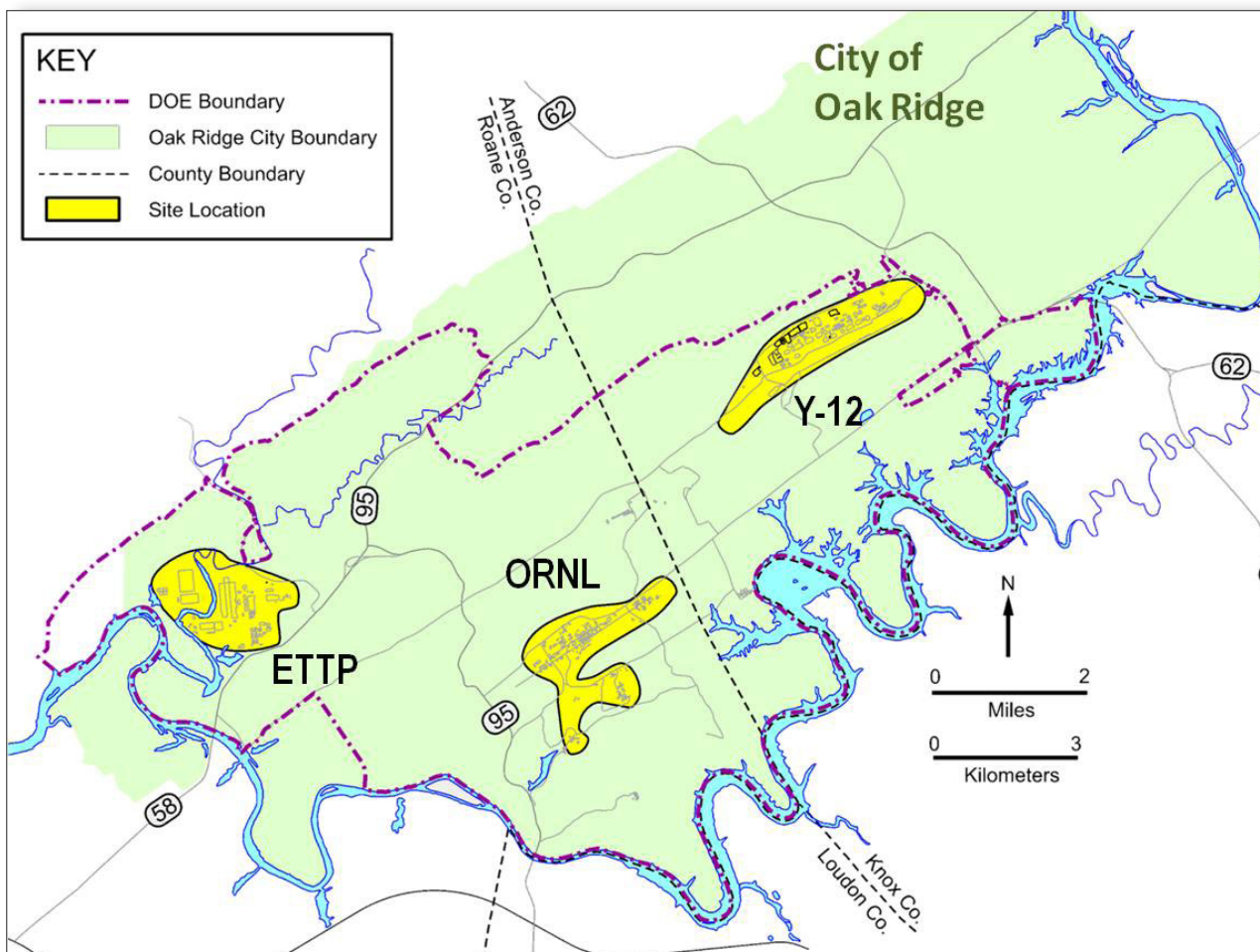
The board is committed to reflecting the concerns of the communities impacted by EM activities on the Oak Ridge

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 18 voting members from Anderson, 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 21.

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.

FY2019 Board Officers

ORSSAB officers for FY2019, which ended September 30, 2019, were Dennis Wilson, chair; Shell Lohmann, vice chair; and Richard Burroughs, secretary. Leon Shields 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 personnel 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.

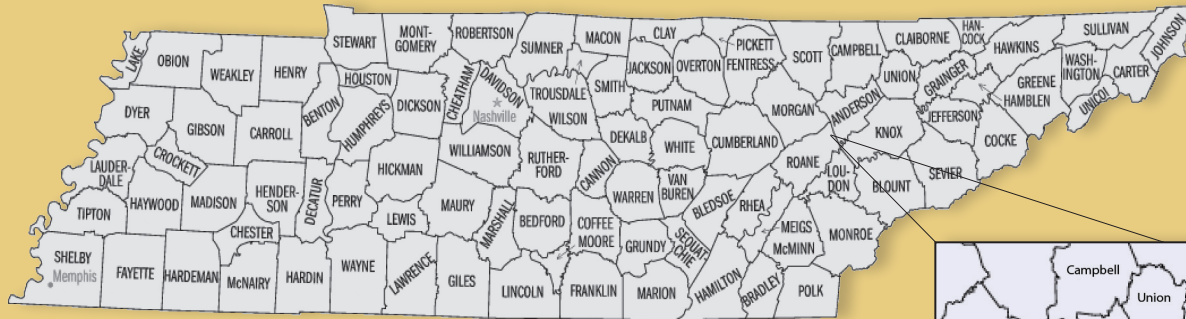
The EM & Stewardship Committee is responsible for monitoring the major cleanup activities on the ORR as well as stewardship requirements for areas of the reservation that have been remediated, but remain contaminated long-term. It originates recommendations to be considered at full board meetings. All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

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



The FY2019 Oak Ridge Site Specific Advisory Board

REPRESENTING NINE COUNTIES IN EAST TENNESSEE



Board members from each county at the close of 2019:

Anderson - 8	Loudon - 2
Knox - 5	Roane - 2
Morgan - 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



Crews began excavating at the headworks site to allow for construction of the Mercury Treatment Facility's foundations.

Construction Starts on Key Facility

EM crews recently mobilized to begin constructing the Outfall 200 Mercury Treatment Facility, vital infrastructure to fulfill EM's regulatory commitments to reduce mercury levels in the East Fork Poplar Creek and begin large-scale cleanup and demolition at the Y-12 National Security Complex.

The Mercury Treatment Facility will be comprised of two components at separate locations — a headworks facility and a treatment plant connected by a pipeline nearly a mile long. The headworks facility will capture creek flow on the west end of Y-12, store excess stormwater collected during large rainfalls, remove grit, and pump water through the pipeline to the treatment plant on the east side of Y-12. The treated water will then flow into the creek.

When the Mercury Treatment Facility is operational, it will limit and control potential mercury releases as crews take down massive Cold War buildings and address the soils — activities that may disrupt the mercury-contaminated area on the west end of Y-12. The facility is designed to treat up to 3,000 gallons of water per minute and includes a 2-million-gallon storage tank to collect stormwater.

Oak Ridge Site workers remove asphalt and concrete on the east end of the Y-12 National Security Complex to prepare the site of the Mercury Treatment Facility's treatment plant.



Unique Partnership Advances Cancer Treatment, Benefits EM Cleanup



In November, DOE unveiled an innovative public-private partnership set to provide unique isotopes to aid in next-generation cancer research and treatment as well as nuclear cleanup.

Isotek, the contractor responsible for EM's uranium-233 disposition project, is extracting thorium from the uranium-233 inventory stored at Oak Ridge National Laboratory (ORNL) before it is processed into a disposal-ready form. Nuclear innovation company TerraPower will then use the extracted thorium to support cancer treatment research.

This partnership will also have another beneficial result: expediting removal of legacy nuclear material currently stored at ORNL at a savings to the federal government.

As a result of the partnership, Isotek is scheduled to begin downblending the remaining inventory of uranium-233 for disposal a year ahead of schedule, saving approximately \$90 million in taxpayer dollars.

Completing the disposition of uranium-233 is EM's highest priority project at ORNL. The project removes a significant risk by eliminating the inventory of highly enriched fissile material stored in the world's oldest operating nuclear facility located in the heart of one of the nation's most important scientific research sites.

Counterclockwise from top: OREM fissionable material handlers open a canister containing uranium-233 to begin the extraction process. Officials cut a ribbon on Nov. 22 to mark the launch of a new public-private partnership set to provide unique isotopes to aid in next-generation cancer research and treatment as well as nuclear cleanup. DOE Deputy Under Secretary for Science T.L. Cabbage addresses the more than 150 attendees at the Nov. 22 event unveiling the public-private partnership.



OREM crews launch project to enhance safety, reduce cost at former reactor



A view of the Molten Salt Reactor Experiment at the Oak Ridge National Laboratory.

DOE EM crews in January began a \$4.7 million project that will reduce maintenance and operations costs at the Oak Ridge National Laboratory's (ORNL) Molten Salt Reactor Experiment (MSRE) and relocate employees stationed at this decades-old facility.

The project, expected to result in cost savings of nearly \$25 million, will enhance the facilities' electrical distribution, sump pump, fire suppression, and monitoring systems.

EM and cleanup contractor UCOR are scheduled to complete the project in April 2020.

Crews will replace existing electrical systems with a new conduit-based electrical system to power essential systems. This change will minimize maintenance costs, reduce risk of injury to workers, and provide reliable electrical service.

The new sump pump system, which removes groundwater from the building's basement and foundation, will provide more reliable operations, improve safety, and reduce risks during maintenance activities.

Workers will design and install the new dry fire suppression system, which will eliminate costs associated with purchasing and providing steam from the laboratory.

MSRE only operated for four years in the 1960s, but it earned an enduring legacy as an innovative technology concept. Although it was shut down 50 years ago, certain systems within the reactor building have continued to operate to keep the facility safe and stable until it can be demolished. EM is responsible for the facility's safety until decommissioning – scheduled for the 2030s – begins.

EM defueled the reactor by removing uranium from its fuel salts in 2007. The cleanup program is working to identify the best approach to address remaining fuel salts in the building.

Demolition starts at ETTP's Largest Remaining Structure, K-1037

Demolition of the largest facility still standing at the East Tennessee Technology Park (ETTP) began in February when workers began tearing down Building K-1037 at the former uranium enrichment complex.

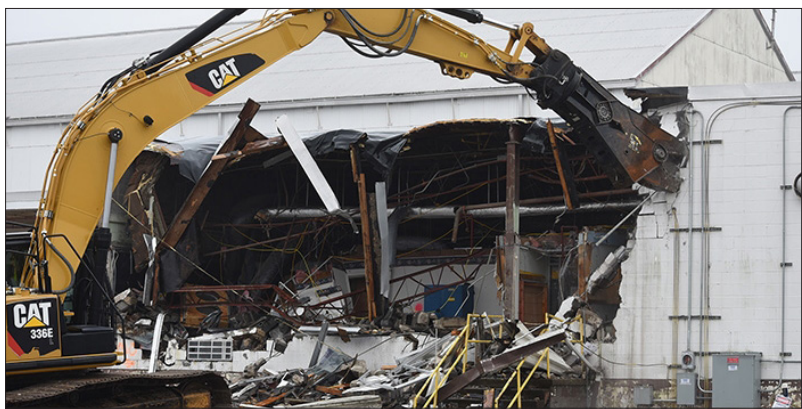
OREM and cleanup contractor UCOR spent several months deactivating the facility to prepare it for demolition – removing equipment and waste, performing asbestos abatement, and disconnecting utilities. The demolition was expected to be completed later in the year.

The original structure was built in 1945. Through the years, additions to the facility brought its square footage to approximately 380,000 square feet.

As one of the earliest structures at the site, Building K-1037 was originally a warehouse, but it was later used to produce barrier material used in the gaseous diffusion process until 1982. In 1991, the high bay areas of the facility were remodeled to develop the Atomic Vapor Laser Isotope Separation Product Conversion Demonstration Facility, a new form of uranium enrichment technology.

Uranium enrichment operations ceased at the site in the mid-1980s, when it was known as the Oak Ridge Gaseous Diffusion Plant. Since then, OREM has taken down nearly 500 facilities and transferred nearly 1,300 acres from government ownership in its goal to convert the site into a privately-owned and operated industrial park known as ETTP.

OREM is working to complete all major building demolitions at ETTP by the end of 2020. The area also boasts a 3,000-acre conservation easement, and work is underway to open the K-25 History Center later this year. The center preserves and shares the site's rich history and role during World War II's Manhattan Project.



The Oak Ridge Office of Environmental Management and cleanup contractor UCOR began demolition this week on Building K-1037.

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March

ETTP's Longest Operating Facility Demolished



Workers have completed demolition on Building K-1414, a garage that was the longest operating facility at ETTP.

Workers in March completed demolition on Building K-1414, a garage that was the longest operating facility at the East Tennessee Technology Park (ETTP).

The structure was built in 1949 and operated until early 2018—long after the site's uranium enrichment operations ceased in the mid-1980s. The building covered more than 12,000 square feet and served as the maintenance hub and fueling station for vehicles used to support the site's enrichment, and later, cleanup missions.

As part of EM and contractor UCOR's planning efforts to complete cleanup at ETTP and transfer property to private ownership, the company transitioned its fleet of vehicles to the General Services Administration. This change allowed the fleet to be serviced and fueled by outside private vendors, and it enabled UCOR to close garage operations and prepare the building for demolition.

Cleanup operations at ETTP have included the demolition of the uranium enrichment complex's five massive gaseous diffusion buildings that spanned 4.5 million square feet, removal of hundreds of various support facilities, and remediation of soil and groundwater.

April

OREM Explores New Technologies to Advance Mercury Cleanup at Y-12

OREM employees began field testing a newly developed fogging fixative and application process aimed at controlling mercury vapors during future deactivation and demolition (D&D) projects at hazardous, mercury-contaminated buildings at the Y-12 National Security Complex.

This is an important research area because mercury cleanup projects present potential workplace hazards

through the generation of vapors, especially in warm temperatures. Employees are testing this method on debris from the West Column Exchange (COLEX) equipment removal project, which was completed outside the four-story, 500,000-square-foot Alpha-4 building last fall.

Alpha-4 was originally used for uranium separation from 1944 to 1945. The COLEX equipment was installed in 1955 for a process requiring large amounts of mercury. A significant amount of mercury was lost into the equipment, buildings, and surrounding soils as those operations continued into the 1960s, and its cleanup is one of EM's top priorities.

Alpha 4 presents an opportunity for EM to test and evaluate various technologies and techniques to safely and effectively D&D buildings contaminated with mercury at Y-12.

The latest demonstration, which began in March, is evaluating a fixative and application process developed at DOE's Idaho National Laboratory. Testing will help determine if it offers a safe and effective way to suppress mercury vapor and control mercury migration that will occur when major work begins at Y-12's massive Alpha 4, Alpha 5, and Beta 4 structures.

The fogging demonstration is the first full-scale test using both the fixative and the fogging application process. The fogging process is used to blow a fixative material into a container filled with debris with high mercury vapors and monitoring the impact on mercury vapor generation. The fogging has been completed and now EM is monitoring the results.

Previous testing in a laboratory showed fogging reduced mercury vapor generation by a factor of 40. While field application may not reach those figures, even a portion of that result would significantly enhance safety, enable longer working hours, and reduce costs during future mercury-related cleanup work.



Employees with EM cleanup contractor UCOR install fogging equipment on a debris container at the Oak Ridge Site.

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Demolition is underway on K-131, and crews will progress to K-631.

Demolition Underway on Oak Ridge's Final Gaseous Diffusion Facilities

Workers started demolishing the final two buildings at the East Tennessee Technology Park (ETTP) that once supported Oak Ridge's gaseous diffusion uranium enrichment process. They are the last of the Poplar Creek facilities, the most contaminated structures remaining at the site.

Constructed in 1945, the five-story K-131 and two-story K-631 are connected to one another and have a combined floor space of more than 83,000 square feet. Demolition is underway on K-131, and K-631 is next.

Before demolitions began in 2017, the Poplar Creek area housed 11 large buildings and numerous smaller structures dating back to the 1940s and '50s – many of them radioactively contaminated – that supported the site's former nuclear program and operations in the five massive uranium enrichment facilities.

Building K-131 was built to provide purified uranium hexafluoride to the uranium enrichment cascade. Through the years, it was used for a variety of other purposes until Oak Ridge's uranium enrichment operations ceased in 1985. Building K-631 was used to withdraw gaseous depleted uranium hexafluoride from the cascade, convert it to liquid, and transfer it into transport cylinders.

OREM and cleanup contractor UCOR expect to complete the project this summer. Together, they are working to complete all demolitions at ETTP in 2020 and to convert the site into a multi-use industrial park.

Since cleanup began, OREM has torn down nearly 500 facilities, transferred nearly 1,300 acres for economic redevelopment, and created a 3,000-acre conservation area for public use.

Crews Recover Mercury, Prevent Future Release

Crews recently recovered more than a ton of mercury from an aging facility at the Y-12 National Security Complex, marking another EM project that has prevented a release of the element into the environment.

EM teams successfully removed the mercury from tanks in the Column Exchange (COLEX) equipment on the east side of Y-12's Alpha-4 building. In 2018, cleanup contractor UCOR collected nearly 3.5 tons of mercury from COLEX equipment on the building's west side. The latest effort boosted EM's total mercury removal in the facility to more than 4.6 tons.

Alpha-4 is a four-story, 500,000-square-foot facility used for uranium separation from 1944 to 1945. Workers finished installing the COLEX equipment in 1955 for lithium separation, a process requiring large amounts of mercury. A significant amount of mercury was lost into the equipment, buildings, and surrounding soils during that time, and its cleanup is one of EM's top priorities.

While employees drained the majority of materials from the equipment when operations ended in the 1960s, they did not clean all of the systems and components. Recoverable amounts of mercury remained in the aging lines and equipment, which have rusted and deteriorated over the decades.



A crew tests a rotary machine with different attachments to remove crust and scale from the inside of the pipes of the Column Exchange equipment.

EM and UCOR conducted the recent six-month project in three phases. During each test, mercury was recovered from the piping, consolidated, and stored in the facility.

In the first phase, staff used an optical device to inspect and catalogue residual materials inside piping. The second phase involved testing decontamination methods to remove crust and residual materials from inside the process piping. The knowledge learned through that effort will play a

(Continued on page 9)

pivotal role in removing the building's remaining COLEX equipment and piping.

In the final phase, workers recovered any liquid mercury that remained in the piping and equipment. Additionally, employees drained and inspected 22 tanks to determine if any additional deactivation is needed prior to demolition.

The COLEX mercury removal project is part of a broader initiative to address the significant amount of mercury lost to equipment, buildings, and surrounding soils during Y-12's historical operations.

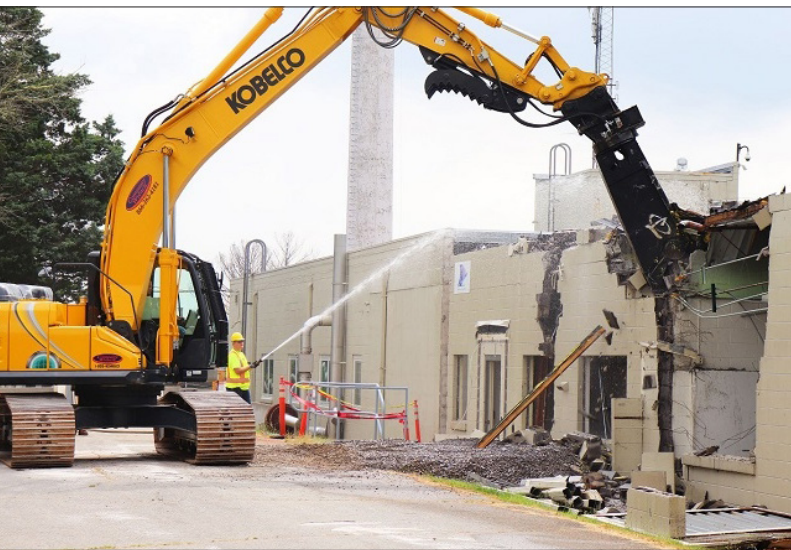
July

Demolition Reduces Risk at Oak Ridge Building

EM workers tore down the west end of Building 3017 at ORNL after more than a decade of challenges, evaluations, and repairs to the structure.

The building was used for office space by Isotek, the OREM contractor responsible for processing and disposing of the site's inventory of uranium-233.

Crews cleared debris from the site, and the remaining portion of the building was being refurbished with a new entrance.



Workers demolish the west portion of Building 3017 at ORNL.

August

Soil Disposal Project Completed \$75 Million Under Original Estimates

OREM coordinated with regulators and partnered with small businesses to complete a soil disposal project for \$1.2 million – nearly \$75 million under its original estimated budget.

EM crews disposed 4,071 cubic yards of soil that had been in storage since 1989, resulting from the closure of



This photo shows workers nearing completion of the project to remove 4,071 cubic yards of soil that had been in storage in an Oak Ridge Site facility since 1989.

oil retention ponds. The ponds were constructed decades earlier to collect oils, preventing them from seeping from belowground waste sites to nearby surface streams.

During the closure project in 1989, the soil from the oil retention ponds was labeled as containing solvents based on the contents of the belowground waste sites near the soil retrieval location. The presence of solvents would require treatment and disposal offsite, a significant cost reflected in the original budget.

Years later, reviews of the original sampling data revealed the need for new samples and analysis to determine the appropriate path to address the soil.

In February this year, workers finished disposing 4,050 of the 4,071 cubic yards of soil onsite. The remaining 21 cubic yards of soil did not meet the site's waste acceptance criteria for onsite disposal. Workers packaged and shipped that portion offsite for disposal last week.

The removal of soil paves the way for OREM to reuse the building where the soil was stored. Workers conducted sampling to confirm the facility is safe for future projects. OREM expects to use the facility for research on waste treatment and cleanup at the Y-12 National Security Complex.

September

Demolitions Lead Oak Ridge to Close Another Chapter at ETPP

EM's latest cleanup progress in Oak Ridge brought the end of an era at ETPP.

Crews completed demolition of K-131 and K-63, the last remaining buildings that conducted or supported gaseous diffusion uranium enrichment operations at ETPP.

ETPP, formerly known as the K-25 site or Oak Ridge Gaseous Diffusion Plant, was built as part of the Manhattan

(Continued on page 10)

Project. During peak operations, the site contained five massive gaseous diffusion plants and numerous support facilities.

Those buildings housed operations, as well as workers, to help end World War II and produced highly enriched uranium for national defense and commercial energy production until the site was permanently shuttered in 1987.

Eleven of ETTP's support facilities were housed in an area adjacent to Poplar Creek and known as the Poplar Creek facilities. With the completion of K-131 and K-631, crews have taken down all Poplar Creek facilities since the effort began two years ago.

Originally, workers in Building K-131 provided purified uranium hexafluoride to the uranium enrichment cascade. Through the years, the building was used for a variety of other purposes until uranium enrichment operations ceased at the site.

Workers in the companion Building K-631 withdrew gaseous depleted uranium hexafluoride from the cascade, converted it to liquid, and transferred it to transport cylinders. The five-story K-131 and two-story K-631 had a combined floor space of more than 83,000 square feet.

October

EM's Highest Priority Project at Oak Ridge Lab Gains Momentum

Workers began processing a powder form of uranium-233 a year ahead of schedule as part of a larger EM project to safely process and dispose of the remaining inventory of the nuclear material stored at ORNL.

Launching this portion of the disposition project is an achievement for OREM and Isotek, the contractor responsible for processing and disposing of the site's uranium-233 inventory – EM's highest priority at ORNL. This work also eliminates the need to use Building 3019, which is the oldest operating nuclear facility in the world, for storage of the material.

Workers were originally scheduled to begin processing that material in October 2020 when crews are set to finish upgrading hot cells in an ORNL facility. The upgraded cells will be designed to handle larger amounts of uranium-233, providing more shielding for workers equipped with mechanical arm manipulators.

November

EM Addresses Risks at ORNL Facilities, Preparing for Next Cleanup Phase

EM workers successfully moved two former nuclear facilities at ORNL to the "cold and dark" stage in the deactivation process.

The work marked the beginning of Oak Ridge's next major cleanup phase at ORNL and the Y-12 National



Oak Ridge workers grout a 47-foot-long underground transfer tunnel formerly used to load radioactive material into hot cells at Building 3026 at ORNL.

Security Complex as crews near completion of major cleanup at ETTP in 2020.

Deactivating Buildings 3010 and 3026 paves the way for future demolition, removing a significant risk from the heart of ORNL while opening land for future research and science missions.

Getting a building to "cold and dark" involves isolating all utilities and ensuring a structure is safely configured for crews to take it down.

Buildings 3010 and 3026 are located in ORNL's central campus, which includes the oldest facilities that require significant cleanup in the years ahead. Only two hot cells remain at the Building 3026 site after workers tore down the facility's outer structure and four hot cells contained inside using funds from the American Recovery and Reinvestment Act of 2009.

December

Oak Ridge Begins Deactivating Last ETTP Facility Set for Demolition

EM crews began deactivating Building K-1600, a former test and demonstration facility for uranium enrichment centrifuges at ETTP.

The 40,000-square-foot K-1600 facility was transferred to Oak Ridge cleanup contractor UCOR in September 2019 to complete deactivation and demolition.

Building K-1600 is one of the most recognizable facilities remaining at ETTP due to its height and location. It sits in the center of the footprint for the former mile-long, U-shaped K-25 Building. K-25 was one of the site's five massive gaseous diffusion buildings that once held the title of the world's largest building.

Key Issues

In FY 2019, the board sent one locally generated recommendation and endorsed two recommendations developed by the chairs of the eight site specific advisory boards on supplemental environmental projects.

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

Recommendations on FY2021 OREM Budget

Each year the DOE-EM Program develops its budget request for the fiscal year two years beyond the current fiscal year, incorporating budget requests from DOE field offices to develop the EM Program budget request to the president.

DOE-EM Headquarters typically issues guidelines to the field offices advising them how much funding they should reasonably expect when developing their FY+2 budget requests. The field offices then brief the public, the regulatory agencies, and the respective site-specific advisory boards and seek input from each regarding budget requests.

On June 12, 2019, OREM program presented on its FY 2021 budget formulation process to ORSSAB. The meeting was attended by several EM portfolio project directors who gave specifics on their projects. This presentation provided content and discussions that ORSSAB used to draft its recommendations:

- **Complete ETTP cleanup** including all demolition and remedial action consistent with CERCLA agreements and implement reindustrialization and historic preservation activities;
- **Disposition ORNL uranium-233** including uranium-233 direct disposition, downblending operations, and disposal of remaining inventory;
- **Disposition ORNL transuranic waste** including disposition of transuranic debris waste and start building the Sludge Processing Facility;
- **Address Y-12 mercury contamination** including proper planning for future mercury cleanup, a reduction of mercury in surface water exiting Y-12, and begin addressing mercury-contaminated buildings.

Recommendations

ORSSAB supports OREM's Program Plan and recommends fully funding the activities that are currently supported for FY 2021. In addition, ORSSAB has identified three priorities for cleanup and recommends that the FY 2021 budget request reflect adequate funding to keep these projects going. Also, when additional funds from suitable



Scientists at ORNL's Aquatic Ecology Laboratory simulate the Upper East Fork/Poplar Creek environment to research potential mercury cleanup technologies.

plus-ups and savings become available, we recommend that these funds be targeted for these projects:

1. Continued testing and implementation of measures to stabilize and control mercury-contamination in the banks and bottom of East Fork Poplar Creek to prevent the spread of contamination and minimize recontamination. In consideration of the unusually high amount of rainfall that the Oak Ridge Reservation has received in the last few years, and the resulting stormwater runoff, ensuring the banks of East Fork Poplar Creek are stable is of utmost importance.
2. Address delays in building and operational dates for the Mercury Treatment Facility due to funding and/or procurement delays. Increase funding wherever possible to ensure the Mercury Treatment Facility meets the original operational date of 2022 as presented to both the community and ORSSAB.
3. Provide continued support for activities leading to the selection and implementation of final groundwater and soil remedies at East Tennessee Technology Park.

Recommendations on EM's Review of Cleanup Milestones

On February 14, 2019, the U.S. Government Accountability Office (GAO) published "DOE Should Take Actions to Improve Oversight of Cleanup Milestones" (GAO-19-207). The report found that DOE did not accurately track or report whether milestones were met, missed, or postponed. It also found that sites continually renegotiate milestones they are at risk of missing.

GAO recommended EM should update its policies and procedures to establish a standard definition of milestones, track original milestone dates as well as changes to its cleanup milestones, report annually to Congress on the status of its cleanup milestones, and conduct root cause analyses of missed or postponed milestones.

One of the ways that the local boards that make up the EM SSAB become informed about cleanup actions

at their sites is tracking cleanup milestones. Milestone achievement, delays and change information should be shared with the local boards on a regular basis.

Recommendations

1. The EM SSAB Chairs recommend EM create a complex-wide, consistently applied data dictionary for milestones terminology. The inconsistency in not applying the same criteria in DOE tracking of milestones results in confusion for the local boards and the EM SSAB Chairs as they meet to discuss cleanup issues and contemplate recommendations.
2. Local boards and the public should be able to access site-specific milestone information in a timely manner. Milestone information should contain the rationale for identifying the type based on the data dictionary of milestones and detailed information about why a milestone will be advanced/delayed/postponed.

Recommendations on Improving EM's Science and Technology Program

The EM SSAB Chairs wish to respond to the National Academies of Sciences' (NAS) report, "Independent Assessment of Science and Technology for the Department of Energy's Defense Environmental Cleanup Program" (2019) which assesses the success of the EM Science and Technology (S&T) program; a program that defines needs for near-term and out-year cleanup of radioactive material. As Advisory Boards to DOE-EM, the EM SSAB Chairs collectively seek a continued EM focus on permanent reduction of risk to future human generations and the environment.

The EM SSAB Chairs agree to the need for a formal, open, transparent, quantifiable and integrated S&T program that is accessible, by everyone - scientists, regulators and the public. We also agree on the need for an aggressive, cohesive S&T program that can verify the success of selected remediation pathways by utilizing hard data in defense of chosen risk-informed cleanup decisions. We also see the need for a data-rich, user friendly and publicly accessible digital platform that is easily accessed and navigated by everyone.

effort that is fully funded in order to: a) identify and pursue development of the technologies necessary to successfully achieve risk based reduction of radiological and other hazardous waste material; b) to integrate decisions that are common between sites with similar remediation needs; c) to identify scientific challenges common to sites.

2. A portion of the technology development effort for the DOE-EM cleanup program should focus on breakthrough solutions and technologies that can substantially reduce cleanup costs, schedules and uncertainties as stated in the NAS report.
3. The EM SSAB Chairs recommend exploring already developed, usable computer platforms to see if they are flexible enough to systematize verification of Best Practices decisions.
4. The EM SSAB Chairs recommend EM explore the path of working with the Advanced Research Projects Agency-Energy (ARPA-E) office, coupled with public outreach and transparency to implement a directional shift towards better control.

Recommendations

1. The EM SSAB Chairs support the development of a programmatically integrated, (under one identified EM government program) robust S&T

Board Meetings

January

The board did not meet in January.

February

DOE's Dave Adler attended ORSSAB's February meeting to discuss OREM's groundwater program.

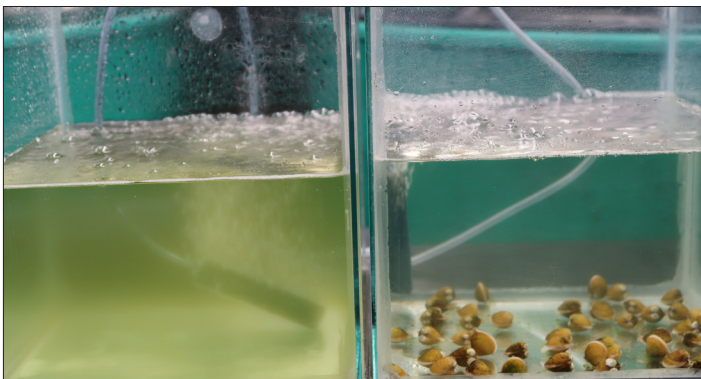
Adler told members that more than 2,000 wells are in place throughout the ORR to allow DOE to thoroughly monitor where groundwater contamination is located and how groundwater behaves in the subsurface. He said an active monitoring program includes about 800 samples being taken every year.

Adler said DOE was awaiting a groundwater feasibility study to identify remediation options for groundwater issues at the Main Plant area of ETPP.

March

ORNL's Mark Peterson attended ORSSAB's March meeting to discuss Aquatic Ecology Research and Technology Development in East Fork Poplar Creek.

Peterson provided board members a general overview of the mercury problem before going into additional detail about East Fork Poplar Creek and the work his research team had been doing to identify potential remediation strategies.



Scientists at the Aquatic Ecology Laboratory have been exploring bivalve organism filtration as a potential strategy to reduce the impact of mercury in East Fork Poplar Creek.

April

DOE's Bill McMillan attended ORSSAB's April meeting to discuss Extending Operational Life of Facilities and

Reducing Surveillance and Maintenance Requirements at ORNL.

McMillan told members operational facilities at the lab include the Liquid and Gaseous Waste Operations (LCWO), which treats liquid and gaseous waste for DOE's Office of Science operations, as well as legacy-contaminated groundwater and buildings now owned by OREM. He said a variety of facilities are in standby awaiting demolition and provided an overview of key facilities DOE plans to address in the near future.



From left, Bill Clark, Leon Shields, Shell Lohmann, and Harriett McCurdy tour the Liquid Low-Level Waste System at ORNL.

May

The board did not meet in May.

June

OREM's General Manager Jay Mullis and Director of Planning and Execution Alan Stokes attended ORSSAB's June meeting to give members an overview of the OREM budget process and priorities for FY 2021.

Additionally, Mullis recognized exiting board members Belinda Price and Eddie Holden, presenting each with a plaque in thanks for their service.



OREM General Manager Jay Mullis speaks to ORSSAB members during the board's monthly meeting in June 2019.

July

The board did not meet in July.

August



New member Amy Jones reviews materials during the 2019 ORSSAB Annual Planning Meeting in Townsend.

Board members and liaisons traveled to Townsend, Tenn., to the Tremont Lodge & Resort Conference Center for the board's annual meeting. Attendees also included six of the board's new members for the year.

Liaisons from DOE, EPA and TDEC offered their respective agencies' suggested topics for the board to consider in its annual workplan.

OREM leadership gave a detailed overview of OREM's long-term and near-term goals, the local cleanup budget and the recommendation process.

September

DOE's Dave Adler and Brian Henry attended ORSSAB's September meeting, with Adler recognizing incoming board members and Henry giving members an Update on the Outfall 200 MTF and Y-12 Excess Facilities.

Adler opened the meeting by recognizing incoming board members Andrea Browning, Amy Jones, Noah Keebler, Georgette Samaras, and Robert Whitaker, and new student representative Avigail (Avi) Duke, a senior at Oak Ridge High School.

Henry said MTF is one of OREM's key projects to enable future cleanup at Y-12. He told members that work is advancing on the project, with crews actively at the site working.

Additionally, Henry discussed OREM's risk-reduction accomplishments at Y-12, which included removal of about 4 tons of mercury at the West COLEX facility and disposal of about 4,000 cubic yards of soil that had been held in storage.



Andrea Browning



Amy Jones



Noah Keebler



Georgette Samaras



Robert Whitaker

October

DOE's Dave Adler attended ORSSAB's October meeting to provide an Update on Groundwater at ETTP.

Adler told members that most of the surface work is completed at ETTP, but there is still a lot of work to be done about groundwater and decisions need to be made regarding remediation approaches. He said a feasibility study was developed that looked at a range of alternatives, and OREM is in a good position to decide on how to proceed.

November

DOE's Bill McMillan attended ORSSAB's November meeting to provide Updates on the MSRE.

McMillan gave board members an overview of MSRE's history and key activities that have taken place at the ORNL facility over the years. Although the reactor has been defueled, the facility still requires monitoring and maintenance activities. Additionally, he told board members that small amounts of legacy materials remain in the solidified fuel salts in the facility's drain tanks. He said OREM plans to complete a revised feasibility study to decide what remediation approach to take for the drain tanks.

December

The board did not meet in December.

Looking Ahead: 2020 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 at the DOE Information Center, 1 Science.gov Way, Oak Ridge. Changes to the schedule will be noted on our website, social media and other advertisements.

In-depth discussion follows in the EM & Stewardship Committee meeting on the fourth Wednesday of most months, which also takes place at the information center.

If a recommendation is deemed appropriate, initial research will be performed by members of an issue group focused on the topic. The draft document will then be produced by the EM&Stewardship Committee before being sent to a full board vote.

February

Isotek representatives will discuss Processing of Uranium-233 Material.

March

DOE representatives will discuss Input on Reuse and Historic Preservation at ETPP.

April

DOE representatives will discuss Ongoing Efforts to Assure Sufficient Waste Disposal Capacity.

May

DOE representatives will discuss FY 2022 Budget Development/prioritization.

June

DOE representatives will discuss ETPP Main Plant Groundwater Remedy Selections.

July

There will be no meeting in July. New board members will participate in training with board staff and DOE's liaisons.

August

The board will hold its annual planning meeting at an offsite location to be announced. It will hear from agency liaisons on suggested topics and discuss its workplan topics.

September

TBD.

Other Activities



From left, Harriett McCurdy, Robert Whitaker, Noah Keebler, Andrea Browning, Amy Jones, Bill Clark, and Georgette Samaras visited the Graphite Reactor at ORNL during the July New Member Tour of the ORR.

Understanding the Mission

ORSSAB members are expected to actively educate themselves about OREM's projects at Oak Ridge facilities.

One of the first activities for all new members is a comprehensive tour of the ORR. A guide, usually one of the board's designated federal officers, explains the impact of previously completed projects, gives an overview of current work, and an outline of where future remediation activities will take place.

Likewise, current board members regularly tour areas relevant to the board's mission of providing advice to DOE in its cleanup mission. They also represent ORSSAB at related events such as the announcement of new projects or completion celebrations.

DOE's Dave Adler provides new members an overview of OREM's mission during the 2019 ORSSAB New Member Orientation.





ORSSAB Chair Dennis Wilson, left, joined members from eight other cleanup advisory boards from throughout the country at Augusta, Ga., in May.

Working Better Together

Oak Ridge's SSAB is not alone in its mission. An umbrella organization, the EM SSAB, links Oak Ridge with boards at eight other DOE cleanup sites around the country.

Each board regularly hosts events designed to let the boards collaborate on recommendations, share best practices, hear updates from DOE headquarters officials and understand the unique challenges faced by the other sites.

ORSSAB members toured DOE's Idaho National Laboratory in conjunction with the SSAB Fall Chairs' Meeting held in October in Sun Valley, Idaho.





From left, Robert Jett (left), a technician at the Aquatic Ecology Laboratory at ORNL, shows ORSSAB members Richard Burroughs and John Tapp lake sturgeon, one of several aquatic species being studied at the laboratory.

Science Behind the Solutions

During the spring, ORSSAB members toured ORNL's Aquatic Ecology Laboratory, where scientists are investigating East Fork Poplar Creek's unique ecology and working to develop technologies to aid in OREM's mercury cleanup efforts there.

Historical releases of mercury from Y-12 at the headwaters of East Fork, primarily during the 1950s and 1960s, have resulted in portions of East Fork Poplar Creek and Poplar Creek exceeding water quality criteria for mercury concentrations. As OREM is working to address this issue, the Aquatic Ecology Group is working to provide science-based solutions to help OREM do so as effectively and efficiently as possible.

Members on the tour saw first-hand some of the tools and processes researchers are using to collect data in their experiments. The 10,000-square-foot facility, which contains artificial and living streams as well as numerous holding tanks and a toxicology laboratory, allows researchers to experiment and collect data in a controlled environment before bringing the work into the field.

ORSSAB member Leon Shields learns about sampling processes being performed at East Fork Poplar Creek.



Members & Liaisons



Terry Allen

Terry Allen is a retired general engineer who worked for OREM until December 2016. At OREM, he worked on issues related to regulatory compliance, safety culture, and a variety of other tasks. Before that he worked for Martin Marietta Energy Systems in various capacities, and for 13 years he was with TVA. Terry received an M.S. in Environmental

Engineering from UT. Terry lives in Oak Ridge and is interested in environmental and public health issues and is a volunteer with Methodist Medical Center. He left the board this year.



David Branch

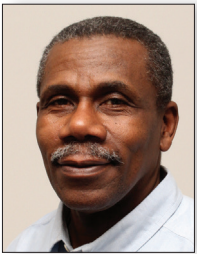
David Branch was a rural letter carrier for the U.S. Postal Service in Knoxville for 20 years until his retirement in 2013. He was previously employed in the health care field and studied nursing at Walter State Community College in Morristown. A high school graduate, David lives in Knoxville and has an interest in environmental and historical preservation issues. He left the board this year.



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.



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.



Bill Clark

William (Bill) Clark is a retired boilermaker with a wide range of experience both in his professional career and as the owner of a drilling rig, which provided firsthand insight into environmental issues. Bill graduated from the Tennessee College of Applied Technology with certification in combination welding. He completed the

boilermaker apprentice program and radiation and fissile worker training. Bill previously served on the Morgan County Commission from 1986 to 1990 and has an interest in environmental and county/city governmental issues. He is a resident of Oakdale.



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.



Martha Deaderick

Martha Deaderick is a retired educator who worked for the city school system in Oak Ridge from 1975 until 2004, where she specialized in English, social studies, Tennessee history and special education. She received a B.S. in Education and a Special Education Certificate from UT. Martha is a member of Tennessee Citizens for Wilderness Planning, Roane County Environmental Review Board, and Oak Ridge Schools

Retired Teachers. She is a resident of Kingston. Martha left the board this year.



Sarah Eastburn

Sarah Eastburn is the director of marketing and education outreach for the Tennessee Clean Water Network, which is a nonprofit devoted to promoting clean water and healthy communities. She has previously worked as a marketing executive with Aries Energy, an educational fellow with AmeriCorps, a media coordinator/language arts

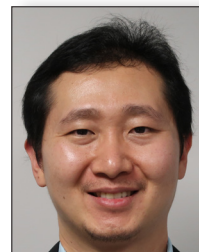
teacher, and an environmental development specialist. She earned a B.A. in Spanish Business and a B.A. in Mass Communications from the University of Wisconsin in Eau Claire. Sarah has an interest in environmental and public health issues. She left the board this year.



Eddie Holden

Paul (Eddie) Holden is a retired transportation logistics manager who worked with OREM from October 2004 until December 2014. Before that he worked for 31 years as a transportation logistics manager with Yellow Freight in various locations across the United States. He received a B.S. in Transportation Logistics from UT. A native of Oak

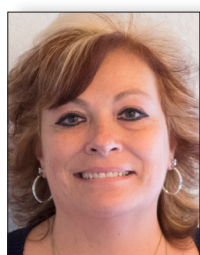
Ridge, he has an interest in environmental and economic development issues. Eddie is a resident of Knoxville. He left the board this year.



Nannan Jiang

Nannan Jiang is a graduate student at the University of Tennessee pursuing a doctorate in energy science and engineering through the university's Bredesen Center. Graduate students in this programs perform interdisciplinary research by joining ORNL and university research teams focused on a diverse set of challenges related to energy and to

applied data sciences. He received an M.S. in microbiology from the University of Illinois. He is a member of the Forum on Science Ethics and Policy; Ask a Scientist; and the Gamma Beta Phi National Honor Society. Nannan has a passion for education and environmental issues. He left the board this year.



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.



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.



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.



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.



Brooke Pitchers

Brooke Pitchers is a recent graduate of Roane State Community College in Harriman, where she received an Associate of Applied Science degree in Environmental Health Technology. She also completed a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) certification course. Brooke works at Calhoun's in Knoxville. In her spare time, she coaches youth soccer and baseball, and has an interest in environmental and public health issues. Brooke lives in Harriman.



Belinda Price

Belinda Price is a senior hydrogeologist with Alliant Corporation, where she has been employed since October 2011. Alliant Corporation provides services for the ORNL Safety Services Division. Belinda has more than 25 years of experience in environmental investigation and environmental remediation as a geologist, hydrogeologist and task/project manager. She received an M.S. in Hydrogeology from University College London, University of London, U.K. A certified professional geologist in multiple states, Belinda is a member of the Geological Society of America. Belinda lives in Knoxville. She has an interest in environmental issues. Belinda left the board this year after completing all three allowed terms.



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 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.



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.



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, Tennessee.

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.



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. He was appointed to the board in July 2015.



Ed Trujillo

Edmundo (Ed) Trujillo retired as a project manager from Bechtel Corporation in 2012. He managed the engineering and construction of a maintenance facility for heavy duty mining equipment in Chile in 2011-2012. From 2008 until 2011, he managed three environmental projects for Bechtel at the ETTP in Oak Ridge. During his 35-year

career, he has worked on a wide variety of projects at DOE, the U.S. Air Force and private sector facilities. Ed received a B.S. in Engineering from the University of Wisconsin. He has an interest in civic and environmental issues. Ed lives in Oak Ridge. He left the board this year.



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

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.



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.



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.



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.



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.