

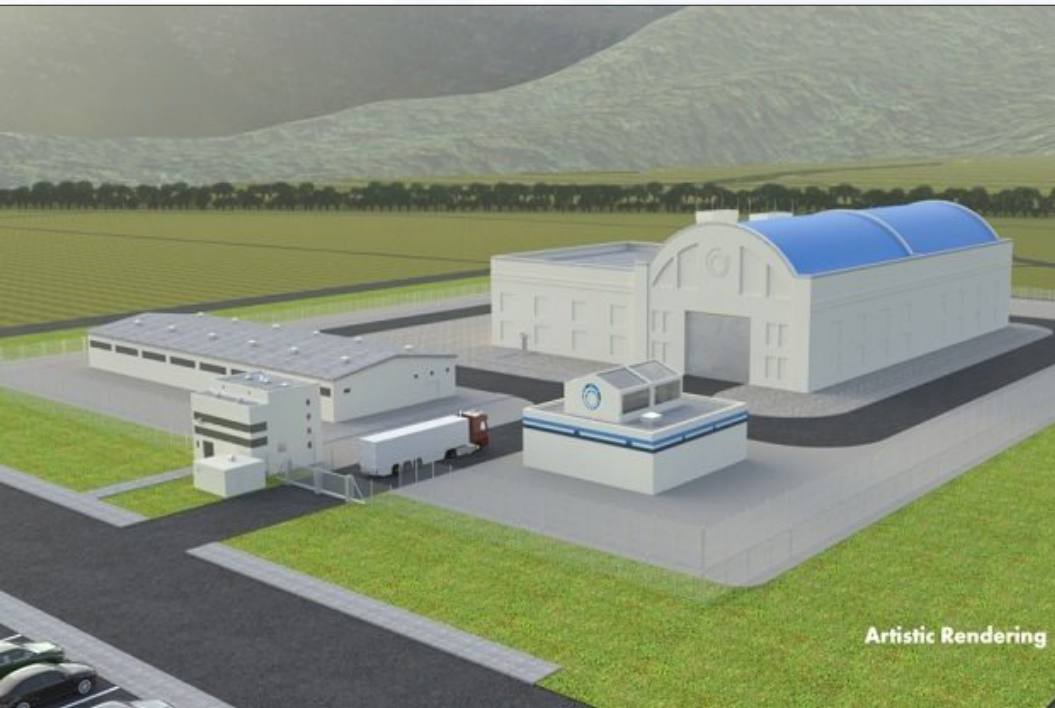


# Advocate



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

## OREM Closes in on ETTP Vision Formed Decades Ago



Artistic Rendering

*A rendering of the Kairos Power development at the East Tennessee Technology Park. The company’s initial \$100 million investment to deploy a low-power demonstration reactor there is expected to create 55 jobs.*

DOE’s Oak Ridge Office of Environmental Management (OREM) and its contractor UCOR hosted a virtual event on Feb. 24 highlighting the transformation underway at the East Tennessee Technology Park (ETTP) and new economic opportunities for the community there.

The event unveiled a closure plan providing a pathway for OREM and UCOR to complete all work at ETTP. It opened with comments by U.S. Rep. Chuck Fleischmann, State Sen. Ken Yager, Tennessee Department of Environment and Conservation Commissioner David Salyers, U.S. Environmental Protection Agency

Region 4 Superfund Division Director Carol Monell, Oak Ridge City Mayor Warren Gooch and Roane County Executive Ron Woody.

The event featured a discussion by a panel whose members helped create the vision and blueprint for the ambitious conversion of ETTP from a former uranium enrichment complex to a private industrial park – a feat of reindustrialization.

The Community Reuse Organization of East Tennessee has helped transition cleaned land, buildings, and infrastructure from federal ownership to attract new industry. The organization’s former president and CEO Lawrence

Young served as a panelist, discussing the transformation that has occurred since the ETTP reindustrialization began in the mid-1990s.

“I’m amazed where we are currently,” said Young. “As I look back and think about what the site was ... it was a decaying, dilapidated, and quite frankly, a dangerous site that needed to be cleaned up.”

Young continued, “You can’t underestimate what efforts went into this. This was an impossible endeavor, but the people that worked on this turned the impossible into the possible. Now we’re at a point where we have industrial property that is clean and safe and can be marketed and redeveloped into a new industrial park.”

He also noted that new wide-open spaces at the former enrichment complex now attract companies developing the next generation of nuclear technologies.

Kairos Power announced plans last summer to deploy a low-power demonstration reactor at ETTP. The company’s initial \$100 million investment is expected to create 55 jobs.

*(See ETTP on page 6)*

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## Reservation Update



*An aerial view of the Molten Salt Reactor Experiment. The facility was shut down in 1973, and the Oak Ridge Office of Environmental Management is responsible for keeping it in a safe mode until its demolition is scheduled.*

### Reactor Upgrades Enhance Safety, Save Taxpayer Dollars

EM is upgrading a historic reactor at Oak Ridge to keep the facility in a safe mode until its demolition is scheduled.

The improvements to the Molten Salt Reactor Experiment (MSRE) are needed for safe continued operations and will also support the facility's eventual transfer from maintenance to deactivation, which will save approximately \$5 million in annual operating costs.

MSRE, located at ORNL, is one of more than 200 facilities in Oak Ridge that no longer support ongoing missions. OREM and its contractor UCOR are tasked with keeping many of these facilities in a safe, stable condition, and together they examine ways to reduce costs without compromising safety as these facilities await deactivation and demolition.

Since MSRE is still classified as an active nuclear facility with a deactivated nuclear reactor, numerous upgrades are needed to keep critical systems safe until the facility is torn down. UCOR

is making upgrades and modifications that minimize maintenance costs, reduce risks of injury and exposure to personnel, provide reliable electric service to key systems, and eventually eliminate the need for personnel to work at the facility.

Tank headspace-gas pressure builds up from fluorine gases in tanks inside the facility. A new continuous purge system, scheduled to begin operation next year, will provide safe continuous off-gassing instead of allowing the pressure to build up. This project is also reducing risks by replacing an old reactive gas removal system, which has exceeded its operational life expectancy.

Workers are also installing a new roof over a portion of the facility to protect key systems such as the reactor and containment ventilation systems. UCOR is also relocating employees stationed in MSRE to nearby offices to further reduce the possibility of hazards.

Construction of MSRE began in 1962. Test runs began in 1965 using uranium-235 as fuel. The reactor reached full power in 1966. Two years later, scientists added uranium-233

to demonstrate the design's flexibility, making it the first reactor in the world to operate with uranium-233. Famed scientist Glenn Seaborg, discoverer of plutonium and creator of uranium-233, came to ORNL to start the reactor.

The facility was inspired by a short-lived effort to develop a nuclear-powered aircraft in the 1950s. After that initiative was cancelled, focus shifted to using MSRE technology to generate electricity. Concerns about long-term uranium supplies made this concept more attractive because of its ability to function as a "breeder," producing more fuel than it consumed.

MSRE was shut down in 1973 in favor of a sodium-cooled fast breeder reactor that was planned for construction — but never built — in Oak Ridge.

### Crews Use Novel Strategies to Clean up High-Risk Site

EM crews at Oak Ridge recently devised innovative approaches to enable deactivation and demolition of the final portion of the former Radioisotope Development Laboratory.

That structure, known as the East Cell Bank, is on DOE's list of high-risk excess contaminated facilities. It's located in the heart of Oak Ridge National Laboratory (ORNL) near ongoing research missions.

Workers with EM cleanup contractor UCOR characterized the final cell to identify potential radiological and hazardous contamination. They conducted the work in stages under a six-story protective structure erected to ensure nearby facilities and ongoing research missions at ORNL aren't impacted by the cleanup.

The crews began by taking surveys and readings from an opening at the front of the structure. They used long-reach tools and a specialized radiation detector. The detector overlays a radiation-intensity color map on a picture of the environment and

identifies gamma-ray emitting nuclides and their locations.

Once data showed it was safe for personnel to enter the facility, the workers moved the equipment farther inside to perform more characterization and surveys. They continued this process safely and methodically, gathering data and processing the results from one area before moving forward to another area to characterize and survey.

Portions of the structure had contamination levels requiring remote entry to get readings. The team developed a plan to access those areas by removing a concrete plug in the roof and lowering equipment inside to complete the characterization. However, the plug could not be removed due to it being sealed in place more than a decade ago.

The employees used a system they designed to crack the seal. An 80-ton mobile crane lifted the 9,000-pound plug, allowing workers to access areas of the facility to capture remaining readings and complete characterization.

The tool they used to capture the readings detects sources of gamma-emitting radioisotopes and locates sources of detected gamma ray. The instrument identifies hot spots in large areas, eliminating the need for crews to take samples by hand, thereby reducing the time workers spend in a radiation environment.

With characterization complete, deactivation is underway. Workers are safely removing, packaging and shipping waste for disposal. Once deactivation and decontamination phases are complete, crews will tear down the structure. Demolition is expected to be completed next year.

## Deactivation Paves Way for Major Skyline Changes

Since the start of 2022, EM crews at Oak Ridge have finished deactivating the former Criticality Experiment Laboratory and the mercury contaminated Column Exchange (COLEX) equipment at the Y-12 National Security Complex (Y-12).

They are among 200 buildings at Y-12 and ORNL that no longer support ongoing missions. A subset of those buildings comprise DOE's largest inventory of high-risk excess contaminated facilities that OREM and its contractor UCOR are responsible for deactivating and demolishing.

Crews are conducting deactivation activities in many other buildings this year, including three former enrichment buildings at Y-12 and a number of former reactors and radioisotope processing facilities at ORNL.

Their progress on deactivation work continues inside the facilities, away from the spotlight on demolition work and attention surrounding subsequent new skyline and landscape views.

While demolition is the most visible aspect of cleanup, the deactivation phase is a significant step in cleanup, requiring immense planning and diverse skillsets. The deactivation phase accounts for the majority of each project's timeline, and it's often the most challenging. Read here about recent deactivation challenges that Oak Ridge crews met with innovative solutions.

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

The substantial planning that goes into deactivation work includes analyzing hazards in and around a facility, determining controls needed to protect the workforce and charting how to handle and dispose debris and other waste. Workers begin field work by performing characterization to understand potential hazards. That involves collecting and testing samples

throughout a facility and its surrounding area. Next, they remove and package waste, such as asbestos, and address equipment in the building.

"Prior to beginning work on any contaminated facility, our workers go through extensive training in how to recognize and handle the hazards they will encounter, including asbestos, radiological contamination, mercury and more," said Dan Macias, UCOR's Oak Ridge Reservation environmental cleanup manager. "This specialized training is in addition to more generalized industrial safety training necessary for working in deteriorating nuclear facilities and for equipment and vehicle operation."

Water is pumped from the Beta-1 facility's basement into a tanker truck. Employees conducted sampling to determine the appropriate course of disposal for it.

Water is pumped from the Beta-1 facility's basement into a tanker truck. Employees conducted sampling to determine the appropriate course of disposal for it.

Each facility presents unique deactivation challenges based on its history and operations. In Alpha-2, workers are removing approximately 750,000 pounds of lead shielding blocks. Crews there are also draining tens of thousands of gallons of oil from large pieces of electrical equipment.

At Beta-1, crews installed sump pumps to remove an estimated 3 million gallons of water that accumulated in the basement as it sat vacant, and they conducted sampling to determine the appropriate course of disposal for it.

In Alpha-4, workers will install a hoist, trolley system, and construction elevators, and they'll repair the facility's monorail system. Crews will install temporary power for each system once the facility is placed in the "cold and dark" status, in which all potential hazardous energy sources are disconnected.

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## Viewing Platform to Offer New Perspective on K-25 Site



*An artist's rendering of the K-25 Viewing Platform. DOE's Oak Ridge Office of Environmental Management and the U.S. Army Corps of Engineers plan to break ground on the facility this year and complete the project in 2023.*

A facility that will highlight the history of the K-25 Building from a new vantage point is a step closer to reality through a newly formed partnership between DOE's Oak Ridge Office of Environmental Management (OREM) and the U.S. Army Corps of Engineers (USACE).

The two entities are working together to construct the K-25 Viewing Platform adjacent to the K-25 History Center and provide visitors a complete view of the historic building's 44-acre footprint. The agreement also calls for installing 12 wayside exhibits around K-25's footprint.

Construction of the viewing platform and wayside exhibits are the final components of a multi-project agreement OREM signed in 2012 to commemorate the history of the former Oak Ridge Gaseous Diffusion Plant, where K-25 was located. That agreement resulted in the construction of the K-25 History Center, which opened in 2020, and the issuance of a grant to preserve the historic Alexander Inn.

"We are grateful for the emergence of this new partnership with the U.S. Army Corps of Engineers that allows us to move forward on this project," OREM Acting Manager Laura Wilkerson said. "The community has been excited about the idea of this facility, and we are looking forward to fulfilling our commitment through the assistance and special skills the Corps provides."

The design for the K-25 Viewing Platform and wayside exhibits is expected to be finalized in March. USACE will then put the project out for bid and will manage the selected construction subcontractor for the project. Construction is set to begin by this fall, with the viewing platform to be completed by the end of 2023.

"We value our continued partnership with the Department of Energy and look forward to managing this construction project," said Lt. Col. Joseph Sahl, USACE Nashville District commander. "The Nashville District was involved with the Manhattan Project at Oak Ridge between 1943 and 1945,

so we are excited to be part of this project that draws attention to a larger national historic preservation effort to commemorate the importance of the historic K-25 building."

While the K-25 History Center focuses on the men and women who built and operated the Oak Ridge Diffusion Plant during the Manhattan Project and Cold War, the viewing platform and associated exhibits will help visitors understand the scope and magnitude of the site while they learn about the personal stories of the workforce.

Building K-25 was the largest structure in the world at the time of its construction in 1944. Its mission was to help end a global war by producing uranium for the world's first nuclear weapon. Despite the building's massive size and important mission, it was kept secret. The public would not learn about K-25 until the end of World War II.

*(See Platform on page 5)*

## Platform

*(Continued from page 4)*

Uranium enrichment operations ceased in 1985, and the site was permanently shut down in 1987. Afterward, DOE launched an environmental cleanup to transform the site into a multi-use industrial park for the community. That effort involved tearing down five massive enrichment facilities, including K-25, and 500 other structures that supported operations at the site. OREM and cleanup contractor UCOR completed that project — the largest-ever DOE cleanup project — under budget and ahead of schedule.

“UCOR shares the Department’s commitment to historic preservation. We are proud that our efforts helped facilitate the agreement between DOE and USACE, and that cleanup operations at the site have enabled these commemorative facilities,” said UCOR President and CEO Ken Rueter. “This viewing platform is the product of a lot of hard work and collaboration to



*Ken Rueter, president and CEO of Oak Ridge cleanup contractor UCOR; Laura Wilkerson, OREM acting manager; Lt. Col. Joseph Sabl, commander of the U.S. Army Corps of Engineers Nashville District; and Stephanie Hall.*

achieve the common goal of honoring the brave men and women who built and worked at this historic site.”

Rueter noted that the commemorative facilities, and the site cleanup that enabled them, brings full circle a historic journey that began with the Manhattan Project, continued through the Cold War, and has culminated in transformation of the site. Now called

the East Tennessee Technology Park, the transformed site already has numerous private businesses onsite along with large conservation areas and a national park. The K-25 footprint is within the Manhattan Project National Historical Park, a unit of the National Park Service that contains sites in Oak Ridge, Los Alamos, New Mexico, and Hanford, Washington state.



*The K-25 Viewing Platform, in background, will be constructed next to the K-25 History Center and overlook the former K-25 building’s massive 44-acre footprint. The history center, which opened in 2020, is free to the public.*



*There is a plan for every acre at ETPP. With 3,500 acres being transferred to the state of Tennessee for conservation and recreation, residents and visitors will have abundant areas to hike, bike and enjoy nature.*

## ETTP

*(Continued from page 1)*

It will construct its facility on a 185-acre parcel that previously housed two massive enrichment buildings that OREM demolished.

Kairos Power’s objective for deploying the Hermes Reactor is to demonstrate the capability to deliver an advanced reactor at the cost necessary to make nuclear power the most affordable source of dispatchable electricity in the U.S.

While OREM has created many new economic development opportunities at ETPP, cleanup work is ongoing to reach the ultimate vision at the site.

“You can imagine there is a tremendous amount of work that goes into the cleanup of the site,” said panelist Ashley Saunders, who leads UCOR’s end state and federal land reuse efforts. “There’s been decades of work to get the buildings down, and UCOR still has 200 individuals dedicated to the cleanup of the site.”

Saunders noted that crews are working to complete soil cleanup at ETPP by the end of next year.

Other employees work to transfer land for new opportunities. That team has helped facilitate the transfer of 1,300 acres to date, with an additional 500 acres planned for transfer this year.

EM and UCOR are also creating conservation areas and adding facilities that highlight the site’s history. EM signed an agreement with the state of Tennessee in December to transfer 3,500 acres for conservation and recreation. OREM has also partnered with the U.S. Army Corps of Engineers to build the K-25 Viewing Platform.

“There is a plan for every acre,” Saunders said. “We’ve divided the site into different geographical areas to ensure the best and highest use of every area is achieved.”



## Join Us for an Update on OREM Efforts to Assure Waste Disposal Capacity

**6 p.m. Wednesday, May 11  
virtually via Zoom**

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

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

Questions? Contact us at 865-241-4584 or [orssab@orem.doe.gov](mailto:orssab@orem.doe.gov)

## Retirement

*(Continued from page 8)*

from Rutgers University and his master's degree in toxicology from the University of Michigan.

After graduate school, Adler worked with various state and federal environmental regulatory agencies before returning to Oak Ridge in the mid-1980s.

"Ever since graduating from public health school, I have been somehow involved in environmental cleanup and environmental protection activity," Adler said. "I want to make sure that the natural resources – and not just resources we can use, but the habitats for all the other organisms that we share the planet with – are preserved."

He said his perspective as a native Oak Ridger helped inform his work with both OREM and ORSSAB.

"It made me care a lot about making progress, about solving problems, and about solving problems in a way that opens up a new chapter of opportunity," he said. "That's why I got so involved in the efforts to transfer land and facilities; so there's opportunity for economic growth, because I want these youngsters to have jobs, too."

Adler said that after returning to Oak Ridge, he became more interested in sharing Oak Ridge's story.

"Not going overboard but making sure that the Oak Ridge story is somehow preserved so that people can understand the sacrifices people made, the conditions they worked under, the successes, the failures, the human experience," he said.

Adler already had experience working with citizens advisory boards before his involvement with ORSSAB. He had previously formed an advisory board for a large site in St. Louis. He found that the roughly 20-member board, comprised of community leaders, major business leaders, and environmental organizations, offered diverse opinions.

"I'd seen how that could really be a good forum for airing out, educating, and listening," he said.



*Dave Adler (right) gives a presentation during ORSSAB's annual retreat in 2005.*

After joining OREM, Adler became involved with the End-Use Working Group (EUWG) – the precursor to ORSSAB's EM & Stewardship Committee – before becoming DDFO for ORSSAB.

"Someone else developed the first charter [for ORSSAB], but I've been at least in and out pretty much since the beginning of it," he said.

From the OREM perspective, he said ORSSAB has been a good way for really understanding what the constituents want to see happen regarding OREM's cleanup. Sometimes the public responds differently than expected to proposals, and that feedback has at times offered new approaches that hadn't previously been considered. He added that because ORSSAB is comprised of a diverse group of members, the board provides DOE a broad set of input.

"The recommendations made by the SSAB have been, hopefully, well informed – that's our job is to make sure that they're informed – but also very thoughtful and balanced and workable; practical," Adler said. "When that starts

rolling in, that often has the effect of tempering everybody."

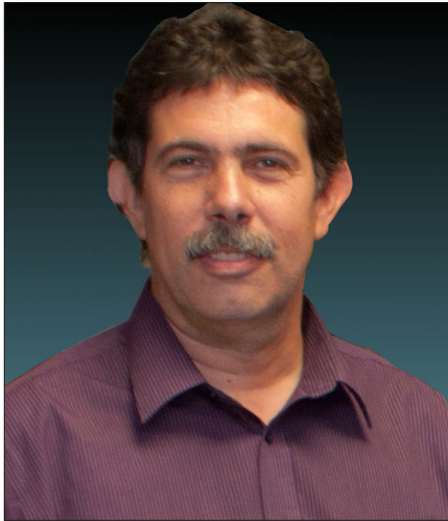
He said ORSSAB is important for making sure that community members' voices are heard, and although many of the "big decisions" for the reservation cleanup have been made, there are still challenges to be addressed.

"There are still some fun discussions to have," he said. "And it's not just building a consensus with TDEC and EPA; it's the guy that lives and works here and wants to raise his kids here. I think the SSAB will still be important for years to come."

He said that looking back on his time with ORSSAB and the EUWG, the most memorable and rewarding part of the experience could be narrowed down to a single unifying thread: the people.

"There's just been so many wonderful people over the years I've been involved – some who are no longer with us, and some who are," Adler said. "I like working with kind, thoughtful, intelligent people, and that's what the SSAB has been."

## Longtime ORSSAB Federal Officer Retires after Nearly 30 Years



David Adler

Longtime ORSSAB Deputy Designated Federal Officer David Adler retired at the end of March after nearly 30 years helping to clean up and transform OREM facilities.

Adler has been a familiar face at ORSSAB's meetings throughout the years. He not only served as ORSSAB's DDFO since nearly its inception in the late 1990s/early 2000s, but as OREM's Quality and Mission Support Division director he also frequently presented information about OREM's projects during board meetings.

"I hope that I was successful in taking on more complicated issues and problems and presenting them in English so that people can [make recommendations to DOE]," He said

recently. "Everybody's smart; it's just not everyone has the training to understand the technical elements of this endeavor. So to give them the information they need to provide input and participate in the project is a satisfying role."

And it was a role that seemed tailor-made for him.

Adler was born and raised in Oak Ridge – his father, Howard, was a radiation biologist at ORNL from 1956 through 1988 and served as the director of the lab's biology department. Like his father, David Adler went on to study biology, earning his bachelor's degree

*(See Adler on page 7)*



**ABBREVIATIONS**

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund  
DOE – Department of Energy  
EM – Environmental Management  
EMWMF – Environmental Management Waste Management Facility  
ETTP – East Tennessee Technology Park  
OREM – Oak Ridge Environmental Management  
ORNL – Oak Ridge National Laboratory  
ORR – Oak Ridge Reservation  
ORSSAB – Oak Ridge Site Specific Advisory Board  
TDEC – Tennessee Department of Environment & Conservation  
UCOR – URS | CH2M Oak Ridge  
Y-12 – Y-12 National Security Complex

**UPCOMING MEETINGS**

Meetings are held at 6 p.m. virtually until further notice. Email orssab@orem.doe.gov at least 1 week prior to attend or comment.  
Board: May 11 on waste disposal capacity  
EM & Stewardship Committee: May 25

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