



# Oak Ridge Site Specific Advisory Board

## FY 2015 Annual Report Oct. 2014 - Sept. 2015



Celebrating Our  
20<sup>th</sup> Anniversary



# A Message from the Chair



It is my pleasure as new chair of the Oak Ridge Site Specific Advisory Board to present the board's FY 2015 Annual Report.

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

In FY 2015 the board made an effort to be more proactive in becoming better educated about cleanup decisions for the Oak Ridge Reservation. As such, members went into the field more to see for themselves the areas where cleanup decisions will be made. Actually seeing land and structures to be remediated or demolished provides a better perspective than just seeing maps or pictures at board and committee meetings.

We also took our meetings 'on the road' to add a bit of variety of venues for our members rather than meeting at the same location month after month. In FY 2016 we plan to continue this course of field observations and different meeting locations.

The board received briefings on a number of topics in FY 2015. We learned about accomplishments and challenges in the Environmental Management Program; we received a status report on a proposed plan for soils remediation at East Tennessee Technology Park; we heard an update on the status of additional waste disposal capacity; we received a preview of the DOE Oak Ridge Environmental Management budget request and priorities for FY 2017; we heard an update on groundwater strategy; and we got a report on the proposed plan for a mercury treatment plant at Y-12 National Security Complex. Those briefings are described more in the Board Meetings section.

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. We provide a public comment period at each meeting for stakeholders to express their views. The board usually meets the second Wednesday of the month at 6 p.m. at the DOE Information Center, 1 Science.gov Way, Oak Ridge, Tenn. Any changes of location are publicized well in advance of the meeting.

Join us!

A handwritten signature in cursive script that reads "Belinda Price".

Belinda Price, Chair

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## MISSION STATEMENT

The mission of the Oak Ridge Site Specific Advisory Board (ORSSAB) is to provide informed advice and recommendations concerning site specific issues related to the Department of Energy's (DOE's) Environmental Management (EM) Program at the Oak Ridge Reservation. In order to provide unbiased evaluation and recommendations on the cleanup efforts related to the Oak Ridge site, the Board seeks opportunities for input through collaborative dialogue with the communities surrounding the Oak Ridge Reservation, governmental regulators, and other stakeholders.



*On the cover: In FY 2015 the board made an effort to get out into the field more and to have more meetings off site. The photos illustrate a couple of tours and the off-site annual meeting.*



# Introduction

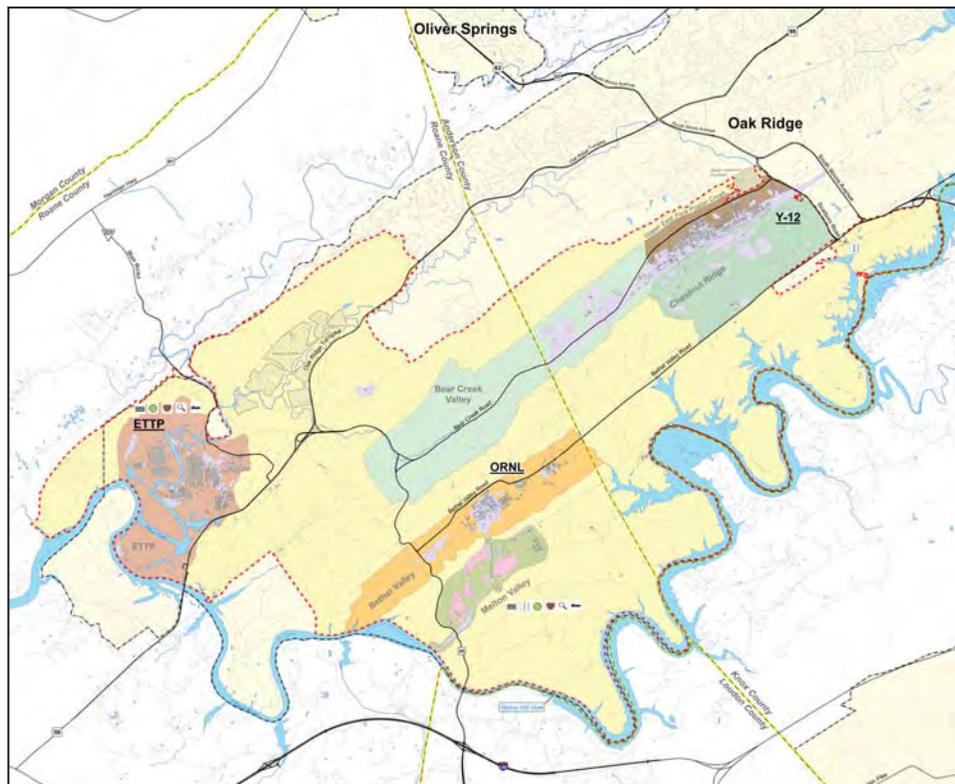
The Oak Ridge Site Specific Advisory Board (ORSSAB) is a federally appointed citizens' panel that provides independent advice and recommendations to the Department of Energy (DOE) on its Oak Ridge Environmental Management (EM) Program. Chartered under the Federal Advisory Committee Act, the board began its work in 1995. ORSSAB is one of eight site specific boards across the nation that comprise the EM SSAB.

The board provides informed recommendations and advice to the DOE EM program regarding environmental restoration and waste management, as well as long-term stewardship, land use, and economic development.

Recommendations regarding environmental justice, health and safety issues, historic preservation, and other issues may be developed at the request of the DOE Assistant Secretary for EM or the Oak Ridge Manager for EM.

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.

The board is composed of up to 22 members, chosen to reflect the diversity of gender, race, occupations, views, and interests of persons living near the ORR. Members are appointed



*This map shows the location of the Oak Ridge Reservation in proximity to the populated area of the City of Oak Ridge. The reservation is almost entirely within the city limits of Oak Ridge. It also shows the three main plants of Y-12 National Security Complex, Oak Ridge National Lab, and East Tennessee Technology Park. The colored areas in the yellow portion of the reservation denote watershed cleanup sites.*

by DOE and serve without compensation. Members may serve three two-year terms. At the close of Fiscal Year (FY) 2015, the board consisted of 20 voting members from five counties: Anderson, Blount, Knox, Loudon, and Roane. It also included two non-voting high school students.

Non-voting liaisons include representatives from DOE, the U.S. Environmental Protection Agency Region 4 (EPA), and the Tennessee Department of Environment and Conservation (TDEC). These liaisons advise the board on their agencies' policies and views.

ORSSAB provides a number of avenues for the public to learn about and express views on DOE Oak Ridge EM work. All board and committee meetings are open to the public and are announced in newspaper advertisements and at the DOE Information Center in Oak Ridge (865-241-4780). Board meetings are also advertised in the Federal Register. The first hour of the board meetings is video recorded and broadcast on local cable television stations. It is also available on YouTube at [www.youtube.com/user/ORSSAB](http://www.youtube.com/user/ORSSAB). Copies of the meeting videos are available by calling the ORSSAB support office at 865-241-4583 or 865-241-4584.

The board maintains a web site at [www.energy.gov/orssab](http://www.energy.gov/orssab). Information is also available by calling the ORSSAB support office.

### Board Meetings

The board meets most months to hear presentations by personnel working on

relevant EM topics, listen to and discuss input from concerned citizens, consider recommendations to DOE, and conduct other business. Each August, board members have an annual meeting to evaluate the board's work for the year and plan activities for the next fiscal 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

The accompanying diagram shows the board's FY 2015 structure. General board business is handled at the monthly Executive Committee meeting. This committee, which is composed of the elected officers of the board and the standing committee chairs, holds general administrative authority to set board agendas, coordinate the work of committees, and transact business as necessary.



ORSSAB committees usually meet monthly, and all meetings are open to the public. Each ORSSAB

committee creates its own work plan to guide its activities during the year, and these work plans are updated continually as the board year progresses. Information about ORSSAB committees can be found in the "Committees" section of this report.

### FY 2015 Board Officers

ORSSAB officers for the year were Dave Hemelright, Chair; Jan Lyons, Vice Chair; and Lisa Hagy, Secretary.

# The Year's Top News

## October 2014

Demolition of the K-31 Building at East Tennessee Technology Park (ETTP) began in early October. The 750,000 square-foot uranium enrichment facility was the fourth of five such buildings built on the site in the early 1950s. It is also the fourth of the five to be demolished following K-29, K-33, and K-25.

Original estimates were that it would take about a year to complete demolition, but Ken Reuter, president of UCOR, DOE's Oak Ridge cleanup contractor, said in November that the project was already ahead of schedule and the job would be finished by early summer 2015.

While K-31 was being dismantled, K-27, the last of the enrichment buildings to come down, was being prepared for demolition.

DOE announced a recovery plan that detailed what needs to be done to decontaminate the underground Waste Isolation Pilot Plant (WIPP) in New Mexico after a truck fire and a later unrelated release of radiation forced the site's closure in 2014.

Closing the plant affected DOE's operations of shipping transuranic (TRU) waste from Oak Ridge to New Mexico for disposal.

At the time investigators had not determined what caused a barrel of waste to breach releasing contamination.

## November 2014

In September a leak was discovered from the reactor pool at the Oak Ridge Research Reactor at Oak Ridge National Lab (ORNL). In November workers found the source of the leak. A decision had to be made whether to repair the leak or remove the radioactive metals stored there and drain the reactor pool of about 125,000 gallons of water.

## December 2014

After evaluating a number of options DOE and UCOR announced that a stainless steel fuel grid plate and two thermal shields, would be removed from the leaking Oak Ridge Research Reactor and shipped for disposal.

The plan was to drain the pool, vacuum any sludge, apply a fixative to the inside of the pool, and place a concrete cover over the pool until the reactor facility can be demolished, which is not scheduled until the 2030s.

DOE received conceptual design drawings for historic preservation and commemoration of the K-25 Building at ETTP. The drawings were sent to signatory and consulting parties to a memorandum of agreement on historic properties at ETTP.

The submission included drawings of an equipment building that will be a scale



*Conceptual drawing of a replica of a portion of the old K-25 Building and accompanying viewing tower.*

representation of the gaseous diffusion process K-25 used to enrich uranium.

Designs for a history center on the second floor of the fire station at ETTP and adjacent viewing tower of the K-25 footprint were part of the conceptual design package.

About 171 acres at ETPP were reviewed for use as a general aviation airport. The plan was for the General Services Administration to transfer the land to the Metropolitan Knoxville Airport Authority, which would oversee the ETPP airstrip.

Susan Cange, Acting Manager for DOE Oak Ridge EM, told the airport authority that if all goes well the transfer could take place by the end of 2015.

The land for the proposed airport generally runs parallel to the front of ETPP and Highway 58 in Roane County.

President Obama signed the Defense Authorization Act, which authorized the creation of the Manhattan Project National Historical Park.

The new park will tell the story of the massive project that created the first atomic bomb. The park will include historic sites in Oak Ridge; Hanford, Wash.; and Los Alamos, N.M.

## January 2015

Susan Cange was appointed permanent manager of the Oak Ridge Office of EM, having served as the acting manager since May 2014.



*Susan Cange*

DOE's inspector general released a list of 200 buildings across the country as 'high-risk' and identified Alpha 5 at Y-12 National Security Complex as one of the worst.

The report said Alpha 5 was highly contaminated and has significant structural degradation.

While about \$24 million has been spent to mitigate risks, demolition of the building is not in DOE's near-term list of projects.

## February 2015

The President's budget request for FY 2016 included \$366 million for the environmental cleanup program in Oak Ridge. That's down significantly from the FY 2015 appropriation of \$431.2 million, but DOE indicated that the proposed funding would be enough to meet its commitments.

## March 2015

A haul road from Y-12 that will be used to support the construction activities for the Uranium Processing Facility was completed in early March. The road completion was part of other site readiness work and was completed ahead of schedule and under budget.

During construction of the road, in which Bear Creek Road was re-routed, workers encountered some unexpected soil contamination. That soil had to be removed and disposed before work on the haul road could continue.

A report commissioned by DOE to determine what caused the rupture of a drum that released radiation at WIPP forcing its closure determined that a combination of incompatible agents, including nitrate salt and organic kitty litter, likely caused a thermal reaction inside the container. The material was intended to absorb liquid waste in the drums.

The public had the opportunity to see conceptual design drawings to commemorate the historical significance of the K-25 Gaseous Diffusion Building. The first drawings were shown at a public meeting at the American Museum of Science and Energy.

## April 2015

DOE awarded a \$1.5 million contract to CH2M Hill Constructors Inc., for design plans for a TRU sludge processing facility near ORNL.

TRU sludge is the last part of the radioactive material to be processed and shipped from Oak Ridge. The contract awarded to CH2M Hill is to design a mock test facility, scheduled for completion by the end of 2015.

The overall cost of the sludge processing plant project in Oak Ridge is estimated at \$100 million.

DOE Oak Ridge EM hosted a public meeting to present its six priorities for the FY 2017 budget request. The meeting offered Oak Ridge area stakeholders, including ORSSAB, and members of the public an opportunity to comment on those priorities or offer their own suggestions.

DOE's list of priorities were:

1. Complete demolition of the Gaseous Diffusion Buildings and Support Facilities at ETPP,
2. Complete the direct disposition of the uranium-233 material and initiate the processing campaign,
3. Complete design of the new Environmental Management Disposal Facility,
4. Begin construction of the Outfall 200 Mercury Treatment Facility at Y-12,
5. Complete contact- and remote-handled TRU debris processing,
6. Construct and operate the TRU sludge mock test facility.

ORSSAB and other entities made presentations on their suggested priorities for DOE to consider.

DOE, EPA, and TDEC representatives met to resolve a formal dispute over plans for a new mercury-treatment facility at Y-12. Although an agreement was not reached at the meeting

it was described as very productive. Mike Koentop, executive officer of DOE Oak Ridge EM, said the parties were working on an agreement on the conceptual plan design and how to apply water quality protection standards for Upper East Fork Poplar Creek.

DOE awarded UCOR a contract to perform optional work within the existing contract to continue cleanup of the ORR. The scope calls for continued cleanup at ETPP while performing ongoing environmental management missions, such as surveillance and maintenance and various waste management operations at ORNL and Y-12. UCOR will also support the construction of commemorative facilities as part of the National Historic Preservation Project.

## May 2015

DOE and Nevada officials reached an agreement to resume shipments of U-233 from Oak Ridge for disposal at the Nevada National Security Site. Shipments of the radioactive and fissile material had been on hold for two years after Nevada officials objected to the shipments.

A mock test run was conducted in early May to practice loading, shipping, unloading, and disposal methods.

DOE agreed to spend \$73 million to improve the transportation and handling of nuclear waste stored at WIPP where a waste canister ruptured in February 2014 releasing radiation. WIPP has been closed since that incident and an unrelated truck fire in another area of the underground disposal facility. The shutdown affected DOE Oak Ridge in shipping TRU waste for disposal.

A preliminary independent study commissioned by the City of Oak Ridge reported that a new proposed landfill in Bear Creek Valley near Y-12 was too close to a



*ORSSAB Chair Dave Hemelright makes a presentation regarding DOE Oak Ridge EM budget priorities at the public budgeting workshop.*

residential area and situated on a slope with fractures that cause complex groundwater flow.

Karl Kalbacher of The Ferguson Group that did the study said, however, that despite the issues in the report that there is no risk other than in transporting the nuclear and hazardous wastes the short distance to the proposed new location.

He said while the study stated the location was not optimal it could be engineered to be acceptable.

UCOR and its subcontractor AREVA began work to clean up the leaking Oak Ridge Research Reactor. The cleanup project involved removing most of the radioactive components from the pool, draining the water, and packaging and shipping the hottest components to a disposal site in West Texas.

The top of the pool will be capped with a concrete shield, which will provide enough shielding for some of the smaller and less radioactive components that will remain.

## June 2015

DOE reached another major cleanup milestone with the final demolition of the K-31 Building at ETPP in late June. The last remnant of the 750,000 square-foot building was knocked down by heavy equipment for a crowd of invited spectators, DOE, and local government officials.

Final demolition cost was about \$45 million.

Praising UCOR's cleanup work in Oak Ridge since 2011, DOE extended the contractor's role until mid-2020.

Since 2011, UCOR has saved the federal government about \$122 million on cleanup projects and was about \$26 million ahead of cost on projects underway.

DOE awarded a contract to North Wind Solutions, LLC for waste processing services at the Oak Ridge Transuranic Waste Processing Center (TWPC). North Wind takes over the contract from Wastren Advantage, Inc., that has operated the TWPC for several years.



*Demolition of the K-31 Building at ETPP was completed in June. K-31 was the fourth of five gaseous diffusion buildings to be demolished in Oak Ridge.*

The contract is set for three years with a two-year option period. The dollar value of the contract is \$123.9 million (including all options).

## July 2015

A Memorandum of Agreement establishing a national park commemorating the Manhattan Project was signed by DOE and the U.S. Department

of Interior. The agreement outlines the roles and responsibilities the agencies will have in managing the Manhattan Project National Historical Park.

The park will consist of facilities at Hanford, Wash., Oak Ridge, and the Los Alamos National Laboratory. Each location will be interpreted and will increase the public's access to the Manhattan Project story.

Along with educating visitors on the history of the Manhattan Project, the new park is expected to bring substantial benefits to the local communities near each site.

## August 2015

DOE Oak Ridge EM received the OK from DOE headquarters to proceed with design of a new mercury-treatment facility at Y-12. The plant is needed to remove excess mercury from East Fork Poplar Creek that originates within the confines of Y-12. The creek leaves the plant and flows through Oak Ridge as East Fork Poplar Creek and eventually empties into the Clinch River near ETTP. Project cost is estimated to be \$120-\$146 million.

Four highly radioactive components were removed from the leaking pool of the Oak Ridge Research Reactor.

The items, each of which weighed about 200 pounds, were loaded into an 80,000-pound shipping cask and shipped to a disposal site in Texas.

Work began on a master plan to build a general aviation airport fronting ETTP along Highway 58. The plan is expected to be finished in about a year and construction could begin in 2018. Cost estimates for the airport are \$30-\$40 million.

## September 2015

DOE Oak Ridge EM issued a proposed plan to build the Mercury Treatment Facility at Y-12. The facility is designed to lower mercury concentrations in East Fork Poplar Creek to 51 parts per trillion, about an 84 percent reduction of the element.

ORSSAB later endorsed building the plant.

With the demolition of the K-31 Building at ETTP finished, work to prepare K-27 for razing picked up momentum. UCOR predicted a January 2016 demolition start for the last remaining gaseous diffusion building at ETTP.



*Workers celebrate the successful removal and packaging of radioactive components from the Oak Ridge Research Reactor pool. The components were shipped to Texas for disposal.*

# Key Issues

In FY 2015, the board sent one locally generated recommendation to DOE regarding the FY 2017 EM budget request.

The board endorsed a recommendation developed by the chairs of the eight site specific advisory boards on the Waste Isolation Pilot Plant.

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

## Recommendations on the FY 2017 DOE Oak Ridge Environmental Management Budget Request

Each year DOE EM develops its budget request for the fiscal year two years beyond the current fiscal year, and it always asks ORSSAB for input on the request.

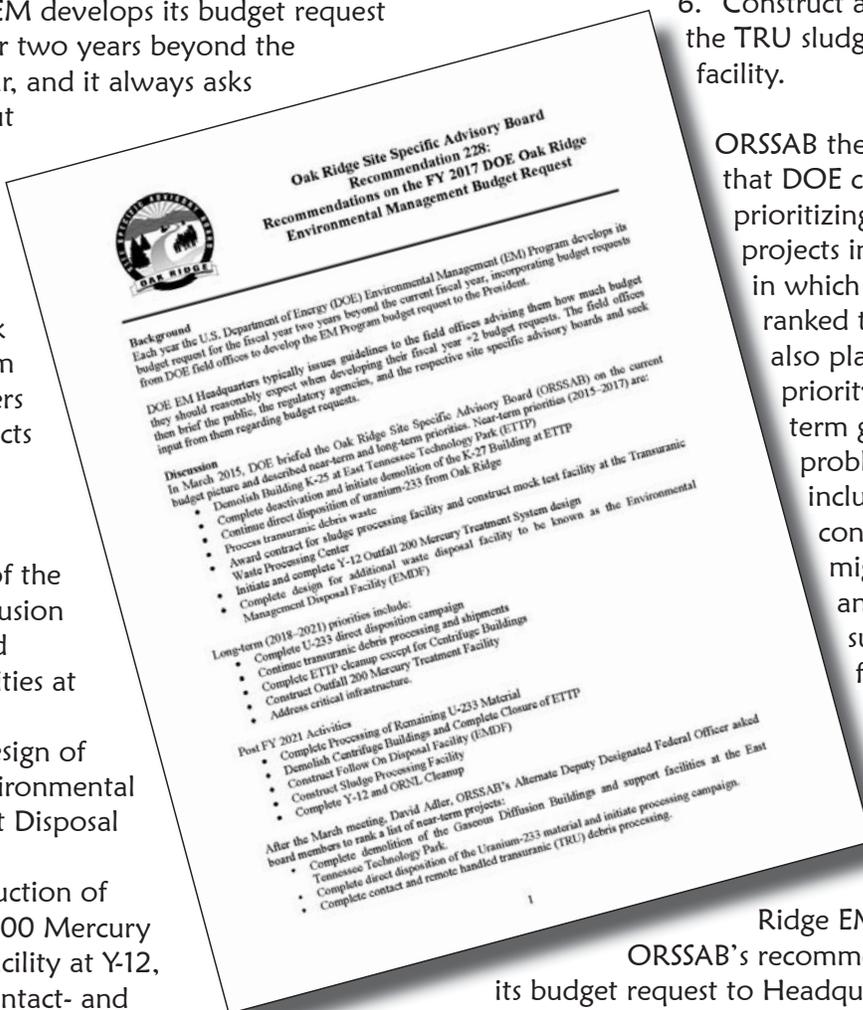
In 2015 DOE Oak Ridge EM asked board members to rank a list of near-term projects. Members ranked the projects in the following order:

1. Complete demolition of the Gaseous Diffusion Buildings and support facilities at ETRP,
2. Complete design of the new Environmental Management Disposal Facility,
3. Begin construction of the Outfall 200 Mercury Treatment Facility at Y-12,
4. Complete contact- and remote-handled TRU debris processing,

5. Complete direct disposition of the uranium-233 material and initiate the processing campaign,
6. Construct and operate the TRU sludge mock test facility.

ORSSAB then requested that DOE consider prioritizing the six projects in the order in which ORSSAB ranked them, but also place a high priority on long-term groundwater problems, including off-site contaminant migration, and provide sufficient funding required to accomplish these objectives.

DOE Oak Ridge EM included ORSSAB's recommendation in its budget request to Headquarters.



## EM SSAB Chairs Recommendation on Additional Transuranic Waste Storage Options

ORSSAB signed off on a recommendation crafted by the chairs of the eight site specific advisory boards nationwide regarding the WIPP in New Mexico.

The plant, which accepts contact-handled and remote-handled TRU waste, had been shut down for several months after a couple of safety incidents.

With the shutdown of WIPP, DOE efforts to complete shipments of TRU waste from sites were put on hold.

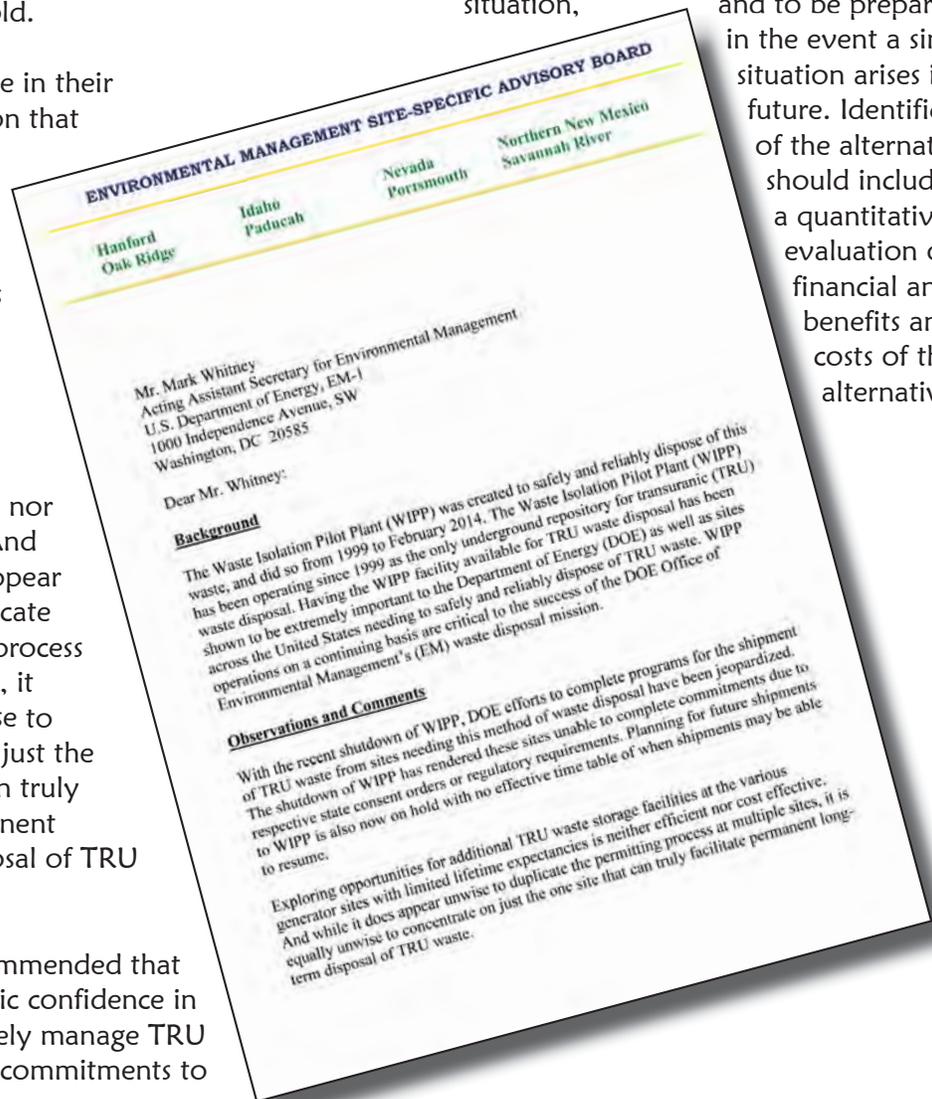
The chairs wrote in their recommendation that 'exploring opportunities for additional TRU waste storage facilities at the various generator sites with limited lifetime expectancies is neither efficient nor cost effective. And while it does appear unwise to duplicate the permitting process at multiple sites, it is equally unwise to concentrate on just the one site that can truly facilitate permanent long-term disposal of TRU waste.'

The chairs recommended that 'to restore public confidence in its ability to safely manage TRU waste, meet its commitments to

its state regulators, and minimize the risk to the public from the massive amounts of waste it currently has on hand, DOE should take the following steps:

1. Create and make available to the EM SSAB and the public a realistic plan and timetable to restore WIPP to full operation. Resumption of safe WIPP operations should be the highest priority.
2. Given the possibility of another event, identify and evaluate safe alternatives to retaining waste at its point of generation until WIPP is restored to full operation.
3. Put the best of these alternatives into operation to deal with the current situation,

and to be prepared in the event a similar situation arises in the future. Identification of the alternatives should include a quantitative evaluation of the financial and risk benefits and costs of the alternatives.



# Board Meetings

ORSSAB meetings are usually held the second Wednesday of the month at 6 p.m., at the DOE Information Center, Office of Science and Technical Information, 1 Science.gov Way, Oak Ridge, Tenn. Each meeting features a presentation like the ones described below. Board meetings also include regular business items, such as approval of recommendations and status reports from DOE, EPA, TDEC, and the ORSSAB committees. The public is always welcome to attend. Meetings are listed on the ORSSAB website at [www.energy.gov/orssab](http://www.energy.gov/orssab).

## October

Bill McMillan talked about DOE Oak Ridge EM near-, mid-, and long-term priorities for cleanup at ORNL. Near-term priorities (through FY 2020) include the completion of the direct disposition campaign for uranium-233 stored at ORNL and the beginning of downblending operations for the U-233 that cannot be disposed directly. Another near-term priority is conducting groundwater investigations.



*Bill McMillan made two presentations to ORSSAB in FY 2015.*

A mid-term priority (through FY 2024) is the completion of all U-233 disposition.

Long-term work (beyond FY 2024) is to finish all building demolition and media remediation by FY 2045.

## November

In November, the board had a different kind of meeting. The meeting was a board work session held off site at a restaurant in Knoxville where members had an open, facilitated discussion about ways to improve how board meetings are conducted, how to increase member participation, and how to improve membership diversity.

Four principal topics were discussed:

- membership
- voting
- frequency of meetings
- format of meetings

Regarding membership the board agreed that every effort should be made to keep the membership at or near 22 people.

On voting it was suggested the bylaws should be amended to make it easier to approve recommendations. Bylaws were later changed to make approval of recommendations a simple majority of board members.

On frequency of meetings suggestions ranged from every month to every other month. The general agreement was to plan meetings around essential topics and expect to have about 10 meetings a year.

There were no significant changes made regarding format of meetings held at the DOE Information Center.

## December

The board did not meet in December.

## January

The January presentation was on the proposed plan for soils remediation in Zone 1 at ETP. Dave Adler, the board's Alternate Deputy Designated Federal Officer, said the topic is important because it defines all of the remaining environmental land use restoration and land use control requirements for Zone 1,

which surrounds the main industrial area, or Zone 2, of ETPP.

Wendy Cain, DOE, explained in more detail the key points of the proposed plan for remediation of soils in Zone 1.



*Wendy Cain talked to the board about ETPP at the January meeting.*

**February**

Laura Wilkerson, DOE, provided an update on the status of waste disposal capacity on the ORR and discussed the need for a second waste disposal facility.

The current primary low-level waste disposal location is the Environmental Management Waste Management Facility (EMWWMF) in Bear Creek Valley just west of Y-12.



*Laura Wilkerson explained the need for additional waste disposal capacity on the ORR in February.*

However, because additional cleanup scope has been added to the EM program since EMWWMF was built, a second disposal site will be needed to accept all of the additional waste.

Ms. Wilkerson said EMWWMF is expected to be full by 2024 and a second facility needs to be ready for operation about 18 months prior to that.

A remedial investigation/

feasibility study identified a site adjacent to EMWWMF.

The benefits of another on-site facility would be cost savings of about \$1 billion, accelerated cleanup completion, and a reduction in public and program risk as opposed to shipping waste off site for disposal.

**March**

Mr. Adler provided information on the FY 2017 DOE Oak Ridge EM Program Budget and Prioritization. He said the presentation was a preview of a public meeting on the FY 2017 budget that DOE held in April at Pollard Auditorium on the campus of Oak Ridge Associated Universities (see The Year's Top News).



*In March Dave Adler gave the board a preview of the April public meeting on the FY 2017 DOE Oak Ridge EM budget request.*

Mr. Adler explained that at any given time DOE Oak Ridge is working on three budgets: the FY 2015 budget that has been appropriated, the President's FY 2016 budget request to Congress, and the FY 2017 planned budget.

For FY 2015 Congress appropriated \$431.2 million for cleanup work in Oak Ridge, which was more than what the President asked for in his budget request.

For FY 2016 the President requested \$365.7 million in cleanup dollars for Oak Ridge, however by the end of FY 2015 a 2016 budget had not been adopted by Congress.

### April

The board did not meet in April, but all board members were invited to attend the DOE Public Workshop on the FY 2017 Budget at Pollard Auditorium (see This Year's Top News).



*Oak Ridge City Manager Mark Watson talked about the city's perspective on the Oak Ridge EM program at an off-site meeting in May.*

### May

ORSSAB had another off-site meeting in May. The board met at Shoney's Restaurant in Oak Ridge and invited Oak Ridge City Manager Mark Watson to talk to the group about the city's perspectives on DOE EM activities.

Most of Mr. Watson's comments were about the proposed second waste disposal facility in Bear Creek Valley near Y-12 National Security Complex and the impacts on nearby residential communities.

Mr. Watson said in looking at community impacts the city wants to make sure it wasn't

focusing solely on DOE's needs but the community interests as well.

### June

Bill McMillan and Steve Cooke, DOE, along with Steve Haase, a hydrogeologist for Restoration Services, Inc., updated the board on the status of a groundwater remediation strategy for the ORR.

Mr. McMillan said the objective of the strategy is to identify actions to protect off-site

human health and the environment; protect groundwater and restore it to beneficial use where possible; and achieve final cleanup.

Mr. Cooke said a remedial site evaluation work plan was developed to determine if there are hazardous substances in off-site groundwater and if they are related to ORR groundwater plumes.

Mr. Haase said a groundwater model was being developed that would be useful as a tool for planning and decision making.

### July

The board did not meet in July.

### August

ORSSAB had its annual planning meeting in Townsend, Tenn., on August 22 to review what was accomplished in FY 2015 and to discuss topics for consideration in FY 2016.

ORSSAB Chair Dave Hemelright reviewed the board's accomplishments saying that many of them were the result of ideas from the 2014 annual meeting.

Accomplishments included having meetings at different locations and taking tours of sites where cleanup decisions need to be made.

The board had off-site meetings in November and May (see above).

Tours were taken of the site of the proposed new waste disposal facility and Zone 1 of ETTP where a decision on soils cleanup will be made. In September a tour was conducted at the site of the proposed mercury treatment facility at Y-12.

One of the primary reasons for the annual meeting is for ORSSAB to receive input from DOE, the EPA, and TDEC on topics to consider in the coming year.

All three agencies suggested three topics:

- The location and construction of a proposed additional waste disposal facility,
- Continued study and input on possible migration of contaminated groundwater from the ORR,
- Mercury mitigation in Upper East Fork Poplar Creek at Y-12 and the proposed Mercury Treatment Facility.

Dave Adler provided DOE's other suggestions for the board to consider in FY 2016. They included input on reindustrialization and historic preservation at ETTP and continued monitoring of key material disposition, such as uranium-233.

Jeff Crane and Connie Jones offered additional EPA suggestions. Mr. Crane said EPA believes the board should monitor DOE's activities to ensure there is a balance between demolition work and environmental media cleanup. Ms. Jones said EPA was interested in seeing the board engage the public more, particularly communities near the ORR that could be affected by EM work.

TDEC's offerings were presented by Kristof Czartoryski who said ORSSAB should encourage stable funding for the design and construction of the TRU sludge treatment facility. He said TDEC believes TRU waste in Trench 13 at ORNL should be excavated and processed at the TRU Waste Treatment Center.

### September

Jason Darby, DOE Project Manager, presented the proposed plan for a mercury treatment facility at Y-12 to reduce levels of mercury in Upper East Fork Poplar Creek. The goal of the facility is to lower mercury concentration in the creek to 51 parts per trillion, about an 84 percent reduction.

The board elected officers for FY 2016 at the meeting. Elected chair is Belinda Price; vice chair Alfreda Cook; and secretary Dave Hemelright.



*ORSSAB gathered in Townsend, Tenn., for its annual planning meeting.*

# Committees

## Executive

General board business is handled by the Executive Committee, which is composed of the elected officers of the board and the standing committee chairs. The committee holds authority to set board agendas, coordinate the work of the committees, and transact business as necessary between regular board meetings.

## Budget & Process

This committee served as the board's forum for initial discussion on issues involving the ORSSAB bylaws and operating procedures, annual meeting planning, and preparation of the board's annual work plan.

It was also responsible for helping draft a recommendation to DOE Oak Ridge EM on its annual budget request to DOE Headquarters.

The Budget & Process Committee worked with the EM & Stewardship Committee to draft a recommendation for the full board to consider on EM's budget request.

At the end of FY 2015, the duties of the committee were merged with the Executive Committee.

## Environmental Management & Stewardship

This committee is responsible for monitoring the major cleanup activities on the ORR and any associated stewardship requirements for areas of the reservation that have waste remediated in place.

In FY 2015 the committee followed a number of issues.

## Proposed Plan for Soils in Zone 1 at ETTP

ETTP is divided into two environmental cleanup zones. Zone 1 surrounds the industrial complex of ETTP, Zone 2.

Some cleanup work was done in Zone 1 several years ago under an interim record of decision. However, the goal to make Zone 1 suitable for unrestricted industrial use was not met in all areas due to remaining levels of contamination in soils.

DOE has been working with EPA and TDEC on a remedial investigation/feasibility study to complete cleanup and a proposed plan that will suggest soil remediation alternatives.

DOE's preferred alternative is remove small ecological risk areas and provide additional land use controls over other areas.

Near the end of FY 2015 the committee drafted a recommendation endorsing DOE's preferred plan.

## Additional Waste Disposal Capacity for the Oak Ridge Reservation

DOE will need additional disposal capacity to finish cleanup work on the ORR. A second disposal facility has been proposed for location near the current EMWMF in Bear Creek Valley.

ORSSAB and the EM & Stewardship Committee have been following the development of this project for some time.

ORSSAB provided an earlier recommendation to DOE to continue planning for additional disposal space, but it did not specifically recommend a site (Recommendation 223: Recommendations on Additional Waste Disposal Capacity on the ORR).

A remedial investigation/feasibility study has been done, but DOE, EPA, and TDEC have been unable to come to agreement on it.

A proposed plan is scheduled to be issued in early 2016 and ORSSAB will be asked to provide input on it.

### **Remediation Effectiveness Report and Five-year Review**

Each year DOE issues the ORR Remediation Effectiveness Report (RER). The purpose of the document is to assess the performance of completed and ongoing remedial actions and to evaluate the effectiveness and compliance with long-term stewardship requirements.

The committee received a report on the 2015 RER. The scope of the RER includes:

- Stewardship activities for FY 2014,
- The status of ongoing actions,
- Monitoring results for FY 2014,
- Review of remedy effectiveness,
- Recording of any actions that need to be taken to maintain compliance or make any recommendations for future RERs.

The committee had a number of questions about the report but felt actions were working as intended and no recommendation was necessary.

Every five years the RER is expanded to the Five-year Review, which looks at all remediated sites to determine if actions continue to work as intended and if they are still appropriate under current conditions.

The Five-year Review includes site visits, which are open to interested stakeholders. Several committee members went on some of the site visits (see Other Activities).

### **FY 2017 DOE Oak Ridge EM Budget Request**

Each year DOE asks ORSSAB for input on the DOE Oak Ridge EM budget request to DOE Headquarters.

In 2015 DOE presented a list of six projects to ORSSAB and asked members to rank them in priority as respondents saw fit.

The projects were:

- Complete demolition of the gaseous diffusion buildings and support facilities at ETTP,
- Complete direct disposition of uranium-233,
- Complete contact- and remote-handled TRU debris processing,
- Construct and operate the transuranic sludge mock test facility,
- Begin construction of the Outfall 200 Mercury Treatment Facility at Y-12,
- Complete design of the proposed new waste disposal facility.

Working with the Budget & Process Committee, the committee drafted a recommendation based on the rankings, which was approved by the board and provided to the Oak Ridge Manager for EM Sue Cange.

### **Groundwater**

The committee has been following the status of groundwater on and off the ORR for several years, and it received regular updates on groundwater projects.

DOE, EPA, and TDEC are working to do a large off-site study of groundwater and a report is expected in 2016. The committee will review and comment on that report.

### **Mercury at Y-12**

Mercury in Upper East Fork Poplar Creek at Y-12 has been a persistent problem for decades. A number of steps have been taken to drastically reduce the amount of mercury getting into the creek, but levels are still above standards.

Several members of the committee visited the site of a proposed mercury treatment facility at Y-12 and a draft recommendation was written by committee members that endorsed DOE's plan for the facility. The recommendation was approved at the October 2015 (FY 2016) meeting of ORSSAB.

# Other Activities

In addition to attending board and committee meetings, ORSSAB members participated in a number of other activities in FY 2015.

On the following pages are some examples of ORSSAB members participating outside of board and committee meetings.



*In November several board and EM & Stewardship Committee members toured Zone 1 of ETPP for a better understanding of the area designated for a soils remediation record of decision.*

*In December DOE Oak Ridge EM hosted a 'meet and greet' so ORSSAB members could have an opportunity to meet personally with DOE project managers and directors and EPA and TDEC liaisons.*

*Clockwise from right: Vice Chair Jan Lyons and Alan Stokes, Director of Planning and Baseline Management. Ed Worth, Director of Project Management Division, left, and Howard Holmes. Wanfang Zhou, left, and TDEC liaison Kristof Czartoryski.*





*Chair Dave Hemelright, left, Bob Hatcher, and Alfreda Cook attended the Spring 2015 EM SSAB Chairs' meeting in Augusta, Ga.*



*Alfreda Cook and Ed Trujillo, front right, went on several site tours for the Five-year Review.*

*Chair Dave Hemelright and Belinda Price were invited to attend the final structural demolition of the K-31 Building in June at ETPP.*





At the August 2015 EPA Community Involvement Training Conference, Alfreda Cook and ORSSAB administrator Pete Osborne, displayed an exhibit called "Citizens Advisory Board Takes Active Role in Cleanup of Department of Energy Site in Oak Ridge, Tennessee."

Dennis Wilson, right, attended a public meeting on a proposed airstrip at ETP. Don Dunning, Argonne National Lab, left, and Doug Colclasure, look at a map of the proposed site.



Ed Trujillo, left, attended a public meeting on the proposed water treatment facility at Y-12 to remove mercury from Upper East Poplar Creek. With him are Dan Macias, UCOR, and Laura Wilkerson, DOE.

Chair Dave Hemelright, left, and Dave Adler, ORSSAB's Alternate Deputy Designated Federal Officer, participated in a League of Women Voters Community School on cleanup of the ORR. At right is Donna Kridelbaugh, member of the of the Oak Ridge Environmental Quality Advisory Board.



# Members & Liaisons

*The following are members and student representatives who served during all or part of FY 2015.*



**Leon Baker** is a senior radiation protection technician for Spectra Tech/ARS Contracting Services. Prior to that he was a logistics coordinator with DOW Chemical. He worked at Oak Ridge

Associated Universities in Oak Ridge and also worked at the Savannah River Site for almost 20 years. He received Associate of Applied Science degrees in Science and Mechanical Engineering Technology from Pellissippi State Community College in Knoxville, TN.

He received his Bachelor of Science (B.S.) in Health Care Management from Southern Illinois University in Carbondale, Illinois, a Masters of Business Administration from Brenau University in Gainesville, Ga., a Masters of Education from South College in Knoxville, Tenn., and is presently completing his B.S. in Industrial Engineering at East Tennessee State University in Johnson City, Tenn.

Leon, who lives in Oak Ridge, is a member of the National Society of Black Engineering, Sigma Alpha Lambda, Phi Kappa Phi, NAACP Oak Ridge Chapter, the National Health Physics Society and its local chapter.



**Jimmy Bell** worked as a chemist at ORNL from 1963 to 1995. Most recently he provided consulting services to Egan, Fitzpatrick, Malsch & Lawrence, PLLC, a legal firm involved in

environmental issues. He received his B.S. degree in chemistry from Berry College and his doctorate in physical chemistry from the University of Mississippi. Jimmy lives in

Kingston. He retired from the board in June 2015



**Noel Berry** is a resident of Knoxville and is a retired project management professional, with extensive experience in computers and related quality assurance issues. He received his Associate's

Degree (A.S.) in electrical engineering technology from Chattanooga State Technical Institute in Chattanooga and his B.S. in computer science from St. Edwards University in Austin, Texas.



**Richard Burroughs** has served as the chief of staff in the Anderson County mayor's office since 2012. Prior to that post, his professional experiences were related to his background as

a registered professional geologist with extensive hydrogeological expertise in aquifer characterizations and remediation in soil and groundwater environments.

His employment history includes 25 years working primarily with Resource Conservation Recovery Act and Comprehensive Environmental Restoration, Compensation, and Liability Act projects in a variety of states. Richard received his B.S. and M.S. in geology from Southern Illinois University and the University of Arkansas, respectively. He is a resident of Oak Ridge.



**Aditya Chourey** was a student representative for FY 2014-15 from Oak Ridge High School. He was a member of the International Relations Club/Model United Nations, and he led the

high school chess club. Aditya also served as a

student representative on the Oak Ridge Environmental Quality Advisory Board.



**Alfreda Cook** is a retired data and systems analyst. As an employee of successive contractors to the DOE Oak Ridge EM Program, she compiled and maintained project lifecycle waste volume and

destination data as measures of performance for cleanup projects on the ORR since the early 1990s. During that time, she managed the development of various electronic systems that enhanced the accuracy and reliability of waste information reported to DOE. Alfreda received her B.S. in Organizational Management from Tusculum College. She is a volunteer for CASA of the Tennessee Heartland, an advocacy group for abused and neglected children. Alfreda resides in Oak Ridge.



**Sophia Cui** is one of the ORSSAB student representatives for FY 2015-16. She is a senior at Hardin Valley Academy, where she has been on the Hardin Valley varsity tennis team the past three years.

Sophia is interested in medicine and health sciences and is thinking about a career in medicine.

She is the President of the American Red Cross Club at Hardin Valley and volunteers with the local Red Cross to help and support the community. She is also the vice president of Health Occupations Students of America, which competes in health-related knowledge competitions.



**Martha Deaderick** is a retired educator from Kingston 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 her B.S. in education and a Special Education Certification from the University of Tennessee. She is a member of Tennessee Citizens for Wilderness Planning and Oak Ridge Schools Retired Teachers.



**Mike Ford** lives in Knoxville and is a technical sales representative for the Garland Company, which is a manufacturer of high-performance roofing and



Most ORSSAB meetings are held at the DOE Information Center in Oak Ridge.

building envelope materials. Prior to Garland he served for several years as a youth pastor in Paducah, Ky., and then as an advertising representative in Nashville. He is the current president of the Building Owners and Manager's Association, a member of the International Facility and Management, and the Tennessee School Plant Management Association. Mike received his Bachelor of Arts (B.A.) in psychology/religious studies from Harding University in Arkansas.



**Lisa Hagy** is a financial services representative with First Tennessee Bank. She participates in a variety of United Way activities, has been a member of the Chamber of Commerce and served on the board of a domestic abuse shelter. She attended the University of South Carolina. Lisa is a resident of Alcoa.



**Bob Hatcher** is a research scientist in the Department of Earth and Planetary Sciences at the University of Tennessee-Knoxville and holds the position of Distinguished Scientist and Professor. He worked 14 years under a joint appointment between the university and ORNL as part of the UT/ORNL Distinguished Scientist Program. He received his B.S. in geology and chemistry and his M.S. in geology at Vanderbilt University. He earned his doctorate in structural geology from the University of Tennessee-Knoxville. He was the senior author of the early 1990s ORNL effort to produce a new geologic map and report on the geology of the ORR. Bob lives in Oak Ridge.



**Dave Hemelright** is the K-12 Facilities Specialist for Kaatz, Binkley, Jones & Morris Architects, Inc., specializing in Tennessee public school planning, design and construction and maintenance. He currently serves on the board of the Tennessee School Plant Management Association, American Truck Historical Society, and has served on the Loudon County Planning Commission. He received his B.A. in American history from Hobart College. Dave lives in Lenoir City.



**Howard Holmes** is a physician with Mercy Primary Care of Lenoir City. Howard earned his B.S. in microbiology and M.S. in natural sciences from the University of Arkansas. He attended medical school at St. George's University and trained in internal medicine at East Tennessee State University. He resides in Lenoir City.



**Alana Joldersma** is one of the ORSSAB student representatives for FY 2015-16. She is a senior at Oak Ridge High School. As a junior she was selected to be a co-project manager for the school's FIRST (For Inspiration and Recognition of Science and Technology) Robotics Team, the 4265 Secret City Wildbots.

Alana plans to study film production and perhaps minor in environmental science. It's been a dream of hers to work with National Geographic, perhaps making a documentary film about environmental science someday.



**Jennifer Kasten** was a nuclear environmental engineer who worked on environmental management and nuclear fuel cycle activities at ORNL and performance analyses associated with the nuclear

industry/nuclear power plants. Jennifer received a B.S. in biology from Valparaiso University, a B.S. in civil/environmental engineering, and an M.S. in nuclear/radiological engineering from the University of Tennessee. Jennifer lives in Knoxville.



**Terri Likens** is the former editor of the Roane County News. She has worked in several states as an editor, reporter, and freelance journalist. She has received numerous honors for her work from

a number of organizations, including several dozen awards from the Tennessee Press Association.

She received her B.A. in journalism from Western Kentucky University in Bowling Green, Ky. She is a member of CASA of the Tennessee Heartland (a children's advocacy group), the Tennessee Press Association, and Conservation Fisheries, Inc. Terri retired from the board in August 2015.



**Jan Lyons** is a former adjunct professor of risk management at Southern Methodist University in Dallas, Texas, where she worked in the Engineering Management, Information, and Systems Department.

Jan received her B.A. in economics from the College of William and Mary, her M.S. in systems engineering from Clemson University, and her doctorate in industrial and systems engineering and engineering management from the University of Alabama. She lives in

Oak Ridge. Jan retired from the board in September 2015



**Fay Martin** retired in 1996 from ORNL, where she worked as an environmental toxicologist. She received her B.S. in chemistry/botany/zoology from the University College of the West Indies, an M.S. in

biology from McMaster University, and her doctorate in environmental toxicology from the University of Tennessee. Fay resides in Oak Ridge. She retired from the board in June 2015.



**Donald Mei** is a retired engineer who was employed from 1986 to 2007 by Duke Energy in Charlotte, N.C. During that time, he was the supervising engineer and technical manager in the

Radiation Dosimetry and Records Department and the senior engineer/nuclear production engineer in the Radiation Protection Section. He is a Certified Health Physicist by the American Academy of Health Physicists. Donald received his B.S. in physics from Cheng-Kung University in Taiwan, his M.S. in health physics from the University of Tennessee, and his doctorate in nuclear engineering from Kansas State University. Donald lives in Oak Ridge.



**Greg Paulus** retired as the president/owner of Metalite Industries, Inc., which produces and modifies products for persons with mobility disabilities. He retired as a lieutenant colonel from the

U.S. Air Force. Greg received his B.S. in mechanical engineering from Marquette University and his Master of Business Administration from Central Michigan University. Greg is a resident of Rockwood.



**Belinda Price** is a senior hydrogeologist with Alliant Corporation. She has more than 30 years experience in environmental investigation and environmental remediation as a geologist, hydrogeologist, and project manager. She is a Professional Geologist in the states of Alabama, California, Florida, Georgia, Kentucky, and Tennessee, and is a member of the Geological Society of America. She is a past Associate Editor of Groundwater, the flagship journal of the National Groundwater Association. Belinda received her B.Sc. in geology from the University of Bristol, U.K., and her M.Sc. in hydrogeology from University College London U.K. She lives in Knoxville.



**Corkie Staley**, of Oak Ridge, retired as a teacher from the Oak Ridge City Schools in 2011. She is a past president of the Oak Ridge Education Association and a past member of the Tennessee Education Association Board of Directors. Corkie serves on the board for the Center of Oak Ridge Oral History. She currently works part-time at Chapel on the Hill Nursery School in Oak Ridge. She received her B.A. in education from West Virginia State College and her M.S. degree in curriculum and instruction from the University of Tennessee. Corkie served on the board for one term from 2000 to 2002.



**Claire Rowcliffe** was a student representative for FY 2014-15 from Hardin Valley Academy. She was the captain of the swim team and a mentor in the HVA Talons, a group of students who mentor incoming 8<sup>th</sup> graders. She was a member of the National Honor Society and was involved with Project U, a club that stands against bullying.



**Scott Stout** is the acting director of the Office of Emergency Services for Roane County, Tennessee. He received his B.A. in liberal arts from Tennessee Wesleyan College and his Hazmat Specialist Certification from the Tennessee Emergency Management Agency. Scott lives in Rockwood.



**Mary Smalling** is a student at Pellissippi State Community College in Knoxville concentrating on business and law. Until 2006 she was the owner of a metal finishing and detailing business in Marshfield, Mo. She was a 911 operator for the Webster County, Missouri Sheriff's Department and served on the board of directors of Southwest Missouri Legal Aid representing Webster County. Mary lives in Louisville, Tenn.



**Ed Trujillo** retired from Bechtel Corporation in 2012. He most recently 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 ETTP in Oak Ridge. During his 35-year career he has worked on a wide variety of projects at DOE, U.S. Air Force, and private sector facilities.

Ed received his B.S. in engineering from the University of Wisconsin in Platteville, Wis. He is a resident of Oak Ridge.



**Dennis Wilson** lives in Rockwood and is a retired technology manager, who most recently was employed by Johnson-Diversey Products as the director of technology and intellectual property.

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 his B.S. in chemistry from the University of Wisconsin; his M.S. and doctoral degrees in material science from the University of Connecticut; and certifications in a wide range of technology and management courses from the Massachusetts Institute of Technology, Harvard, and the University of Wisconsin.



**Wanfang Zhou**, a Knoxville resident, is a hydrogeologist with ERT, Inc., a company that provides information technology, cybersecurity, program support, and engineering and

environmental services to federal and state government agencies. He received his doctorate in water resources and environmental engineering from the University of London's Imperial College of Science, Technology, and Medicine. He is a certified professional geologist by the American Institute of Professional Geologists and a registered professional geologist in five southern states. Wanfang is a member and former vice president of the Tennessee Chapter of the American Institute of Professional Geologists.

## AGENCY LIAISONS



Susan Cange  
ORSSAB Deputy  
Designated  
Federal Officer



Dave Adler  
Alternate Deputy  
Designated  
Federal Officer



Melyssa Noe  
ORSSAB Federal  
Coordinator



Connie Jones  
EPA Liaison



Kristof Czartoryski  
TDEC Liaison

# SERVING NINE COUNTIES IN EAST TENNESSEE



Current number of board members from each county:

Anderson - 7

Blount - 2

Knox - 4

Loudon - 2

Roane - 4

ORSSAB is seeking members in Morgan, Meigs, Campbell, and Union Counties.

## 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 calling the ORSSAB support offices at (865) 241-4583 or 241-4584 or visiting our web page at [www.energy.gov/orssab](http://www.energy.gov/orssab).

## ABBREVIATIONS

DOE	U.S. Department of Energy
EM	Environmental Management
EPA	Environmental Protection Agency
EMWMF	Environmental Management Waste Management Facility
ETTP	East Tennessee Technology Park
FY	fiscal year
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
ORSSAB	Oak Ridge Site Specific Advisory Board
TDEC	Tennessee Department of Environment and Conservation
TRU	transuranic
UCOR	URS CH2M Hill
WIPP	Waste Isolation Pilot Plant
Y-12	Y-12 National Security Complex