



*Many Voices Working for the Community*

# Oak Ridge Site Specific Advisory Board

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## *Monthly Meeting of the Oak Ridge Site Specific Advisory Board*

### **APPROVED April 10, 2019, Meeting Minutes**

The Oak Ridge Site Specific Advisory Board (ORSSAB) held its monthly meeting on Wednesday, April 10, 2019 at the DOE Information Center, 1 Science.gov Way, Oak Ridge, TN, beginning at 6 p.m. Copies of referenced meeting materials are attached to these minutes. A video of the presentation portion of the meeting was made and is available on the board's YouTube site at [www.youtube.com/user/ORSSAB/videos](http://www.youtube.com/user/ORSSAB/videos).

#### **Members Present**

Leon Shields

Nannan Jiang

Belinda Price

Richard Burroughs, Secretary

Bonnie Shoemaker

Bill Clark

Sarah Eastburn

Shell Lohmann, Vice Chair

Harriett McCurdy

Martha Deaderick

Marite Perez

Fred Swindler

John Tapp

Dennis Wilson, Chair

#### **Members Absent**

Leon Baker

Brooke Pitchers

Ed Trujillo

Rudy Weigel

David Branch

Eddie Holden

<sup>1</sup>Second consecutive absence

#### **Liaisons, Deputy Designated Federal Officer, and Alternates Present**

Dave Adler, ORSSAB Deputy Federal Designated Officer, Department of Energy, Oak Ridge Office of Environmental Management (DOE-OREM)

Melyssa Noe, ORSSAB Alternate Deputy Designated Federal Officer (DDFO), OREM

Kristof Czartoryski, Tennessee Department of Environment and Conservation (TDEC)

Connie Jones, U.S. Environmental Protection Agency (EPA)

#### **Others Present**

Olivia Fleenor, ORSSAB student representative, Hardin Valley Academy

Shelley Kimel, ORSSAB Support Office

Sara McManamy-Johnson, ORSSAB Support Office

Bill McMillan, OREM Portfolio Federal Project Manager for Oak Ridge National Laboratory (ORNL)

Jasleen Narula, ORSSAB student representative, Oak Ridge High School

6 members of the public were present.

Mr. Wilson told members DOE scheduled its Community Budget Workshop for Wednesday, May 15, 2019 and encouraged them to attend. Ms. Noe said the time has been set for 4:30p.m.-6 p.m. at the 2714 building across the street from the Federal Building in Oak Ridge. She said public notices would be distributed in local media as well. Mr. Adler presented service awards to outgoing student representatives Olivia Fleenor and Jasleen Narula.

### **Liaison Comments**

**Mr. Adler** – Mr. Adler said Mr. Mullis had recently visited Vanderbilt University and spoke with students who might be interested in the OREM program. OREM is making progress at ETTP and closing in on the 2020 goal for completing major cleanup. He noted that the 1037 building, one of the last large buildings remaining, is about 92% gone. OREM is scheduled to begin demolition on two remaining buildings at the Poplar Creek area. That area is promising for reuse after demolition and cleanup is complete because it is a large, flat area. The Poplar Creek facilities are also the most contaminated buildings that remain. The 1200 Complex, which is where the original centrifuge research took place, are also being prepared for takedown. They will probably be the last buildings removed because of the effort required to remove internal contents, he said, which is underway now.

Mr. Adler emphasized OREM is also working at the other two sites, Oak Ridge National Laboratory (ORNL), where risk reduction activities are ongoing, and Y-12 National Security Complex (Y-12), where waste management projects are being discussed and construction will soon begin on the Mercury Treatment Facility. He noted DOE is in formal dispute EPA and TDEC with related to water discharge limits at DOE facilities. He emphasized that “formal dispute” is a term under the three parties’ regulatory framework that indicates discussion and resolution is needed on an issue and should not be construed as a breakdown in the relationship. He said the dispute had been mentioned in some industry publications and clarified that all parties have identified their positions with respect to the dispute and it is now being discussed at higher levels among agency leaders. He said there is no risk at the facilities – rather it’s about the subtleties of how DOE sets standards for discharge.

**Ms. Jones** – had no formal comments, but agreed with what Mr. Adler said about the formal dispute.

**Mr. Czartoryski** – No comments.

Mr. Clark asked if the dispute was related to a radio announcement about a public meeting. Mr. Adler said no public meeting was scheduled on the topic.

### **Presentation**

Ms. Lohman introduced board members to Bill McMillan, presenter for the evening’s topic, Extending Operational Life of Facilities & Reducing Surveillance & Maintenance Requirements at ORNL.

Mr. McMillan said operational facilities at the lab include the Liquid and Gaseous Waste Operations (LGWO), which treats liquid and gaseous waste from DOE’s Office of Science operations as well as legacy-contaminated groundwater and buildings now owned by OREM. There are also various types of facilities in standby awaiting demolition, such as old research reactors that have been defueled, but the reactor buildings are still there. Similarly, isotope research facilities have remaining hot cells with remaining residual materials. Other excess facilities include warehouses and storage buildings.

There are basically three treatment facilities in the LGWO program, he said. The Liquid Low-level Waste System manages radioactive waste water, primarily from the High Flux Isotope Reactor used by ORNL, but also some contaminated groundwater sources, and discharges from the gaseous waste system, among others. It includes an evaporator to remove the water and leave the residual material in a sludge format, which is safely stored in double-lined steel tanks in vaults to await final treatment. A new processing facility will be built in the next few years to handle that effort. The Process Waste System handles more benign, less-contaminated material like collected rain water in basement facilities, leachate from some of the landfill sites, etc. It processes 80 million to

100 million gallons of water a year. The Gaseous Waste System is the 250-foot brick stack at the center of the lab's campus. It filters air from excess facilities through high efficiency particulate air (HEPA) filters prior to release. It treats approximately 1.3 million cubic feet per day.

All LGWO systems operate safely within their permits, but OREM is experiencing increased maintenance from the aging infrastructure. The newest of the buildings are 30 years old and are past their design life, said McMillan. Many items are failing frequently and requiring significant non-routine maintenance. In addition, it is becoming difficult to find replacement parts for much of the systems. Over the last three to four years, he estimated, costs have increased for general maintenance at the lab about \$8 million per year. DOE has invested an additional \$5 million to \$10 million in that same timeframe to address LGWO upgrades to extend the life of the facilities.

Due to the increasing costs, a two-phase engineering evaluation was started on the facilities. The first phase, completed in 2016, looked at the infrastructure of the three systems in the LGWO infrastructure, and made recommendations on consolidating and making improvements to the systems. Phase two was completed in March 2019 and focused on the underground systems including piping and electrical systems. A summary document and long term strategic plan based on the results has been produced that identifies goals for upgrades and maintenance in the next three to four years.

Out of those evaluations, several goals were identified to upgrade the facilities with modern equipment that would make it more cost effective, efficient, reliable, and long-lasting. Several projects have been completed such as replacement of obsolete heat trace control panels, and removal of an unnecessary air stripper at the process plant, which allowed the installation of new equipment, and other repairs.

Ongoing projects include:

- motor control center replacements to modernize the equipment and replacements of three granular activated carbon (GAC) columns that filter water, both of which should be complete in the next few weeks;
- replacement of dual-media filters and piping to stop leaks and equipment failure;
- concrete dike repairs to fill cracks and other structural integrity repairs to address potential leaks - complete at a pump facility in Melton Valley and will be done in the next few years at Bethel Valley as well;
- relocation and replacement of the zeolite system at Building 3544, an older part of the Process Waste System which removes radionuclides – primarily cesium and strontium - from water. The move to Building 3608, a newer portion of the facility, will consolidate operations and allow for the eventual shutdown of Building 3544. This will eliminate significant maintenance costs at the old facility;

Planned projects include

- Minimizing feeds to the Liquid Low-level Wastewater System is a very high priority. A pretreatment system is planned for treating some of the most contaminated groundwater from Building 3517, and scrubber water from the off-gas scrubber at the 3039 stack. Those two components constitute over half of the feed to the Liquid Low-Level Waste Evaporator. The change will increase capacity for storage of sludge until the new processing plant is complete.
- Replacement of the Distributed Control System (obsolete electronics) for LGWO systems will help improve longevity of the operation.

Mr. McMillan showed a series of slides comparing pre- and post-upgrade images of facilities at ORNL including corrective maintenance, pipe replacement, dike repairs at Building 7961, the GAC columns, motor control center, and central off-gas equipment. Much of corrective maintenance involves corroded and leaky pipes. Many of the piping systems have been or are in the process of being upgraded/replaced. Additionally, the blower system that feeds the off-gas system has been powered by a steam turbine system. In June 2018 one of the turbines threw a blade and shut down the blower. New motors were put in with additional capacity and additional features. They have worked well enough that there is consideration to replace all the old steam turbines.

Mr. McMillan then moved on to discussion of projects at the Molten Salt Reactor Experiment (MSRE). MSRE was shut down in 1969. Molten salt technology used a heated fluorine salt solution to carry fuel through the reactor. About 10 years ago the reactor was shut down, all salts were drained, and the system was flushed. That material has since solidified in the tanks. Because of the radiolytic reactions within the salt, gasses are produced which must be pumped and treated every 6 months. Current activities focus on that periodic pumping. There is some concern about reliability of current electrical systems – during last year’s historic rains, the sump pumps failed and the facility basement flooded. Because of uncertainty in the circuitry in the building, the old circuitry is being disconnected and replaced. The new electrical system will have a dedicated line in the facility and new circuits provided to ensure reliable power to critical systems. The rest of the facility will then be disconnected from the existing electrical feeds and shut down. Circuits that control the replaced pumps will likewise be replaced. To control buildup of fluorine gas in the tanks, DOE is preparing to install a new system to continuously ventilate the fuel salt drain and flush tanks. The automated system will eliminate pressure risks and end the need for in-person monitoring. The people can be moved out of the facility to support other ORNL cleanup work, allowing those areas of the MSRE facility to be shut down. This will result in significant savings.

OREM is also deactivating other facilities in ORNL’s central campus:

- Building 3010 (Bulk Shielding Reactor) – It still has a water pool shielding activated metals. OREM is deactivating that facility for demolition in the next few years. All combustible materials have been removed, asbestos abatement completed, and now OREM is characterizing the remaining materials in the pool to determine disposition. Materials that are highly radioactive will be shipped out west for safe disposal.
- Building 3026 (Hot Cell Footprint) – Legacy material removal and characterization of three remaining facilities. Demolition is planned after characterization
- Building 3005 (Low-intensity Test Reactor) and Building 3042 (Oak Ridge Research Reactor) – Deactivation and demolition activities are also planned in the next few years.

All these facilities are in the same general area. OREM is working with DOE’s Office of Science to prioritize these to allow public access to the Graphite Reactor as part of the Manhattan Project Historical National Park. In addition, demolition of the reactor buildings are less complicated than the next cleanup priority – the ORNL isotope facilities. Plus, removal of the reactor buildings will give OREM more room to safely work on the isotope facilities. Eventually, these projects will open space for future mission needs at ORNL, particularly at the area currently occupied by Building 3026. Mr. McMillan showed some photos of Buildings 3010 and 3026. D&D was initiated on Building 3026 with American Recovery and Reinvestment Act funds. The remaining areas were deemed more contaminated than anticipated and funds would not allow completion at that time. The facility was stabilized and has been safely monitored under a surveillance and maintenance since.

After the presentation board members asked the following questions:

Ms. Shoemaker – Where do you send demolition waste?

Mr. McMillan – Low-activity radioactive waste is disposed of onsite at CERCLA landfills, while higher activity radioactive waste is shipped out west.

Mr. Wilson – Does the sludge storage have issues with corrosion and pumping in the future?

Mr. McMillan - The sludges have accumulated over the last 30-40 years; a couple thousand cubic meters of sludge. We know it’s settled and is a peanut-butter like consistency. The engineers are working on critical technologies to be tested during the design process for the processing facility. This summer a test area adjacent to ORNL will be used to test components of the planned facility. The goal is to remove the sludge and blend it with a supernate to make it easier to pump into larger tanks while it is characterized. It will then be mixed with grout and shipped to Nevada.

Mr. Wilson noted the other sites have sludge and does EM share its lesson learned?

Mr. McMillan – Yes, OREM has had extensive discussions with experts at Hanford and Savannah River who also have been handling similar sludge at their sites.

Mr. Swindler asked how HEPA filters used and maintained.

Mr. McMillan – differential pressures on the filters are monitored and filters are changed about every 10 years. The stack filters were changed last about three years ago, he said. When differential pressures across the filters increase, it indicates that the filters need to be changed.

Mr. Wilson asked for confirmation that MSRE had gotten a plus-up in funding.

Mr. McMillan - Yes, there was a plus-up of \$5 million per year into the budget planning for some of these surveillance and maintenance projects over the next few years. Plus ups were also done for LGWO life extension activities.

### **Public Comment**

Luther Gibson presented comments on the previous presentation on mercury research and encouraged the board to do a recommendation on the topic. He also suggested a website, [www.itrcweb.org](http://www.itrcweb.org), with resources for learning more about technology related to groundwater and other issues the board handles. Regarding the community budget workshop, he said some members of the Oak Ridge Coalition of Retired Employees would attend and ask questions about the East Tennessee Technology Park employees' pension plan. He also shared some concerns about reductions in OREM funding presented in the Trump Administration's planned budget.

### **Board Business/Motions**

1. Mr. Wilson asked for a motion to approve the meeting agenda.
  - a. **4/10/19.1 Motion to approve the agenda**  
Ms. Price approved, Ms. Shoemaker seconded. Motion passed unanimously.
2. Mr. Burroughs presented the previous month's meeting minutes and asked for a motion to approve.
  - a. **4/10/19.2 Motion to approve previous meeting minutes**  
Mr. Shields moved, Ms. Price seconded. Motion passed unanimously.
3. Mr. Burroughs reported that he had attempted to reach Ms. Pitchers, who has been absent for the last two meetings. He said he would continue to try and contact her. No action was taken.
4. Ms. Lohmann asked board members to weigh in on priority topics for the next year for the board. These will be part of a presentation at the May Chairs meeting.  
Mr. Clark asked for additional discussion of priorities on groundwater. He said he hoped the board would address groundwater issues aggressively in the coming year.
5. Mr. Wilson briefly summarized proposed changes to the board's bylaws and opened the floor for discussion or questions.
  - a. **4/10/19.3 Motion to approve bylaws changes**  
Ms. Price Moved, Ms. Shoemaker seconded. Changes were approved as shown unanimously

### **Responses to Recommendations & Alternate DDFO Report**

Ms. Noe said the draft package has received preliminary approval and is now moving through the official analysis by headquarters. She cautioned that this is the longest part of the approval process.

Ms. Noe noted that while a tour was not scheduled this month, but Mr. McMillan is open to a tour if possible before the EM Stewardship meeting. Members were encouraged to tell staff their interest in a tour as soon as possible. Additionally, since he had covered much of the ORNL portion of excess contaminated facilities, Mr.

McMillan would not return next month when that topic was scheduled; instead Mr. Henry would speak solely to Y-12 facilities.

**Committee Reports**

Executive – Mr. Wilson said the executives discussed new students coming in the next couple months. Also, DOE has agreed to the board’s request for additional information on the mercury treatment facility, which will be presented in September. The executives continue to prepare for the annual meeting in August.

EM & Stewardship – Mr. Shields said there was significant discussion regarding the mercury treatment technology work at ORNL.

**Additions to the Agenda & Open Discussion**

None

**Action Items**

*Open*

None.

*Closed*

1. DOE will provide additional information on construction schedule changes for the Mercury Treatment Facility. **Closed 4/4/19:** DOE has scheduled an update on the topic by Brian Henry to the board in October.

The meeting adjourned at 7:15 p.m.

I certify that these minutes are an accurate account of the April 10, 2019, meeting of the Oak Ridge Site Specific Advisory Board.



Dennis Wilson, Chair  
Oak Ridge Site Specific Advisory Board  
DW/smk

June 12, 2019

Richard Burroughs, Secretary