

# Oak Ridge Site Specific Advisory Board Monthly Meeting



**Wednesday, May 10, 2017**  
6 p.m., DOE Information Center  
1 Science.gov Way  
Oak Ridge, Tennessee

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.

# CONTENTS

## AGENDA

PRESENTATION MATERIALS—To be distributed prior to or at the meeting.

## CALENDARS

1. May
2. June (*draft*)
3. Work plan schedule of meetings

## BOARD MINUTES/RECOMMENDATIONS & MOTIONS

1. February 8, 2017 draft meeting minutes
2. Recommendation: Recommendation on Biology Complex Facilities at the Y-12 National Security Complex
3. Recommendation: Recommendations on Groundwater Investigations at the U.S. Department of Energy Oak Ridge Reservation

## REPORTS & MEMOS

1. Trip Report: Belinda Price – Waste Management Symposium
2. EM Projects Update
3. Abbreviations/Acronym List for EM Projects Update
4. Travel Opportunities for FY 2017

# AGENDA



**Oak Ridge Site Specific Advisory Board**  
**Wednesday, May 10, 2017, 6:00 p.m.**  
**DOE Information Center**  
**1 Science.gov Way, Oak Ridge, Tenn. 37831**

**AGENDA**

---

- I. Welcome and Announcements (E. Trujillo) ..... 6:00–6:05
  - A. Next Meeting: Wed., June 14, 2017. Presentation Topic: Federal Advisory Committee Act
  - B. Presentation of Service Awards to Outgoing Student Representatives (J. Mullis)
  - C. Introduction of New Student Representatives (J. Mullis)
  
- II. Comments from the Deputy Designated Federal Officer, and EPA and TDEC Liaisons (J. Mullis, C. Jones, K. Czartoryski)..... 6:05–6:15
  
- III. Public Comment Period (E. Trujillo)..... 6:15–6:25
  
- IV. Presentation: Key Material Disposition Activities (B. DeMonia, B. McMillan) (Issue Group Members: Beatty, Holden, Swindler)..... 6:25–6:50
  - Question and Answer Period ..... 6:50–7:05
  
- V. Call for Additions/Approval of Agenda (E. Trujillo)..... 7:05
  
- VI. Motions ..... 7:05–7:10
  - A. January 11, 2017, Meeting Minutes (E. Trujillo)
  - B. Recommendations on Biology Complex Facilities at Y-12 (E. Trujillo)
  - C. Recommendations on Groundwater Investigations at the DOE Oak Ridge Reservation (E. Trujillo)
  
- VII. Responses to Recommendations & Alternate DDFO’s Report (M. Noe) ..... 7:10–7:15
  
- VIII. Committee Reports..... 7:15–7:20
  - A. EM/Stewardship (E. Trujillo)
  - B. Executive (E. Trujillo)
  
- IX. Additions to Agenda & Open Discussion..... 7:20–7:30
  
- X. Adjourn ..... 7:30

# PRESENTATION MATERIALS

Presentation to be  
distributed at or prior  
to meeting

# CALENDARS



# Oak Ridge Site Specific Advisory Board May 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3 <b>Executive Committee Meeting</b> 6:00-7:00 p.m.	4	5	6
7	8	9 <b>Spring EM SSAB Chairs' Meeting,</b> Paducah, Ky.	10 <b>ORSSAB Monthly Meeting</b> 6:00-7:30 p.m.  <b>Spring EM SSAB Chairs' Meeting,</b> Paducah, Ky.	11 <b>Spring EM SSAB Chairs' Meeting,</b> Paducah, Ky.	12	13
14	15	16	17	18	19	20
21	22	23	24 <b>EM &amp; Stewardship Committee meeting</b> 6:00-7:30 p.m.	25	26	27
28	29 <b>Memorial Day Holiday</b> <b>DOE/Staff Holiday</b>	30	31			

**All meetings will be held at the DOE Information Center unless otherwise noted.**

**ORSSAB Support Office:** (865) 241-4583 or 241-4584     **DOE Information Center:** (865) 241-4780

**ORSSAB Conference Call Line:** (866) 659-1011; enter the participant code when prompted: 3634371#

<b>Board meetings on cable TV and YouTube</b>	
<b>Knoxville:</b> Charter Channel 6, Comcast Channel 12	Sundays at 10 p.m.
<b>Lenoir City:</b> Charter Cable Channel 193	Wednesdays, 4 p.m.
<b>Oak Ridge:</b> Channel 12	Monday, May 22, 7 p.m.
<b>Oak Ridge:</b> Channel 15	Monday, Wednesday, Friday, 8 a.m. & noon
<b>YouTube</b>	<a href="http://www.youtube.com/user/ORSSAB">http://www.youtube.com/user/ORSSAB</a>





# Oak Ridge Site Specific Advisory Board

## June 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7 <b>Executive Committee Meeting</b> 6:00-7:00 p.m.	8	9	10
11	12	13	14 <b>ORSSAB Monthly Meeting</b> 6:00-7:30 p.m.	15	16	17
18	19	20	21	22	23	24
25	26	27	28 <b>EM &amp; Stewardship Committee meeting</b> 6:00-7:30 p.m.	29	30	

**All meetings will be held at the DOE Information Center unless otherwise noted.**

**ORSSAB Support Office:** (865) 241-4583 or 241-4584     **DOE Information Center:** (865) 241-4780

**ORSSAB Conference Call Line:** (866) 659-1011; enter the participant code when prompted: 3634371#

<b>Board meetings on cable TV and YouTube</b>	
<b>Knoxville:</b> Charter Channel 6, Comcast Channel 12	Sundays at 10 p.m.
<b>Lenoir City:</b> Charter Cable Channel 193	Wednesdays, 4 p.m.
<b>Oak Ridge:</b> Channel 12	Monday, June 26, 7 p.m.
<b>Oak Ridge:</b> Channel 15	Monday, Wednesday, Friday, 8 a.m. & noon
<b>YouTube</b>	<a href="http://www.youtube.com/user/ORSSAB">http://www.youtube.com/user/ORSSAB</a>

## FY 2017 ORSSAB Work Plan/Schedule

MAY					
Wed., 5/3	Executive	General business			DOEIC
Wed., 5/10	Monthly meeting	Key Material Disposition Activities	McMillan/ DeMonia	Beatty Holden Swindler	DOEIC
TBD	Site tour	On-site tour/ Q&A	McMillan/ DeMonia		
Wed., 5/24	EM/Stewardship	Key Material Disposition Activities detailed discussion.	McMillan/ DeMonia		DOEIC

JUNE					
Wed., 6/7	Executive	Annual meeting planning			DOEIC
Wed., 6/14	Monthly meeting	Federal Advisory Committee Act	Borak (HQ)	<i>None required</i>	DOEIC
	Site tour	<i>(No site tour)</i>			
Wed., 6/28	EM/Stewardship				DOEIC

JULY					
Wed., 7/5	Executive	<i>(No meeting)</i>			DOEIC
	New member training & tour				
Wed., 7/12	Monthly meeting	(No ORSSAB monthly meeting due to new member training)			
	Site tour	<i>(No site tour)</i>			
Wed., 7/26	EM/Stewardship	<i>(No meeting)</i>			DOEIC

AUGUST					
Wed., 8/2	Executive	Annual meeting planning			DOEIC
Sat., 8/19	Annual meeting	FY 2017 review; FY 2018 planning			
Wed., 8/9	Monthly meeting	(No ORSSAB monthly meeting due to Annual meeting)			
	Site tour	<i>(No site tour)</i>			
Wed., 8/23	EM/Stewardship	<i>(No meeting)</i>			

SEPTEMBER					
Wed., 9/6	Executive	General business			DOEIC
Wed., 9/13	Monthly meeting	Vision 2020-Planning for the Future of ETPP including Reuse, Historic Preservation, Stewardship	Cooke/Cain	Deaderick	
	Site tour	<i>(No site tour)</i>			
Wed., 9/27	EM/Stewardship	Vision 2020-Planning for the Future of ETPP including Reuse, Historic Preservation and Stewardship detailed discussion	Cooke/Cain		DOEIC

# BOARD MINUTES/ RECOMMENDATIONS



*Many Voices Working for the Community*

# Oak Ridge Site Specific Advisory Board

---

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

### **Unapproved February 8, 2017, Meeting Minutes**

The Oak Ridge Site Specific Advisory Board (ORSSAB) held its monthly meeting on Wednesday, February 8, 2017, at the DOE Information Center, 1 Science.gov Way, Oak Ridge, Tennessee, beginning at 6 p.m. A video of the meeting was made and may be viewed by contacting ORSSAB support offices at (865) 241-4583 or (865) 241-4584. The presentation portion of the video is available on the board's YouTube site at [www.youtube.com/user/ORSSAB/videos](http://www.youtube.com/user/ORSSAB/videos).

#### **Members Present**

Kathryn Bales  
Richard Burroughs  
Martha Deaderick  
David Hemelright, Secretary  
Howard Holmes  
Greg Paulus  
Belinda Price, Chair  
Deni Sobek  
Fred Swindler  
Venita Thomas  
Ed Trujillo

Rudy Weigel  
Phil Yager  
Dennis Wilson, Vice Chair

#### **Members Absent**

Leon Baker  
Christopher Beatty  
Mike Ford  
Rosario Gonzalez  
Eddie Holden  
Mary Smalling

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

Dave Adler, ORSSAB Alternate Deputy Designated Federal Officer (DDFO), Department of Energy, Oak Ridge Office of Environmental Management (DOE-OREM)  
Carl Froede, Environmental Protection Agency (EPA), via telephone hookup  
Randy Young, Tennessee Department of Environment and Conservation (TDEC)  
Melyssa Noe, ORSSAB Alternate DDFO, DOE-OREM

#### **Others Present**

Spencer Gross, ORSSAB Support Office  
Brian Henry, DOE  
Pete Osborne, ORSSAB Support Office

Nine members of the public were present.

#### **Liaison Comments**

**Mr. Adler** – Mr. Adler said there is discussion about when to schedule the next ORSSAB meeting related to FY 2019 DOE-OREM budget request development. The topic was scheduled for the March 8 meeting, but he said there is consideration of delaying the topic to April. Mr. Adler said there would be more substantive things to discuss in April than in March. There is no additional budget information available to share with the board. The federal government is currently operating under a continuing resolution. DOE-OREM is using FY 2016 budget appropriations. The continuing resolution funds OREM through April 28, but Mr. Adler said there is speculation the government could operate under the resolution for the balance of the year.

Mr. Adler said there is also consideration of ORSSAB hosting a public workshop on the OREM FY 2019 budget request. That would require a venue change to accommodate more members of the public who could provide input on the budget request.

Mr. Adler said OREM field operations are progressing as normal. At the national level the new leadership team has not been named. He reminded the board that the former OREM Manager Susan Cange is leading the DOE EM efforts nationwide. She will remain in that position until a permanent political appointee is selected.

He said tonight's presentation will be on all the current landfill operations on the Oak Ridge Reservation (ORR). He said it is important for the board to understand that OREM cleanup operations use a network of landfills on the reservation to dispose of the various types of waste streams that are generated at the DOE Oak Ridge site.

Mr. Trujillo asked if under the continuing resolution if funding is provided at, above, or below the proposed budget. Mr. Adler said it's an unpredictable process. Mr. Adler explained that under the continuing resolution it is a per month allocation that is equivalent to the per month allocation received under FY 2016 budget. That per month allocation rate is larger than the budget President Obama had requested. Congress appropriated more money than requested. There is no presidential request for FY 2017 yet. He reiterated that there is expectation that FY 2017 will remain under the continuing resolution. Mr. Adler said the new administration will have a role in the FY 2018 budget request to Congress.

Mr. Paulus said the FY 2016 had an increase over the FY 2015 budget of about \$28 million. The budget request for FY 2017 was lower than the FY 2018 request, but he wanted clarify that OREM is currently spending at the FY 2016 appropriation of the extra \$28 million. Mr. Adler said that is correct.

**Mr. Young** – no comments.

**Mr. Froede** – no comments.

### **Public Comment**

None.

### **Presentation**

Brian Henry is the Portfolio Federal Project Director for landfill operations at the Y-12 National Security Complex. His presentation was on Waste Disposal Capacity for Oak Ridge Reservation Landfills. The main points of his presentation are in Attachment 1.

He began by saying that the ORR has a suite of landfills that support all of OREM's cleanup programs. With current and planned future capacity OREM is in position to finish the cleanup of the ORR. All ORR landfills are permitted by TDEC or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Each landfill has established waste acceptance criteria (WAC) to determine if waste is acceptable for disposal (Attachment 1, page 2).

The aerial photograph on page 4 of Attachment 1 shows the locations of all the active landfills on the ORR. The Environmental Management Waste Management Facility (EMWMF) is the primary CERCLA facility that accepts waste from cleanup operations at East Tennessee Technology Park (ETTP). The original sanitary landfill, Landfill I, is near EMWMF and has been closed for several decades. Landfill II has also been closed for several decades. Landfill 6 was a sanitary industrial landfill and has been closed for some time. The currently operating landfills are IV, V, and VII and are all near Y-12.

The chart on page 5 of Attachment 1 shows all of the active landfills on the ORR, the type of waste they accept, and the type of permit they have. The EM Disposal Facility (EMDF) is in the planning stage and will be permitted under CERCLA. It is needed to complete future cleanup of the Oak Ridge National Lab (ORNL) and Y-12.

When project waste generators evaluate waste they follow a waste disposal hierarchy shown on page 6 of Attachment 1. The first option is recycling or reuse if possible. Construction debris can be disposed in Landfill VII. If waste cannot go into Landfill VII, Landfills IV and V are the next options. They can accept sanitary waste including office/cafeteria waste, equipment, and construction demolition debris. Landfill IV can also accept classified waste. Both can accept minor levels of chemical or asbestos contamination. Waste that is non-CERCLA and can't go into Landfills IV, V, and VII, must be shipped offsite. Waste generated under CERCLA can be disposed in EMWMF. That waste can have low levels of radiological and/or chemical contamination. Waste that doesn't meet the EMWMF WAC must be shipped offsite. Mr. Henry said that about 90 percent of waste by hazard or radiological activity is sent offsite, but 90 percent of volume of waste generated on the ORR is disposed onsite.

Mr. Henry discussed in more detail each of the operating landfills. Landfill IV is the smallest of the landfills, about 4 acres, and opened in 1989. It has a permitted capacity of 89,000 cubic yards and is about 50 percent full (Attachment 1, page 7). Mr. Henry said landfills are built out as needed, so in the case of Landfill IV it is constructed so far to accept about 71,000 cubic yards of waste. Mr. Henry said it would probably be 10 or more years before this landfill is expanded to permitted capacity.

Landfill V (Attachment 1, page 8) opened in 1994 and has a 26-acre footprint. It has a capacity of 2.1 million cubic yards and is about 40 percent full. It is a lined facility with a leachate collection system. Only about half of the permitted capacity has been built. Mr. Henry said some waste envisioned to go in EMWMF from ETTP met the WAC for disposal in Landfill V and preserves some extra space for EMWMF. Mr. Henry said he expected Landfill V to be expanded in five to 10 years.

Landfill VII (page 9) receives construction/demolition debris. It is a 30-acre site that opened in 2001. It is unlined and can accept up to 2.09 million cubic yards of debris. It is about 25 percent full. Mr. Henry said build out of part of Landfill VII will likely happen in 2018-19.

EMWMF (page 10) accepts low-level CERCLA waste. It opened in 2002 and covers about 28 acres. It has several lined cells. It has a total capacity of 2.18 million yards and is about 75 percent full. It receives contaminated soils, remediation waste, and demolition debris. Mr. Henry said the original design for a final cap was to be 13 feet thick. It is now believed an 11-foot thick cap will provide sufficient protection, and DOE is working with TDEC and EPA to redesign the cap that will allow for an extra 100,000 cubic yards of capacity. He said that is important to provide a cushion to have extra disposal capacity before the proposed EMDF is open. Completing cleanup of ETTP in the 2020 timeframe will basically fill up EMWMF.

Mr. Henry said different types of waste need to go in different places in a landfill. Large heavy objects should go on the floor of the landfill cell. As EMWMF fills up there is less space to handle large objects. He said EMDF needs to be open about two years before EMWMF fills up so large objects can go into EMDF.

For the proposed EMDF a remedial investigation/feasibility study is being done to determine the location. A number of alternatives (including offsite) will be proposed for EMDF. All of the onsite alternatives being considered are in Bear Creek Valley near EMWMF. One alternative is adjacent to the east of EMWMF. Two smaller sites are to the west of EMWMF and two full size locations are farther west. All of the disposal sites range in capacity from 2.2 to 2.8 million cubic yards.

After the presentation a number of questions were asked. Following are abridged questions and answers.

Mr. Paulus – When I joined the board all of the talk was about burial grounds. Are the burial grounds I, II, and VI? Mr. Henry – We have waste buried in various places on the ORR, and there are burial grounds in the vicinity of the landfills I talked about. All of the ones I talked about are not the burial grounds you refer to. Mr. Adler – This was a presentation on the current suite of operating landfills. If you look at the old landfills that were used from the 1940s to the 1970s those have been closed in place and our current planning assumption is for those to remain closed in place. Each of the main plants (Y-12, ORNL, and ETP) have associated burial grounds. Most of those burial grounds have been closed in place with measures designed to minimize the transfer of contaminants from the burial grounds to groundwater or surface water. There are a few sites where that would be very difficult to do. In fact some were in old streambeds, so that waste was excavated and placed in some of the landfills Mr. Henry talked about. They presented the most significant transfer potential to ground and surface water. But again Mr. Henry's presentation was on existing operating landfills.

Mr. Young – You mentioned low-level contaminated waste that doesn't go into the EMWMF. Where does that waste go? Mr. Henry – Landfill IV and Landfill V routinely have special waste permits where we tell TDEC that waste has a small amount of contamination and we ask for permission to put it in one of those landfills.

Mr. Weigel – You said Landfill V has a leachate collection system. Does Landfills IV and VII have leachate collection systems? Mr. Henry – Landfill VII is unlined. It has no leachate collection system. Landfill IV is divided into areas 1 and 2. Area 1 is fairly small. It is unlined and does not have a leachate collection system because that was not required at the time it was built. Area 2 is lined and has a leachate collection system. Any future buildouts in Landfills IV and V will have leachate collection systems.

Ms. Price – Is mercury contaminated waste allowed in any of the landfills? Mr. Henry – The landfills have land disposal restrictions. If there is mercury contamination in a waste stream the waste generators determine if the mercury is low enough that it meets the land disposal restrictions. If that's the case it could go into EMWMF. We have waste handling plans in place for all the waste covered under CERCLA. Another way to meet land disposal restrictions is for waste to be treated, such as macro encapsulation. Theoretically macro encapsulated mercury waste would meet waste disposal restrictions. But we currently have no waste handling plans that allow for treated mercury waste to go into EMWMF. So generally if it doesn't meet the land disposal restrictions and requires treatment it would be sent offsite for treatment and disposal.

Ms. Price – Mercury is going to be an issue of cleanup at Y-12. Are there any preliminary thoughts about how that will be dealt with? Mr. Henry – Some of the work we're doing at Y-12 now involves some of the COLEX (column exchange) equipment that is outside of Alpha 4 that does have mercury contamination. That is going to be a good case for us to work out how we're going to handle mercury contaminated equipment. As we do that work we're working with the regulators to segregate the waste into waste that has minimum mercury contamination that can be disposed in our landfills and waste that needs treatment and has to go offsite. So we have a waste handling plan now that covers some mercury bearing waste. That's a project going on now that gives us experience in dealing with those issues.

Mr. Trujillo – Since there is going to be mercury to be dealt with at Y-12 is it possible Y-12 could become a center for treatment of mercury to meet land disposal restrictions? Mr. Henry – I can't speculate on that, but to put it in context, when we look at our waste disposal forecasts we expect the cleanup of Y-12 to generate about 2 million cubic yards. Based on what we know now the mercury contaminated waste will generate about 100,000 cubic yards. It's not going to be a significant portion of the waste. Mr. Trujillo – I was thinking 100,000 cubic yards would be a premium cost to send offsite. Maybe something could be done here rather than sending offsite. Mr. Adler – This site is unique in the amount of mercury

that was used for industrial processes where mercury was used. There is no expectation that we would receive other sites' mercury bearing waste. There are other commercial industrial processes that generate mercury bearing waste, but we're not going to be in the business of providing services to commercial operations. The question is how much mercury we will ship offsite. There is a fair amount of stockpiled pure metallic mercury in Oak Ridge but that will not go into EMWMF or new proposed landfill. If some commercial enterprise wanted to come in this area and treat mercury waste they would have to work with TDEC to get proper permits for that type of facility.

Mr. Froede – A haul road was built from ETTP to EMWMF to haul waste. Will a similar road be built for Y-12 and ORNL cleanup? Mr. Adler – We already have a network of haul roads that we can use to transport waste from ORNL and Y-12 to all of the operating landfills and any potential landfills in Bear Creek Valley.

### **Committee Reports**

#### **EM & Stewardship**

Mr. Trujillo said the committee had additional discussion regarding groundwater from the January 11 ORSSAB meeting and there were a number of ideas about a potential recommendation on the topic. He said a first draft has been created and is being reviewed by the issue managers for the topic.

The committee also reviewed DOE's response to Recommendation 233 on the Proposed Environmental Management Disposal Facility. Mr. Trujillo said the response addressed the board's recommendation and was accepted by the committee.

The committee will meet on February 25 for a follow up discussion on tonight's topic of landfills on the ORR.

#### **Executive**

Ms. Price said the committee noted on incoming correspondence a transmittal of scheduled updates of project work plans based on recent modifications to the Federal Facility Agreement. That information will be provided to board members prior to the next board meeting on the OREM budget request for FY 2019.

A draft ORSSAB annual report for FY 2016 has been produced by staff. After final revisions are made it will be provided to board members.

Staff has begun work on the next Advocate newsletter to be published in April.

The board's annual meeting will be in August. Ms. Price said board members had positive comments about last year's venue, the Tremont Lodge in Townsend, and staff will secure a date with the lodge.

Ms. Price said Elizabeth Ross has resigned from the board.

### **Open Discussion**

Ms. Price asked board members to think about any DOE EM related issues that should be discussed at the EM SSAB Chairs' meeting in May.

Mr. Trujillo asked if the travel schedule available to members is still current. Ms. Noe said there has been no direction to change the schedule, but she would advise members if there is a change.

### **Announcements and Other Board Business**

ORSSAB's next meeting will be determined.



**Alternate DDFO Report**

Ms. Noe said there are no current recommendations pending from the board for OREM to consider.

She said the current board membership drive is wrapping up, but if any applications come in they can be considered. She reminded board members that if they had candidates in mind for the board to let her or staff know. Mr. Paulus asked how many applications had been received. Ms. Noe said about 15.

The spring EM SSAB Chairs' meeting will be in Paducah, Ky., May 9-11. May 10 is the date of the normal ORSSAB meeting so a decision will be made about that meeting date.

She reminded the board again that the March meeting may be moved to April.

Ms. Noe said staff will work with Mr. Henry to arrange a tour of the landfill areas for board members between now and the EM & Stewardship Committee meeting on February 22, 2017.

**Motions**

**2/8/17.1**

Mr. Hemelright moved to approve the minutes of the January 11, 2017, board meeting. Mr. Holmes seconded and the motion passed **unanimously**.

**Action Items**

*Open Action Items*

None.

The meeting adjourned at 7:01 p.m.

Attachments (1) to these minutes are available upon request from the ORSSAB support office.

I certify that these minutes are an accurate account of the February 8, 2017, meeting of the Oak Ridge Site Specific Advisory Board.

Dave Hemelright, Secretary

Belinda Price, Chair  
Oak Ridge Site Specific Advisory Board  
BP/rsg

DATE



## Oak Ridge Site Specific Advisory Board Recommendation \_\_\_: Recommendations on Biology Complex Facilities at the Y-12 National Security Complex, Oak Ridge, Tennessee

### Background

Following a 2015 audit by the Government Accountability Office (GAO), DOE's excess contaminated facilities have come under increased scrutiny. Not only do these deteriorating structures pose risks to workers and the environment, but they also carry the burden of high maintenance costs for the government programs that continue to manage them. Some of the worst of these facilities are located in Oak Ridge. There are approximately 350 excess contaminated facilities located on the DOE Oak Ridge Reservation, and nearly half of those are classified as high risk, accounting for forty percent of the high-risk facilities in DOE's nationwide inventory.



The DOE Oak Ridge Environmental Management program (OREM) began to address its own concerns for excess facilities and their rising maintenance costs prior to the GAO audit. In 2007, an Integrated Facilities Disposition Program was developed to consider the entire scope of Oak Ridge cleanup, including the excess facilities from the Y-12 National Security Complex (Y-12) and Oak Ridge National Laboratory (ORNL) expected to be transferred to OREM's responsibility in the future.

Through IDFP, OREM worked with operating programs at Y-12 and ORNL to identify facilities, conduct walkthroughs, perform research and characterization, and assess the overall scope and hazards likely to be encountered in these facilities. The expectation at that time was that decontamination and decommissioning (D&D) would be imminent, and the assessments in 2008 estimated a \$9-14 billion cost, with a 25-year duration for the Oak Ridge cleanup program. Today, however, funding for D&D has been pushed out much further in the future, with the first removal operations scheduled to begin at Y-12 sometime in the 2020s.

Increased attention from the GAO audit contributed to funding "plus-ups" for FY 2016. OREM received \$28 million for excess contaminated facilities in FY 2016 and has used those funds to help stabilize structures for long-term stewardship until D&D begins. Excess facilities funding covers a range of risk-reduction activities, including removal of hazardous material, some repairs and maintenance, sampling, characterization work, and meeting documentation requirements. It does not cover demolition and is specifically meant to reduce the risks of continued degradation until D&D can be funded in the future.



The Biology Complex is a DOE Office of Science facility. Four of the twelve buildings in the complex were demolished with funding from the American Recovery and Reinvestment Act of 2009. The remaining buildings have been inactive for over a decade and are in deteriorating conditions. Most of the loose materials were cleaned out prior to deactivation, but water infiltration has contributed to further degradation. Air quality has a major impact on worker safety. Airborne risks like asbestos, mold, and animal droppings require workers to dress out fully with respirators and further

constrain the risk-reduction work that needs to be performed. Before the Biology Complex can be demolished, characterization to determine the extent of contamination is necessary, which will help determine what needs to be removed, where waste can go, and other related remedial actions.



In FY 2016 DOE used some of the excess contaminated facilities funding for characterization work at the Biology Complex so that a waste handling plan will be in place in preparation for future D&D. This will provide DOE with information regarding what waste is in the buildings and help determine where the waste will need to be disposed. DOE is also performing more detailed planning, by collecting data on quantities of asbestos, oil, etc., to get an idea of what and how much waste exists and how long it

will take to clean up. That information will help DOE with planning and prioritization and will aid in the annual budget request for sufficient funding. Desks and other equipment items were cleared from the buildings using American Recovery and Reinvestment Act funding, and that effort will have an enormous impact on future D&D and make work much easier to perform.

During FY 2017 DOE has been working with EPA and the state of Tennessee to develop a waste handling plan and a sampling plan. Results from sampling are starting to come in now and are expected to wrap up in the spring 2017 timeframe. Another part of the characterization process includes gathering process knowledge and building history to help determine how many samples will be necessary and where sampling will need to occur.

## **Discussion**

At the November 9, 2016, meeting of the Oak Ridge Site Specific Advisory Board (ORSSAB), DOE federal portfolio project directors provided a presentation on excess contaminated facilities at Y-12 and ORNL. The presentation<sup>1</sup> gave an overview of risk-reduction and stabilization activities made possible with FY 2016 funding for excess contaminated facilities on the Oak Ridge Reservation.

ORSSAB members participated in a tour of excess facilities that included the Biology Complex (exterior only) on November 28, 2016, and took part in detailed discussions with DOE personnel during the November 30, 2016, Environmental Management/Stewardship Committee meeting. Based on the information regarding the Biology Complex provided during these interactions, the following issues were reviewed:

- The upfront activities being done at the complex should continue to be planned and implemented in a limited scope.
- The upfront activities might include additional tasks, such as planning for actual removal of miscellaneous equipment and items that are not grossly contaminated and developing a plan for creating a pathway to safe and effective access and egress within the complex.
- Since the timing for D&D of excess facilities is out to FY 2025 and beyond, concentrating particular effort on the Biology Complex would prove to the community that these facilities are also consequential.

## **Recommendations**

The disposition of excess facilities is important to ORSSAB, as these facilities represent a continuing risk to the environment and the health and safety of workers and the community. We recognize that spending funds to stabilize facilities and maintain them for future demolition is necessary. We support acceleration of the site characterization program if funding becomes available so that demolition can occur expeditiously. We also support ongoing efforts at the Biology Complex and offer the following recommendations:

1. Continue to work on upfront activities at the complex with the addition of others such as the decontamination, if required, removal, and disposal of non-contaminated and minimally contaminated interior equipment. Disposal of these would be similarly to the current upfront activities.
2. Develop a personnel access plan for the various sections of the complex, with the purpose of moving items within the complex to establish safe pathways, strengthen structural sections/members to avoid potentially catastrophic conditions. We recommend having this plan ready prior to initiating actual D&D activities within the complex.
3. Since funding for the Biology Complex may now be used only for activities to avoid or eliminate risk, redirect additional funding plus-ups for the proposed upfront activities at the complex and the recommendations delineated above.

<sup>1</sup>“Risk Reduction in Excess Contaminated Facilities at ORNL and Y-12; Bill McMillan, ORNL Portfolio Federal Project Director and Brian Henry, Y-12 Portfolio Federal Project Director; November 9, 2016; [https://energy.gov/sites/prod/files/2016/11/f34/2016%20November%209%20ORSSAB%20Excess%20Facilities%20Final-web\\_0.pdf](https://energy.gov/sites/prod/files/2016/11/f34/2016%20November%209%20ORSSAB%20Excess%20Facilities%20Final-web_0.pdf).





**Oak Ridge Site Specific Advisory Board  
Recommendation \_\_\_:  
Recommendations on Groundwater Investigations  
at the U.S. Department of Energy  
Oak Ridge Reservation, Oak Ridge, Tennessee**

---

**Background**

As a result of past research and industrial activities on the Oak Ridge Reservation (ORR), groundwater beneath several areas of the reservation has become contaminated. Groundwater investigations have been done on and adjacent to the ORR since the 1980s, but a dedicated effort began in 2013 to sample numerous offsite locations and identify near-term onsite groundwater remediation projects. At that time, the Department of Energy's Oak Ridge Office of Environmental Management (OREM), the Tennessee Department of Environment and Conservation (TDEC), and the Environmental Protection Agency (EPA) collaborated on a series of workshops to develop a groundwater strategy for the ORR.

A Groundwater Strategy Team was formed, which held a series of workshops to develop a groundwater strategy. Three workshops reviewed conceptual site models for each ORR watershed; identified affected groundwater plumes and related data gaps; and identified potential groundwater projects.

Two workshops combined and ranked the identified plumes using a modified EPA Hazard Ranking System. Potential projects were ranked, and early action projects were selected.

The final workshop reviewed groundwater use restrictions and policies and alternatives to engineered groundwater restoration.

The strategy team used the findings of the workshops to develop a groundwater strategy document (DOE/OR/01-2628). A number of strategy objectives were identified to guide the path forward for groundwater remediation on the ORR. Those objectives include:

- Identify and address potential threats to offsite public health from exposure to groundwater contaminated by ORR sources.
- Pursue selected remedial actions, as necessary, to prevent unacceptable risk and groundwater degradation and to restore groundwater to beneficial use where practicable.
- Achieve final ORR cleanup, including final groundwater decisions.

As noted above, the strategy team discussed all of the known contaminated groundwater plumes located on the ORR and placed them in the hazard ranking system based on the size of the plumes, contaminant concentrations, and if a plume was moving, especially if it might migrate off the reservation. The team identified 36 potential projects to address the 35 plumes.

Two projects were selected to begin right away. The first was an offsite groundwater assessment. Work began in 2014 to sample 49 offsite locations – 34 wells and 15 springs – to determine if contamination existed. Secondly, if contamination was found, the assessment would investigate if it originated from DOE operations on the ORR.

Three rounds of sampling have been completed. The first round of sampling at 43 locations was completed in the second quarter of FY 2015. Three locations showed contaminant exceedances of EPA National Primary Drinking Water standards for lead, gross alpha activity, or radium. The second round at 48

locations in the fourth quarter of FY 15 and the third round at 18 locations in the second quarter of FY 16 showed no exceedances of the EPA National Primary Drinking Water standards.

The second project undertaken was the creation of a regional groundwater flow model to help determine how groundwater moves. In 2015, a flow model was developed and a test case done on an 8-square mile area at Y-12 National Security Complex. The test was successful and the flow model was expanded to a regional scale model of the ORR and surrounding area.

According to the Federal Facility Agreement, the document that sets milestones for cleanup actions on the ORR, the first large scale decisions on groundwater will be made at East Tennessee Technology Park (ETTP). In 2005 a remedial investigation/feasibility study was done to offer alternatives to treat groundwater at ETTP.

One of the alternatives is a technique known as *in situ* thermal treatment, which heats water, and volatile organic contaminants are extracted from the vapor. The technique might be used to restore groundwater contaminated with dense non-aqueous phase liquids (DNAPLs). DNAPLs were used in large quantities for degreasing equipment at ETTP. Five plume sources at ETTP are thought to have DNAPLs.

If a second round characterization determines *in situ* thermal treatment is a viable alternative, a proposed plan will recommend the treatment in a record of decision scheduled for signing in 2023.

Other groundwater projects are being evaluated. One is the Melton Valley/Bethel Valley Exit Pathways Study to gather data on groundwater behavior in the valleys. The study would look at five plumes at Oak Ridge National Laboratory (ORNL) identified in the groundwater strategy document. Data gathered would be used with flow modeling to evaluate possible scenarios for groundwater flow westward off the reservation under the Clinch River.

Another possible project is the 7000 Area Trichloroethylene Plume Remediation Project in the East Campus of the ORNL. A pilot test done earlier using bioremediation has shown positive results. Bioremediation employs microbes to consume certain contaminants, but additional characterization needs to be done.

### **Discussion**

The Oak Ridge Site Specific Advisory Board (ORSSAB) has been interested in the status of groundwater on and around the ORR for a number of years, and during that time DOE and contractor experts have provided several presentations on groundwater conditions and possible consequences of contaminated groundwater migrating offsite. DOE has even provided some residents to the west of the ORR with water from local water systems so private wells can be monitored for any contaminants that may be related to ORR operations and also ensure the safety of those residents.

Most recently DOE Groundwater Program Manager Dennis Mayton provided a presentation to the board on January 11, 2017, on the status of the Groundwater Strategy. He gave an overview of the groundwater monitoring program in place.

ORSSAB members participated in a tour of groundwater problem sites at ETTP and ORNL on January 25. The board's Environmental Management & Stewardship Committee had a detailed discussion with DOE personnel, including Mr. Mayton, on January 25.

ORSSAB appreciates the substantial effort that has been expended toward monitoring groundwater and developing an understanding of groundwater movement. This is important so that the potential for contaminant migration can be understood and future actions prioritized.

## **Recommendations**

The potential for contaminant migration in groundwater represents an ongoing and future risk to the environment via the potential for media transfer to surface water and to human health if groundwater is used in the future for drinking water. Protection of groundwater therefore is important to the surrounding communities and to ORSSAB.

ORSSAB offers the following recommendations:

1. ORSSAB recommends diligent and continued efforts to monitor for potential offsite migration and to implement appropriate actions to mitigate or prevent offsite migration in areas such as Melton Valley and White Oak Creek if the need should arise. The board requests additional surveillance monitoring to establish a monitoring framework in Bethel Valley and annual reports of results to the board.
2. The Groundwater Strategy document was completed in 2014. At that time only five actions were given priority although 35 plumes were noted as high risk. We recommend that DOE should continue to prioritize based on the highest risk to lowest risk. In addition, with the upcoming completion of the offsite groundwater investigation, ORSSAB urges DOE to include a five-year review of the strategy (in 2019) to revisit the ranking of plumes to ensure that highest-risk plumes are addressed expeditiously and to adjust priorities and budgets based on changes in conditions (such as increased risk to the environment or public health).
3. ORSSAB recommends placing a high priority on site-specific modeling in the Melton Valley area to include installation of additional monitoring wells (if needed) and the implementation of treatability and/or pilot-scale options as funding allows. To that end, ORSSAB supports and encourages DOE to move forward with the Melton Valley/Bethel Valley Exit Pathways Study to gather data on groundwater behavior in the valleys. DOE should formulate and initiate a strategy to cooperate with the Tennessee Valley Authority, to commence, continue, and/or enhance sharing of relevant groundwater data and information with the Tennessee Valley Authority.
4. ORSSAB recommends that DOE should fully fund and schedule preliminary planning, study, and technology demonstrations so that full-scale final cleanup efforts can begin no later than 2025; as an example, move forward with the 7000 Area Trichloroethylene Plume Remediation Project. In order to achieve this, the board recommends considering refocusing available money from plus-ups, surpluses, etc., toward the groundwater effort. The board requests that DOE provide updates to the board as strategies are developed to allow for comment.
5. ORSSAB recommends that DOE maintain communications with offsite groundwater users, especially in Melton Valley and Bethel Valley, as necessary to remain cognizant of planned usage that may pose an unacceptable risk.

# REPORTS & MEMOS





## Oak Ridge Site Specific Advisory Board

### TRIP REPORT

---

- I. Name of Traveler: Belinda Price**
- II. Date(s) of Travel: March 5 - March 8 2017**
- III. Location of Meeting: Phoenix, Arizona**
- IV. Name of Meeting: Waste Management**
- V. Purpose of Travel: Attend meeting**

**VI. Discussion of Meeting:**

I attended the 2017 Waste Management Symposia in Phoenix, Arizona. I attended a variety of sessions including oral presentations, posters and discussion panels covering a variety of aspects of nuclear waste management. Presenters included representatives of DOE and other government agencies, contractors and suppliers from the U.S. and other countries. The featured country this year was Japan. The exhibits included informal discussion opportunities and demonstrations from over 140 contractors and suppliers.

Of particular interest to me were two sessions; one on robotics and remote systems; and one on WIPP. The session on robotics and remote systems included presentations on robots designed to work remotely and in confined spaces. These were generally modular-type systems that could be used for a variety of tasks. They were based on nature. For example one was a snake-like system that could be used to climb and one was a spider-like system designed to move across very uneven surfaces. One talk focused on using a snake-like system with laser to remotely cut up a tank for easier decommissioning. The session on WIPP discussed the incidents that resulted in the shutdown, the recovery process and forward planning now that WIPP is able to receive waste again. I was gratified to hear that the ORR will be able to begin shipping waste to WIPP this calendar year.

**VII. Significance to ORSSAB:**

This trip was important to me because it helped enhance my understanding of the cleanup efforts of EM at the Oak Ridge Reservation (ORR) and continued my education with respect to the entire DOE EM complex.

**VIII. Names & Telephone Numbers of Significant Contacts:**

Not Applicable

**IX. Action Items:**

ORSSAB members should be encouraged to participate in meetings that enhance their understanding of the DOE EM process and cleanup progress at other DOE sites. Further, participation in these types of meetings allows members to meet other SSAB members from around the DOE complex which is beneficial to the SSAB community as a whole.

**X. Traveler's Signature & Date:**

Signature: Belinda Price  
Belinda Price

Date: 3/24/2017

## EM Project Update

ETTP	March	April
Zone 1 Interim ROD	The Remedial Action Start milestone for EU Z1-50 was completed.	Preparation of the EU Z1-50 PCCR was initiated.
	The PCCR Addendum for the K-901 & Duct Island EUs Z1-51 and 52 was approved by the regulators.	Preparation of three PCCRs is proceeding to support the Zone 1 Final Soil ROD.
Zone 1 Final Soil ROD	The regulators are suspending review of the D2 ROD until three Zone 1 Interim ROD PCCRs are approved.	
Sitewide ROD	Began characterization work to support the in-situ thermal treatment study at K-1401. The drilling subcontractor mobilized equipment to the site and began drilling.	Characterization work to support the insitu pilot study continued at the K-1401 site. Activities included drilling, testing for Dense Non-Aqueous Phase Liquids, and reconfiguration of existing Ph. 1 investigation wells.
	A Data Quality Objectives workshop was conducted with the regulators to identify groundwater data needs in support of the Sitewide RI/FS.	Agreement was reached with the regulators to proceed with resampling existing groundwater monitoring wells. Initiated a work plan addendum for this work.
Zone 2 Soil ROD	Preparations continue for the Zone 2 ROD soil characterization in the footprint of the former gaseous diffusion process building.	Began remediation of PCB Area 2 in EU Z2-22.
	The PCCR for EU Z2-6 was approved by the regulators.	
	The Remedial Action Start milestone for the Peninsula Area (EUs 16, 17, 18, 19) was completed.	
K-25/K-27 D&D	Demolition was completed on the tie-lines connecting to the K-27 Building.	K-27 Project Completion was achieved on April 27th, which was six months ahead of the baseline schedule and approximately \$12.4 million under budget.
	The removal of the K-27 Building slab is 26 percent complete and shipping of size-reduced concrete to the EMWMF is 25 percent complete.	The removal of the K-27 Building slab is 68 percent complete and shipping of size-reduced concrete to the EMWMF is 62 percent complete.
		The historic preservation and EM project teams met with representatives of the National Park Service. The purpose of the meeting was to communicate the current condition of the K-25 slab and planned characterization and remediation activities, as well as input regarding the safe end-state and long-term maintenance considerations for the slab.
ORNL	March	April
U-233 Disposition		Completed the replacement of the K-2 Ventilation Control Panel in Building 2026.
		Completed the Implementation Validation Review (IVR) of Building 2026 S&M Safety Basis Documents.
		The Memorandum of Agreement was approved to transfer Building 2026 (Radioactive Materials Analytical Lab) from the Office of Science to Environmental Management.

## EM Project Update

ORNL	March	April
Molten Salt Reactor Experiment (MSRE)	In response to the issues observed on work controls at the MSRE facility, an independent assessment of work behaviors and practices was conducted within the Nuclear & High Hazard Operations organization. Corrective actions are being developed to address the issues that were identified.	Shipped four of the six thermal probes from the MSRE for disposal, demonstrating significant progress towards meeting regulatory milestones for waste disposal from MSRE in FY 2017.
		The FY 2016 PCCR was approved by the regulators.
Homogeneous Reactor Experiment Facility (HRE)		Mobilized on asbestos work at Building 7500. Materials were moved to the area for asbestos work use, and the generator was inspected and certified for use. The initial entry into the building was made for building condition inspection and for work package planning.
ORNL S&M		The S&M PCCR for FY 2016 was approved by the regulators.
Y-12	March	April
BCV Interim ROD		The Technical Memorandum Characterization of the Soils at the Disposal Area Remedial Action (DARA) Solids Storage Facility was submitted to the regulators for review.
Outfall 200 Mercury Treatment Facility	A Project Peer Review was conducted and indicated the project is well-organized and on-track to meet the planned Critical Decision (CD)-3A and CD-2/3 milestones. The team provided nine preliminary recommendations to strengthen the project.	The Independent Final Design Review is being finalized. Also providing documents and participating in weekly phone calls to support Independent Cost Estimate for MTF Early Site Preparation CD-3A.
	The independent final design review for the MTF was conducted. The design will be ready for construction once the findings are addressed.	
Y-12 Facilities D&D	The construction start milestone for equipment removal for the west Alpha 4 COLEX equipment was completed.	Despite schedule impacts, approximately 1,500 ft. (of total estimated 8,000 ft.) of piping was cleared, drained, and/or removed from the West Colex.
	Two large excavators were moved to the Alpha 4 COLEX project to support the west side equipment removal. Began initial demolition activities.	
Off-Site Cleanup/Waste Management	March	April
TRU Waste Processing Center (TWPC)	The project was able to process over 100 percent of the contact-handled (CH) transuranic waste goal for the month. Also completed implementation of Revision 35 to the Documented Safety Analysis addressing the procession of Tank W-1A soils and macroencapsulated waste.	A partnering meeting was held between DOE and NorthWind senior managers to discuss project activities and partnering opportunities.
		The project underwent an Implementation Verification Review associated with Revision 36 to the Documented Safety Analysis, which addresses loading of the TRUPACT-II casks.

## EM Project Update

Off-Site Cleanup/Waste Management	March	April
Sludge Test Area Characterization		The Chief Engineer for HQ Environmental Management, John Marra, visited the site and was briefed on the status of the project and received a tour of the Sludge Test Area.
EMDF	Senior managers from DOE, EPA, and TDEC met in Nashville to discuss TDEC concerns on modeling for EMDF to support the CERCLA process.	
EMWMF	The EMWMF FY 2017 PCCR was submitted to the regulators for review.	Finalizing the OREM approach for the Focused Feasibility Study radiological discharge limits, before it is presented to EPA and TDEC.
		The Annual Summary was submitted to EM Headquarters for review by the Low Level Radioactive Waste Disposal Federal Review Group. It includes an update of activities during FY 2016 and a self-assessment that determined EMWMF is compliant with DOE requirements.
WRRP	The FY 2017 Remediation Effectiveness Report was submitted to the regulators for review.	Comments were received on the Offsite Groundwater Assessment Remedial Site Evaluation report. DOE requested a 90-day extension to address these comments.
	Five-Year Review protectiveness statements from DOE were provided to EPA and TDEC.	A comment resolution meeting was held on the Five-Year Review. A few issues are still outstanding.
		The regulators met to discuss the FCAP Five-Year Review issues. It was agreed that the work would be captured in an Action Plan.
		MV/BV Exit Pathway is the next Groundwater project. As requested by EPA, the hydrofracture plume will not be addressed.
Public Involvement Plan	The Public Involvement Plan was approved by the regulators.	

## Abbreviations/Acronyms List for Environmental Management Project Update

AM – action memorandum

ARRA – American Recovery and Reinvestment Act

BCV – Bear Creek Valley

BG – burial grounds

BV- Bethel Valley

CARAR – Capacity Assurance Remedial Action Report

CBFO – Carlsbad Field Office

CERCLA – Comprehensive Environmental Response, Compensation  
and Liability Act

CEUSP – Consolidated Edison Uranium Solidification Project

CD – critical decision

CH – contact handled

CNF – Central Neutralization Facility

COLEX – column exchange

CS – construction start

CY – calendar year

D&D – decontamination and decommissioning

DOE – Department of Energy

DSA – documented safety analysis

DQO – data quality objective

EE/CA – engineering evaluation/cost analysis

EM – environmental management

EMDF – Environmental Management Disposal Facility

EMWMF – Environmental Management Waste Management Facility

EPA – Environmental Protection Agency

ETTP – East Tennessee Technology Park

EU – exposure unit

EV – earned value

FFA – Federal Facility Agreement

FFS – Focused Feasibility Study

FPD – federal project director

FY – fiscal year

GIS – geographical information system

GW – groundwater

GWTS –groundwater treatability study

IROD – Interim Record of Decision

LEFPC – Lower East Fork Poplar Creek

LLW – low-level waste

MLLW – mixed low-level waste

MSRE – Molten Salt Reactor Experiment

MTF – Mercury Treatment Facility

MV – Melton Valley

NaF – sodium fluoride

NDA – non-destructive assay

NEPA – National Environmental Policy Act

NPL – National Priorities List

NNSS – Nevada National Security Site (new name of Nevada Test Site)

NTS – Nevada Test Site

OR – Oak Ridge

ORGDP – Oak Ridge Gaseous Diffusion Plant

OREM – Oak Ridge Office of Environmental Management

ORNL – Oak Ridge National Laboratory

ORO – Oak Ridge Office

ORR – Oak Ridge Reservation

ORRR – Oak Ridge Research Reactor

ORRS – operational readiness reviews

PaR – trade name of remote manipulator at the Transuranic Waste  
Processing Center

PCB - polychlorinated biphenyls

PCCR – Phased Construction Completion Report

PM – project manager

PP – Proposed Plan

PPE – Personal Protective Equipment

QAPP – Quality Assurance Project Plan

RA – remedial action

RAR – Remedial Action Report



RAWP – Remedial Action Work Plan

RCRA – Resource Conservation Recovery Act

RDR – Remedial Design Report

RDWP – Remedial Design Work Plan

RER – Remediation Effectiveness Report

RH – remote handled

RI/FS – Remedial Investigation/Feasibility Study

RIWP – Remedial Investigation Work Plan

RmAR – Removal Action Report

RmAWP – Removal Action Work Plan

ROD – Record of Decision

RUBB – trade name of a temporary, fabric covered enclosure

S&M – surveillance and maintenance

SAP – sampling analysis plan

SEC – Safety and Ecology Corp.

SEP – supplemental environmental project

STP – site treatment plan

SW – surface water

SWSA – solid waste storage area

Tc – technetium

TC – time critical

TDEC – Tennessee Department of Environment and Conservation

TRU – transuranic

TSCA – Toxic Substances Control Act

TWPC – Transuranic Waste Processing Center

U – uranium

UEFPC – Upper East Fork Poplar Creek

UPF – Uranium Processing Facility

URS/CH2M – (UCOR) DOE’s prime cleanup contractor

VOC – volatile organic compound

WAC – waste acceptance criteria

WEMA – West End Mercury Area (at Y-12)

WHP – Waste Handling Plan

WIPP – Waste Isolation Pilot Plant

WRRP – Water Resources Restoration Program

WWSY – White Wing Scrap Yard

Y-12 – Y-12 National Security Complex

ZPR – Zero Power Reactor

## Travel Opportunities

Meeting/Event	Dates	Location	Reg. Cost	Website	Conference Lock Date; # Allocated Attendees	Deadline to Submit Requests
<b>FY 2017</b>						
<b>Perma-Fix Nuclear Waste Management Forum</b>	Meeting canceled	Nashville				
<b>Intergovernmental Meeting with DOE</b> (Pending requests: <i>none</i> )	Nov. 16 - 18, 2016	New Orleans	none		7/30/16	7/30/16
<b>Waste Management Symposium</b> (Attendees: Beatty, Price)	March 5-9, 2017	Phoenix	\$1,145	<a href="http://www.wmsym.org">www.wmsym.org</a>	9/30/16 (2)	12/16/16
<b>National Environmental Justice Conference &amp; Training</b> (Pending requests: <i>none</i> )	March 8-10, 2017	Washington, D.C.	none	<a href="http://thenejc.org">http://thenejc.org</a>	N/A	2/1/17
<b>2017 Spring Chairs Meeting</b> (Attendees: Hemelright, Price, Wilson)	May 9-11, 2017	Paducah, KY	none	<a href="http://events.r20.constantcontact.com/register/event?oeidk=a07edr9rgegad93e54f&amp;llr=cf5k6kyab">http://events.r20.constantcontact.com/register/event?oeidk=a07edr9rgegad93e54f&amp;llr=cf5k6kyab</a>	N/A	4/5/17
<b>2017 U.S. EPA Community Involvement Training Conference</b> (Pending requests: _____)	<del>Mid-August 2017</del> <i>Postponed</i>	Kansas City, MO	none	<a href="https://www.epa.gov/superfund/2017-community-involvement-training-program">https://www.epa.gov/superfund/2017-community-involvement-training-program</a>	N/A	TBD
<b>RadWaste Summit</b> (Pending requests: _____)	Sept. 5-7, 2017	Summerlin, Nevada	\$525	<a href="http://www.exchangemonitor.com/forums/annual-radwaste-summit/">http://www.exchangemonitor.com/forums/annual-radwaste-summit/</a>	TBD	TBD
<b>DOE National Cleanup Workshop</b> (Pending requests: Price)	Sept. 13-14, 2017	Alexandria, VA	none	<a href="https://energy.gov/em/national-cleanup-workshops">https://energy.gov/em/national-cleanup-workshops</a>	5/11/17 (1)	4/5/17
<b>2017 Fall Chairs Meeting</b> (Pending requests: _____)	TBD	TBD	none		N/A	
<b>FY 2018</b>						
<b>EPA National Brownfields Conference</b> (Pending requests: _____)	December 5-7, 2017	Pittsburgh	TBD	<a href="https://www.epa.gov/brownfields/2017-national-brownfields-training-conference">https://www.epa.gov/brownfields/2017-national-brownfields-training-conference</a>	N/A	

Shaded trips are closed