



Many Voices Working for the Community

Oak Ridge Site Specific Advisory Board

Approved January 8, 2014, Meeting Minutes

The Oak Ridge Site Specific Advisory Board (ORSSAB) held its monthly meeting on Wednesday, January 8, 2014, at the DOE Information Center, 1 Science.gov Way, Oak Ridge, Tenn., beginning at 6 p.m. A video of the meeting was made and may be viewed by contacting the ORSSAB support offices at (865) 241-4583 or 241-4584. The presentation portion of the video is available on the board's YouTube site at www.youtube.com/user/ORSSAB/videos.

Members Present

Jimmy Bell

Carmen DeLong

Lisa Hagy, Secretary

David Hemelright, Chair

Bruce Hicks, Vice Chair

Jennifer Kasten

Jan Lyons

Fay Martin

Scott McKinney

Donald Mei

Greg Paulus

Belinda Price

Wanda Smith

Coralie Staley

Scott Stout

Members Absent

Noel Berry

Alfreda Cook

Bob Hatcher

Mary Hatcher

Howard Holmes

Liaisons, Deputy Designated Federal Officer, and Federal Coordinator Present

Dave Adler, Department of Energy-Oak Ridge Office (DOE-ORO), Alternate Deputy Designated Federal Officer (DDFO)

Susan Cange, (DOE-ORO) Deputy Manager for Environment Management (EM) and ORSSAB DDFO

John Owsley, Liaison, Tennessee Department of Environment and Conservation (TDEC)

Melyssa Noe, ORSSAB Federal Coordinator, DOE-ORO

Others Present

Chloe Ashley, TDEC

Jeff Crane, Environmental Protection Agency (EPA), Region 4 (via telephone hookup)

Jason Darby, DOE

Susan Gawarecki

Spencer Gross, ORSSAB Support Office

Luther Gibson

Gracie Hall, Student Representative

Pete Osborne, ORSSAB Support Office

Julia Riley, Student Representative

Laura Wilkerson, DOE

Ten members of the public were present.

Liaison Comments

Mr. Adler – Mr. Adler said the board has no outstanding recommendations that require a response. He said DOE Headquarters will respond to the EM SSAB Chairs' recommendations the board approved at this meeting (see Other Board Business).

Ms. Cange – A significant milestone was reached in mid-December with the demolition of the last remaining portion of the K-25 Building at East Tennessee Technology Park (ETTP). That does not signify the completion of the project as remaining debris still requires disposal at the Environmental Management Waste Management Facility (EMWMF) in Bear Creek Valley. A number of dignitaries, including Deputy Secretary of Energy Daniel Poneman, were hand for the demolition and celebration. Ms. Cange said the project is progressing ahead of schedule and under budget with the current cleanup contractor UCOR. The entire project is scheduled for completion this summer, which is about 18 months ahead of schedule and \$300 million under the current baseline.

Mr. Paulus asked about a budget for FY 2014. Ms. Cange said while Congress has agreed on a total budget package, budget allocations for individual agencies have not been received. She said an allocation is expected by January 15, but if not, the current continuing resolution for agencies will remain in effect until allocations are finalized. DOE EM is operating under a continuing resolution based on FY 2012 funding.

Mr. Owsley – Mr. Owsley introduced Chloe Ashley as a TDEC intern.

Mr. Crane – no comments.

Public Comment

Mr. Gibson, a former member and chair of ORSSAB, said he hadn't been to an ORSSAB meeting in some time since he left the board, but he noted that the board is still considering topics, such as this evening's presentation on sufficient waste disposal, that it was studying when he was a member.

Presentation

Ms. Wilkerson's presentation was Waste Disposal Capacity for the Oak Ridge Reservation (ORR). The main points are in Attachment 1.

Ms. Wilkerson began her presentation by reminding the board that the EMWMF was selected for the disposal of Manhattan Project and Cold War wastes from cleanup of the ORR and associated sites. Primarily building demolition debris and soils are disposed at EMWMF. Higher contamination wastes are disposed off-site (Attachment 1, page 2).

EMWMF consists of six disposal cells, five of which are either active or filled (Attachment 1, page 2). Water management systems include a leachate collection system, leachate storage tanks, contact water collections ponds, and contact water tanks.

The facility has been in operation for more than 10 years and has been built to its maximum capacity of 2.18 million cubic yards. At the end of FY 2013 it was about 63 percent filled (Attachment 1, page 3). Expansion has allowed the demolition of K-33 at ETTP and other Recovery Act projects, which accelerated demolition and risk reduction activities on the ORR.

Ms. Wilkerson said on-site disposal is key to efficient cleanup of the ORR, because it has saved about a half a billion dollars in disposal costs to transport waste off-site (Attachment 1, page 4).

Those savings allow for additional cleanup work. Monitoring of groundwater around EMWMF indicates that waste is being contained.

Page 5 of Attachment 1 is a chart of waste disposal forecasts through FY 2043, the anticipated date of completion of cleanup of the ORR. The blue bars indicate waste that can go into EMWMF before it fills to capacity. The red bars indicate additional waste from ORR cleanup that will require additional space. EMWMF is projected to be full in FY 2023, so an additional site must be found to dispose of the remaining waste that will be generated. She said the projections are based on an annual appropriation of \$423 million. Variations in appropriations over the years will affect the closure date of EMWMF.

The chart on page 6 of Attachment 1 is a similar chart on cumulative disposal amounts. The chart notes that beginning in 2023 a second disposal facility that can take about 2.5 million cubic yards of waste will be needed.

Ms. Wilkerson said planning has begun to determine a site for a second disposal facility (Attachment 1, page 7). The first step in the process was to do a Remedial Investigation/Feasibility Study (RIFS). The study was submitted to EPA and TDEC in June 2013 for comments. Those comments are currently being addressed. After comments are addressed, the next step is to develop a Proposed Plan. The public can make comments on the Proposed Plan. Once a Proposed Plan is agreed to a Record of Decision (ROD) will document the building of the new facility. Ms. Wilkerson pointed out that no decision has been made on whether a new facility will be built and where it might be located.

The RIFS documented three disposal alternatives for future waste generation (Attachment 1, page 8):

1. No action
2. On-site disposal
3. Off-site disposal

Ms. Wilkerson explained no action would negate an ORR-wide disposal strategy, and waste would be dealt with on an individual project basis. The preliminary conclusions to the three alternatives are noted on page 9 of Attachment 1. The no action does not support timely and efficient cleanup. On-site disposal would have some impact to the local environment, but has a lower lifecycle cost of about \$817 million. Off-site disposal could isolate wastes more effectively in arid climate western states. However, reliance on off-site locations introduces some uncertainty, higher transportation risks, and significantly higher cost – \$2.4 billion estimated. Ms. Wilkerson noted that if off-site disposal is chosen the amount of time to achieve cleanup completion in Oak Ridge would be extended because of the increased cost and the recent flat funding for Oak Ridge DOE EM.

When site evaluation was done for EMWMF, a number of locations were studied (Attachment 1, page 10). Ms. Wilkerson said the same sites were evaluated for a second facility. The preferred site for a new facility, to be known as the Environmental Management Disposal Facility (EMDF), is just to the east of EMWMF (Attachment 1, page 11). The site is attractive for the same reasons that the area was chosen for the EMWMF. The area also has a number of other disposal sites, which makes placing the EMDF there compatible with the current land use.

Page 12 of Attachment 1 is a diagram of EMDF and its proximity to EMWMF. It would consist of six separate disposal cells. Ms. Wilkerson said the cells would not be built at the same time, but as they are needed to accept waste.

Page 13 of Attachment 1 is a planning schedule for making a decision on a new facility. Completion of the RIFS is scheduled for early 2015. The Proposed Plan is to be finished by the fourth quarter of 2015, and the ROD signed in mid-2016.

After Ms. Wilkerson's presentation a number of questions were asked. Following are abridged questions and answers.

Mr. Bell – How is it determined and who will be responsible for cleaning up a facility? Ms. Wilkerson – In the general DOE EM is responsible for cleaning up, demolishing, and disposing legacy facilities from the Manhattan Project and the Cold War that are process contaminated buildings. There is no limit for how contaminated a building is as long as it is contaminated. That includes buildings, soil, sediments, etc. Ms. Cange – The cleanup criteria are agreed to by DOE, EPA, and TDEC. Those levels that are developed and agreed to by the agencies are documented in the ROD. That determines what needs to be cleaned up, and, if it does, to what levels. Then there is the decision about the waste that is generated as a result of the cleanup that can be disposed at the onsite disposal facility currently in operation (EMWMF) or if it needs to be shipped off-site. There are waste acceptance criteria for EMWMF that are followed to characterize the waste streams and evaluate them to determine if they meet the criteria that have been established and agreed to to allow disposal in the on-site cell. Mr. Bell – You're assuming the waste acceptance criteria will continue to the new facility? Ms. Wilkerson – No, we're not assuming that. As part of the ROD for the new facility we would work with EPA and TDEC to determine what the new criteria for the new facility will be. It may be the same, but it may not be depending on the negotiations among the parties.

Ms. Hall – How many other waste management facilities in the U.S. have the same kind of waste disposal facility? Mr. Adler – Almost all of the big DOE installations that are engaged in cleanup have an on-site disposal cell or are planning one. Much like us, they take the less contaminated material and dispose on site. The more contaminated waste is shipped somewhere else. One exception is the Rocky Flats site in Colorado where they dug up everything and shipped it somewhere else.

Ms. DeLong – In characterizing waste has any effort been made to reduce the volume by recycling? Ms. Wilkerson – We address that on a case-by-case basis. There is consideration of what may be able to recycle or reuse for each project. Ms. DeLong – Was there any consideration of capping waste disposed and going vertically rather than horizontally? Ms. Wilkerson – That probably would be an insurmountable engineering challenge. Mr. Darby – The elevation of the waste pile after capping would be about 70 feet.

Mr. Paulus – Referencing page 5 of your presentation, why are there significant spikes in 2018, 2020, 2021? Ms. Wilkerson – Our lifecycle plan has our work at ETTP to be completed by the mid-20s. Those spikes represent the remaining buildings at ETTP that need to be demolished to complete the ETTP cleanup by the mid-20s.

Ms. Kasten – Has it been established how surface water and groundwater will be controlled? Ms. Wilkerson – We know quite a bit about the geology and hydrology in that area. The conceptual design includes an underdrain such as the one under EMWMF. We are in the process of initiating a phase I characterization of the proposed site to confirm much of the data we extrapolated from the existing facility and they still validate all the assumptions may in the RIFS. That will be followed by more extensive characterization before a Proposed Plan and ROD are agreed to. Ms. Kasten – Will there be a problem 1500 years from now because groundwater might penetrate? Ms. Wilkerson – The cells are designed with a very robust system of liners and caps to address that. Monitoring is done frequently so we know changes we may need to make in the future in terms of

hydrogeology. Mr. Darby – We know a lot about the area because of the characterization of EMWMF. But we will do the phase I characterization effort this year to gather further information on the proposed EMDF site. And there will be follow on studies if that is the selected location to gather additional information for the design of the facility. After closing, there will be monitoring of conditions of the site. Ms. Kasten – When you do your costs, it's cheaper initially, but if there is a problem later putting it where there is more exposure to water could be far more costly than transportation out west. Mr. Adler – That analysis has been done. These facilities are all about keeping water away from waste constituencies. Every aspect of design is to address that. Lifecycle studies have been done to determine if it would be cheaper to take everything out west and the conclusion is that it is not cheaper to ship out west. Certain things that are particularly concentrated and mobile generally are more cost-effective to take out west. The requirement for this facility is to be able to safely contain its contents in perpetuity. In addition to a design up front to prevent problems, there are regulatory obligations and financial requirements that are set up to assure that if anything were to begin failing there is an obligation to go in and fix it. The basic idea is to take a collection of waste that is scattered over the 30,000-acre ORR and put them into one area. Take the worst of it out west, but put the rest into one well-engineered facility and contain it there safely and maintain the facility to ensure it remains effective. These facilities are built with a very thick earthen cap that sheds water. Ultimately it depends on stewardship and long-term surveillance and maintenance. That takes some amount of money but not nearly as much as would take to ship it all out west.

Ms. Gawarecki – When EMWMF was built stakeholders were assured that it would be more than adequate for DOE EM to dispose of wastes on the reservation. But DOE only looked at existing planned EM waste. But then we had a program to add obsolete facilities across the reservation to EM's waste stream. Then Recovery Act projects took down K-33 and sealed the fate of EMWMF to take the rest of EM's waste. My question is, 'is this the end of it?' Is one more facility going to be enough? Has DOE looked at all of its obsolete, potentially contaminated facilities? Ms. Wilkerson – As EM as evolved a lot of facilities at ORNL and Y-12 have become excess to the needs of the site because of modernization efforts to replace a lot old buildings and infrastructure. That's what has caused the program to grow. The EMDF should be sufficient to handle that inventory. Of course, that doesn't include new things that are being built now. We believe World War II and Cold War legacy waste should be able to go in the EMDF.

Ms. Gawarecki – Periodically I've heard concerns about potential disposal of enriched uranium in the EMWMF and if there are problems with future criticality issues. I understand there has been one criticality study done for that landfill. The state did not have adequate capability to review the study. Has there been an outside review of the criticality studies for EMWMF prior to it being closed so any changes can be made? Mr. Owsley – The state did not have the expertise and it expected an independent review and comment on the criticality safety analysis. That was done by an agency within DOE but independent of Oak Ridge. Mr. Adler – While everyone involved in assuring no future criticality is associated with DOE, they are not all associated with EM. So we have Ms. Wilkerson running the landfill, and we have a separate group making sure there is no criticality issue, and we have a group independent from EM that comes from Washington, DC, to review what's being done. Mr. Owsley – And to be clear, the state has accepted the findings of the study and review.

Ms. DeLong – I have read the [Groundwater Strategy for the ORR (DOE/OR/01-2628&D1)], and if you look at that and the papers that were written they say the monitoring wells are not deep enough and it is possible for contamination to migrate in the groundwater deeper than the monitoring wells can detect. I believe those reports merit further investigation. Are you working with the people doing the groundwater study to share information? Does the study include the monitoring wells at EMWMF? Mr. Adler – There are groundwater problems on the ORR associated with past practices.

Those practices for the most part involve not sorting the waste and disposing it in unlined trenches often excavated into groundwater so there was continuous inundation in the groundwater column. That is much different from where you are building above grade and you're putting liners between the waste and the groundwater. And you have systems to draw off the water that is generated before it gets to the liner. It's a different technology so there is really no comparison. Ms. Cange – And to answer your other question, we have a team of experts in multiple fields, and they provide support to all of our projects and not just to groundwater study. The people who provide assistance on the groundwater study are available to support Ms. Wilkerson for the landfills and elsewhere on the reservation.

Mr. Paulus – If the new site has more space than we need is there a possibility of bringing in waste from other sites? Ms. Wilkerson – We have no plans to bring in anything from anywhere. Ms. Cange – We are not planning to build the disposal facility at one time. Mr. Owsley – The ROD for EMWMF is implicit that it only accepts DOE waste generated on the ORR. I'm certain the ROD for EMDF will have those same criteria applied. There is no intention by the state to accept waste from other sites.

Mr. Bell – What do you do if you detect something unacceptable coming out of the landfills? And you said there is no detectable radiation at present. What does that mean? Is it water that the state approves for consumption? Ms. Wilkerson – The EMWMF has a leachate collection system. That water is stored in the leachate storage tanks and is transported by tanker truck to ORNL and is treated at the liquid low-level system at the lab before it is discharged. That is true for all the cells at EMWMF, and for the EMDF we would have a similar system. For contact water that comes in contact with the waste pile but doesn't go through the waste, that is sampled, and if it meets the criteria, it is released. If it doesn't meet the criteria it is treated the same way as leachate. Mr. McKinney – What do you do if you start detecting very high levels that would indicate a potential failure of a liner or the leachate system? What are the steps if there are inordinately high levels of radiation being detected in EMWMF? What are the steps to mitigate? Ms. Wilkerson – If there is an indication of a liner failure, we'd have to do an investigation to determine what's causing it, and we'd implement corrective actions to address it.

Committee Reports

Finance & Process – Mr. Paulus said the committee met on November 21 and approved the board's budget of \$65,000. He said the committee will try to stay within that budget, but extra leftover funds from FY 2013 are available if needed.

The committee also discussed whether to have an on-site or off-site annual meeting this August. He said the preference is to have an off-site meeting. He asked for volunteers to help search for a suitable off-site location. The hope is to have a location identified and secured in the March-April timeframe.

The committee will meet on January 22 at 5 p.m. at the DOE Information Center.

EM & Stewardship – Ms. Staley said the committee met on November 20 and had a follow-up discussion on the presentation made to ORSSAB on November 13 on the groundwater strategy document that has been prepared for the ORR. As a result of the meeting Ms. Kasten and Ms. DeLong were charged with drafting a recommendation on an off-site quality assessment project. The draft recommendation will be considered at the committee's November 15 meeting at 6 p.m. at the DOE Information Center.

Public Outreach – Mr. McKinney said the board's Public Environmental Survey is now available. He said the ORSSAB annual report and January Advocate newsletter were published recently.

There are a number of items on the committee's work plan, including some carryovers from FY 2013 and new items for 2014. The kiosk display at the American Museum of Science and Energy is undergoing some updates.

The committee will meet on January 21 at 5:30 at the DOE Information Center.

Executive – Mr. Hemelright said at its November meeting the committee approved the board's budget, some travel requests by members, and the three EM SSAB recommendations for the board to consider at this meeting (see Other Board Business).

The committee will meet on Wednesday, January 22 at 5:30 at the DOE Information Center.

There was no report on the Center for Oak Ridge Oral History. Ms. Staley was unable to attend the last meeting.

Announcements and Other Board Business

ORSSAB will have its next meeting on Wednesday, February 12, 2014, at the DOE Information Center.

The minutes of the November 13, 2013, meeting were approved. The board did not meet in December.

The EM SSAB Chairs' Recommendation on a Graphic Representation for Legacy Waste Paths was approved (Attachment 2).

The EM SSAB Chairs' Recommendation on Funding for Cleanup of DOE Sites was approved (Attachment 3).

The EM SSAB Chairs' Recommendation on Adoption of International Atomic Energy Agency Standards for Recycling was approved (Attachment 4).

Federal Coordinator Report

Ms. Noe had no comments.

Additions to the Agenda

Mr. Bell had some comments about technetium. He said technetium receives much attention, particularly related to demolition of process buildings at ETTP. He said technetium comes only from reprocessed fuel. Very little fuel had been reprocessed at ORNL during the 1940s and none has been processed at Y-12 National Security Complex. Technetium got into the systems at K-25 and K-27 at ETTP by re-running uranium fuel that had been reprocessed elsewhere.

He said he thought very little technetium would be found at ORNL or the hydrofracture wells near the lab. He questions any findings indicating technetium in the Melton Valley area. He believes those findings to be in error.

He also commented on the question of whether uranium and plutonium in a natural setting would ever go critical. The question comes up frequently at the Hanford site where plutonium waste is stored in tanks. The questions of how much plutonium is in a tank and how much plutonium is needed to go critical are not asked. Mr. Bell said if it takes 30 kg of Pu-238 to go critical and that amount is not in a tank there is no danger of criticality. If it takes 25 kg of U-235 to go critical and it's scattered over a waste site there is no possibility of criticality.

Motions**1/8/14.1**

Mr. McKinney moved to approve the agenda. Mr. Bell seconded and the motion passed **unanimously**.

1/8/14.2

Mr. Paulus moved to approve the minutes of the November 13, 2013, meeting. Ms. Price seconded and the motion passed **unanimously**.

1/8/14.3

Mr. Paulus moved to approve the EM SSAB Chairs' Recommendation on a Graphic Representation for Legacy Waste Paths. Ms. Martin seconded and the motion passed **unanimously**.

1/8/14.4

Mr. Hicks moved to approve the EM SSAB Chairs' Recommendation on Funding for Cleanup of DOE Sites. Ms. Price seconded and the motion passed **unanimously**.

1/8/14.5

Mr. Hicks moved to approve the EM SSAB Chairs' Recommendation on Adoption of International Atomic Energy Agency Standards for Recycling. Mr. Paulus seconded and the motion passed **unanimously**.

The meeting adjourned at 7:45 p.m.

Action items

Open

None.

Attachments (4) to these minutes are available on request from the ORSSAB support office.

I certify that these minutes are an accurate account of the January 8, 2014, meeting of the Oak Ridge Site Specific Advisory Board.

Lisa Hagy, Secretary

Dave Hemelright

Dave Hemelright, Chair
Oak Ridge Site Specific Advisory Board
DH/rsg

March 13, 2014