



Many Voices Working for the Community

Oak Ridge Site Specific Advisory Board

Monthly Meeting of the Oak Ridge Site Specific Advisory Board

APPROVED February 20, 2019, Meeting Minutes

The Oak Ridge Site Specific Advisory Board (ORSSAB) held its monthly meeting on Wednesday, February 20, 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 meeting was made and is available on the board's YouTube site at www.youtube.com/user/ORSSAB/videos.

Members Present

Richard Burroughs, Secretary
Bill Clark
Martha Deaderick
Nannan Jiang

Shell Lohmann, Vice Chair
Harriett McCurdy
Marite Perez
Belinda Price
Leon Shields

Bonnie Shoemaker
Fred Swindler
John Tapp
Dennis Wilson, Chair

Members Absent

Leon Baker
David Branch
Sarah Eastburn

Eddie Holden
Brooke Pitchers
Ed Trujillo

Rudy Weigel

¹Second consecutive absence

Liaisons, Deputy Designated Federal Officer, and Alternates Present

Jay Mullis, Department of Energy (DOE), Oak Ridge Office of Environmental Management (OREM) Manager

Laura Wilkerson, DOE-OREM Deputy Manager

Dave Adler, ORSSAB Deputy Federal Designated Officer

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

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

Connie Jones, Environmental Protection Agency (EPA)

Others Present

Dennis Mayton, DOE

Dick Ketelle, Oak Ridge National Laboratory (ORNL)

Jasleen Narula, Oak Ridge High School

Shelley Kimel, ORSSAB Support Office

Sara McManamy-Johnson, ORSSAB Support Office

14 members of the public were present.

Liaison Comments

Mr. Mullis – Mr. Mullis introduced and welcomed new site-appointed ORSSAB members Nannan Jiang and Harriett McCurdy. He also introduced new OREM Deputy Manager Laura Wilkerson. Mr. Mullis noted TDEC has a new commissioner and deputy commissioner. He next gave board members a brief status update on current OREM activities, including that DOE had started tearing down the K-1037 barrier plant, and the next building would be the Centrifuge building. He said DOE is on track to meet Vision 2020 goals at the East Tennessee Technology Park (ETTP).

Ms. Jones – None.

Mr. Czartoryski – Mr. Czartoryski shared additional details about TDEC's new commissioner, David Salyers, and deputy commissioner, Greg Young. He said that both are very involved, interested, and knowledgeable about environmental interests.

Presentation

Mr. Adler discussed OREM's Groundwater Program Status (Attachment 1).

First, he discussed what OREM has already done to remediate groundwater contamination and then detailed areas where OREM still needs decisions about how to proceed with other final groundwater remediation projects.

Mr. Adler stressed that OREM has a significant groundwater program, noting that DOE has been investigating groundwater in Oak Ridge for almost four decades. He explained that groundwater problems on the reservation are associated with previous missions at various sites, with sources ranging from old burial grounds that have been infiltrated with groundwater to spills from manufacturing activities that have taken place. He said the groundwater problems in Oak Ridge are similar to those experienced at other industrial facilities, but on a larger scale commensurate with the site's size.

Mr. Adler said there are more than 2,000 wells in place on the reservation to allow DOE to thoroughly monitor where groundwater contamination is located and how groundwater behaves in the subsurface. He said DOE has an active monitoring program in place, with about 800 samples taken every year for water quality measurement. Additionally, he said, DOE takes about 1,400 water elevation measurements to better understand how water is moving, as well as additional investigations into surface water areas. He said all collected data is summarized annually in the Remediation Effectiveness Report, which is also provided to ORSSAB.

Mr. Adler said OREM plans to spend about \$13 million in 2019 just to maintain the monitoring system currently in place, and there are also tens of millions, if not hundreds of millions of dollars, invested in creating those systems. "The message I want to be clear about is that we do have some form of groundwater cleanup system in place in essentially every valley on the reservation," he said, adding that they are in place as interim actions, not final remedies.

Mr. Adler next highlighted some specific areas at Y-12 National Security Complex (Y-12), Bear Creek Valley, and ORNL where DOE is focusing groundwater remediation efforts, and he discussed some of the measures currently in place for those areas.

He said that one remedy used is intercepting, capturing, and removing water for treatment. Clean water is then discharged into surface water. Another, he said, is isolating the waste from the groundwater. This method was used at the Melton Valley Burial Grounds, the main burial grounds for ORNL from the 1940s through the early 1980s, he said. At this site, DOE lowered the water table in most areas, put

impermeable caps over the top of the waste burial grounds so water couldn't infiltrate the waste, and then collection systems surrounding the burial grounds were installed to catch any water that flows laterally through the waste. That water is then taken up and treated at a water treatment plant. "Our goal was to ensure that by the time that this valley drained through a system of creeks, and met the Clinch River, that the water quality met drinking water quality standards," he said, adding that the method has been largely effective.

Mr. Adler said that in other areas, the focus has been to excavate the source of the contamination, so there were several burial grounds around the reservation that were excavated and removed.

DOE's first priority for its Oak Ridge cleanup programs is to make sure that no members of the public are exposed to contamination, said Mr. Adler, so extra emphasis has been placed on ensuring that DOE understands and controls any contamination migrating toward offsite locations. He said the area where that was most probable was the Melton Valley Burial Grounds. Mr. Adler told board members DOE connected about 40 residences that had private water wells to public water supplies and continues to pay for those residences' water. In exchange, DOE uses those private water wells as monitoring wells. Mr. Adler noted that there was not a lot of evidence of significant groundwater problems in the area of those residences, but DOE felt it would be reasonable to provide an alternate water source to be certain. He then highlighted areas where additional monitoring wells were still planned onsite.

Mr. Adler then moved the focus of his presentation to ETTP.

He said ETTP has been the most intense focus of OREM's cleanup program for the past 15 years, adding that a photo of the site from 10 years ago would show several enormous buildings, while now it's largely empty fields. DOE's end goal for the site is to de-federalize nearly the entire land area.

Mr. Adler highlighted key areas of the ETTP site, including the Main Plant Area, the K-31/33 site, Duct Island, and the Powerhouse area, and he noted that areas where there was more intense industrial activity now have more significant groundwater issues. He then discussed some of the specific sources of current groundwater issues, and noted that the site also has some groundwater intercept systems in place.

Mr. Adler told board members the K-31/33 site's buildings are gone, the soil has been removed and replaced or cleaned up, and the property has gone through a detailed approval process with regulators and state and federal officials prior to being transferred to the private sector for reuse. He noted, however, that although final decisions on the buildings and soil were implemented, DOE does not yet have a final decision in agreement with TDEC and EPA on the groundwater status, leaving an uncertainty for potential tenants, which could be problematic in finalizing commercial reuse options for the site.

The main groundwater issue for the K-31/32 buildings and surrounding area are chromates, which are a very water soluble material used in facility water systems to prevent corrosion of pipes. However, he said, water quality samples from the many wells in the area have consistently met drinking water quality standards for the past year. DOE believes the groundwater situation is resolved at the site and plans to promote a No Further Action Decision for the site, which Mr. Adler said means it's been characterized, the problems are understood and have been addressed, and groundwater investigations at the site can end. Discussions with EPA and TDEC on a final decision will take place over the next few months.

Mr. Adler moved on to discuss the main plant area, which is approximately 300 acres. It has complicated, and perhaps some intractable, ground issues, he said. Contaminants include a plume of technetium from the old K-25 building (which was demolished in 2013) and a significant amount of halocarbon solvents. DOE has tested several treatment operations at this site, including In-Situ Thermal Treatment, and spent several million dollars on

about 100 wells for monitoring and testing. DOE's conclusion is that it would be very difficult to deal with the materials that are in the deep bedrock using thermal technology, which would continue to contaminate shallower areas. DOE continues to add wells and plans to do a feasibility study to aide future decisions.

Mr. Adler then showed attendees a short video illustrating some of the below-ground contaminant findings, which can be viewed on the SSAB website at <https://www.energy.gov/ore/download/orssab-meeting-february-20-2019>.

Mr. Adler told board members that DOE hopes to have a study available by this fall that details the options available for remediating remaining groundwater issues in the Main Plant area at ETTP. He said the feasibility study milestone is set for September 30, 2019, a proposed plan is set for February 13, 2021, and a Record of Decision is set for January 8, 2022.

After the presentation board members asked the following questions:

- Ms. Shoemaker asked to confirm the 1070-CD Burial Ground has been remediated.
 - Mr. Adler said that area contained a complex of burial grounds, and some of them have been remediated.
- Mr. Tapp asked where the excavated soil was going for disposal.
 - Mr. Adler said it was going the Environmental Management Waste Management Facility (EMWMF).
- Mr. Clark asked the depth of the monitoring wells and whether the wells were pumped and at what rate.
 - Mr. Adler said the depths varied from tens of feet to several hundreds of feet. Regarding pumping the wells, he said he wasn't certain of the flow rates, but some wells were pumped for days to ensure representative samples were obtained.
- Mr. Swindler asked to what extent is the water pumped and treated.
 - Mr. Adler said several systems pump, treat, and discharge into a surface water system. In no instance is it introduced into drinking water.
- Mr. Jiang asked what the feasibility and challenges are for bio-remediation approaches.
 - Mr. Adler said they have been used at ORNL on a halocarbon plume, there was evidence of degradation. Mr. Ketelle said in that instance, emulsified vegetable oil was injected as a treatability test into the plume, and it had a dramatic benefit decreasing trichloroethylene (TCE) for the portion of the plume that was treated. He said the longevity of the treatment has been much longer than expected. However, the challenge to that approach, Mr. Ketelle said, is delivering what you need to inject into the appropriate areas because the fractured bedrock may lead the material away from the targeted area. He said it may take several densely spaced wells to treat the target area.
- Ms. Shoemaker asked what quality criteria is used when groundwater is withdrawn, treated, and discharged to surface water. She also asked where the water is discharged to.
 - Mr. Adler said it typically is water quality criteria for discharge to surface water systems, as set by the Clean Water Act. He said the discharge location depends on where it's being discharged from. He said at ETTP, it is generally discharged to the Clinch River.
- Mr. Tapp asked whether DOE collected any data about how long it would take to treat the shallow area through In-Situ Treatment.
 - Mr. Adler said DOE characterized that area to draw conclusions about the potential effectiveness of In-Situ Treatment in that area of ETTP, but did not deploy a treatment system.
- Mr. Clark asked how close together the wells were drilled.
 - Mr. Mayton said some were as close as 10 feet to 20 feet from each other. Mr. Adler said that groundwater studies always contain an element of uncertainty because of the variety of conditions.

- Ms. Deaderick asked if there was an exchange of information among other DOE sites for lessons learned.
 - Mr. Adler said there is. In fact, he said, the person doing the feasibility study at ETTP has worked at many sites, and there are half a dozen hydrogeologists associated with this project, many of whom have worked at other sites also.

Public Comment

- Tim Griffin asked for a status update on the groundwater modeling initiatives on the site. He also asked if any of the research done as part of the Natural and Accelerated Bio-Remediation Research (NABIR) program translates to conditions at the ETTP site.
 - Mr. Ketelle said the NABIR activities at Y-12 were mainly focused on uranium sequestration, which is not among the groundwater issues at ETTP, so there is not a significant tie-in at ETTP. Regarding the groundwater modeling status, Mr. Ketelle said a regional model was completed in 2017, and for the past year DOE has been focusing on refining groundwater models for the ORNL area for planning upcoming remediation activities in ORNL and Bethel Valley.
- Sid Jones asked whether the technetium plume at the site of the former K-25 building has started to attenuate. He also asked whether DOE took into account dense, non-aqueous phased liquid (DNAPL) during calculations for the mass of volatiles at ETTP.
 - Mr. Adler said DOE does not have the data yet to say it has started to attenuate. Regarding DNAPL, Mr. Adler said DOE established that DNAPLs are present and is estimating the quantities and locations.

Motions – Scheduled board business was delayed to March due to the recent government shutdown.

Responses to Recommendations & Alternate DDFO Report

Ms. Noe said there are no current recommendations. She told members that the draft membership package has been submitted to headquarters, and staff is waiting for approval to move forward formally. She added that staff received more applicants this year than in the past two years combined. She said that was likely due to the board's newly implemented Facebook advertising.

Committee Reports

EM & Stewardship – Mr. Shields said committee members continued discussion on the efforts for sufficient waste disposal capacity, with Mr. Adler sharing information about waste shipping options, discussions from the public meetings, and public comments generated regarding EMDF.

Executive – Mr. Wilson said the Executive Committee discussed this year's annual meeting, and set a date for August 24 at Tremont Lodge in Townsend, Tennessee. He said committee members also discussed updating the ORSSAB by-laws. The key update discussed was regarding experience requirements for nomination as Chair of the board. He said those updates would be presented at the next monthly meeting and will be voted upon during a following meeting.

Additions to the Agenda & Open Discussion

- Mr. Czartoryski asked about the statuses of several wells that DOE installed on the other side of the Clinch River that are not shown on the map. He also asked if the September 30, 2019, milestone date allows enough time for DOE to obtain good pictures to help delineate the extent of the plumes at ETTP

- Mr. Adler said those wells are still in existence and still actively monitored. Regarding the milestone date, Mr. Adler said there are already 360 to 390 wells in the area to provide a good picture, and DOE plans to add about 20 more wells to refine that picture. He said the goal is to have those wells installed, or at least the sampling done, so they're available to support the study process.

Action Items

1. DOE will provide information on the CERCLA process *Closed, information distributed by email 11/19/18.*

The meeting adjourned at 7:15 p.m.

I certify that these minutes are an accurate account of the February 20, 2019, meeting of the Oak Ridge Site Specific Advisory Board.

Richard Burroughs, Secretary



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

March 13, 2019