



Many Voices Working for the Community

Oak Ridge Site Specific Advisory Board

Approved February 10, 2016 Meeting Minutes

The Oak Ridge Site Specific Advisory Board (ORSSAB) held its monthly meeting on Wednesday, February 10, 2016, 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 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

Leon Baker

Richard Burroughs

Alfreda Cook, Vice Chair

Martha Deaderick

Kennetha Eikelberg

Mike Ford

Bob Hatcher

David Hemelright, Secretary

Donald Mei

Greg Paulus

Belinda Price, Chair

Elizabeth Ross

Scott Stout

Ed Trujillo

Dennis Wilson

Members Absent

Howard Holmes

Jennifer Kasten

Mary Smalling

Wanfang Zhou

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)

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

Connie Jones, Environmental Protection Agency (EPA) Region 4 (via telephone)

Carl Froede, Environmental Protection Agency (EPA) Region 4 (via telephone)

Melyssa Noe, ORSSAB Alternate Deputy Designated Federal Officer (DDFO), Department of Energy, Oak Ridge Office of Environmental Management (DOE-OREM)

Others Present

Sophia Cui, Student Representative

Spencer Gross, ORSSAB Support Office

Ashley Huff, ORSSAB Support Office

Dennis Mayton, DOE

Pete Osborne, ORSSAB Support Office

Twelve members of the public were present.

Liaison Comments

Mr. Adler –

- In a ceremony on February 8, DOE initiated demolition of building K-27, the last remaining gaseous diffusion building at East Tennessee Technology Park (ETTP). Several board members attended. The event marks a major milestone in environmental cleanup. Once demolition is complete, ETTP will be the first site in the country to have successfully removed an entire gaseous diffusion plant complex. OREM expects operations to conclude by the end of the calendar year, possibly by October 2016.
- President Barak Obama released the FY 2017 budget and proposed \$391 million for the EM Program in Oak Ridge. For perspective, in FY 2016 the proposed budget for EM Oak Ridge was approximately \$365 million, and Congress elected to give \$470 million.
- A public hearing on the “Final Proposed Plan for Soils in Zone 1 at ETTP” has been set for February 25. The meeting will take place at the DOE Information Center. Board members are invited to attend. ORSSAB staff will provide information regarding the time of the meeting as it becomes available.

Ms. Jones – No comment.

Mr. Czartoryski – No comment.

Public Comment

None.

Presentation

Dennis Mayton, DOE Groundwater Program Project Manager, discussed the “Groundwater Strategy Status,” highlighting the challenges of managing legacy contamination and updating the board on current groundwater assessments and monitoring procedures across the Oak Ridge Reservation (ORR). Mr. Mayton’s presentation (Attachment 1) focused on two key program initiatives, Off-Site Groundwater Assessment and Regional Groundwater Modeling.

Background

A strategy for managing legacy groundwater began in 2013, initiated by a set of workshops that brought together regulators (EPA and TDEC) and DOE to combine their efforts in tackling the challenges of legacy groundwater contamination in Oak Ridge. The group identified 35 suspect plumes, or pockets of underground water, as projects for consideration. The plumes range in depths of a few feet to a thousand feet below ground. Most of them are located near the industrial areas of ETTP, Oak Ridge National Laboratory, and Y-12 National Security Complex (Y-12), as well as ORR burial grounds. The group ranked projects on a hazard ranking system, which took into account such factors as plume size, concentrations of contaminants within the plume, and the potential for a plume to migrate onto private property (Slide 2). Based on the group’s findings and project hazard rankings, DOE, EPA, and TDEC produced and agreed upon a “Groundwater Strategy” document in 2014.

DOE launched the Groundwater Program in 2014 to implement the combined strategy determined by the group. The program now funds a full-time hydrogeologist with technical support and systematically prioritizes and investigates plumes to determine what actions may be necessary. The program undertook two major projects (outlined below) in its first year: an off-site groundwater assessment and the development of a regional groundwater flow model.

Progress on Off-Site Groundwater Assessment

Objectives

The off-site groundwater assessment project identified two objectives:

- To collect, validate, and verify water quality data from off-site wells and springs.
- To collect enough data so that if any contamination was found, researchers could determine if it originated from ORR (Slide 3).

Methods & Results

In 2014 DOE agreed upon a work plan that outlined the sampling areas and identified parameters for testing. However, before implementing the plan, DOE conducted site visits and obtained access agreements from homeowners (Slide 4).

The first sampling event in spring of FY 2015 assessed 43 locations. The results, discussed in depth at the June 10, 2015, ORSSAB meeting, are summarized as follows. Three locations of the 43 sampled exceeded U.S. EPA National Primary Drinking Water Standards for lead, gross alpha and combined radium -226 and -228. However, some of the contaminants found, such as lead and radon, also occur naturally, and an increased level of lead in particular could also be attributed to collection methods, such as filtering or not filtering the water and adjusting the rate of water flow during collection. For instance, later sampling events, which used a lower rate of flow and, as a result, stirred up less sediment in wells, returned lower readings of lead levels.

Since the last ORSSAB briefing, there have been two additional sampling events. In August-September 2015, 49 locations were sampled, 34 of which were residential drinking wells and the remaining 15 were springs. None of the samples exceeded any drinking water standards; all results have been verified and validated. DOE shared the results of the second sampling event with EPA and TDEC. In keeping with the objectives of the Groundwater Strategy work plan, in collaboration with regulators DOE selected several locations to undergo further confirmation sampling. This third confirmatory sampling event concluded in February 2016. Eighteen locations were revisited, ten wells and eight springs. Results are pending, as the samples are currently undergoing analysis.

Based on the current Groundwater Strategy work plan, all sampling for the off-site groundwater assessment project is complete. However, additional sampling could occur if the evaluation of data and discussions with the regulators determine additional sampling is needed.

DOE expects to have the results of the final confirmatory sampling within a month (expected March 2016). These results will first be verified and validated, and then shared with EPA and TDEC to determine what, if any, future actions are necessary for off-site groundwater assessment. Expect a meeting of the three organizations in the spring. The Federal Facility Agreement requires a report on the assessment, which is due in November 2016.

Progress on Regional Groundwater Flow Model

Objectives

The second project undertaken by DOE's Groundwater Program was to develop a regional groundwater flow model that could be used to support groundwater decisions for EM sites and provide insights for future cleanup operations.

Methods & Results

In 2014 a Technical Advisory Group was formed with representatives from DOE, EPA, TDEC, and other industry experts. The group collected data, identified the boundaries of the model, and constructed a test case model, based on a small area within the regional boundaries (see Slide 7), before beginning work on a full scale model.

In 2015 the group completed the test case model and created the geologic framework for the regional model, using EarthVision software to render 3D visualizations of the underground geology and MODFLOW-USG software to produce the regional model. An uncalibrated model is currently in beta testing. The group expects to implement full scale calibration later in the year and to ultimately produce a draft report on the regional flow model (Slide 8).

After the presentation, board members posed the following questions:

Mr. Hatcher asked: Are you going to try to integrate groundwater data from the Clinch River site? Mr. Mayton directed the question to Lynn Sims, UCOR, who confirmed that the data collected from the Clinch River site are being considered in the regional flow model. Mr. Adler added that water quality data are shared among organizations. DOE, Tennessee Valley Authority, and the State of Tennessee all collaborate on data samples.

Ms. Cook asked for clarification of the MODFLOW graphic on (Slide 8): Can you explain what the graphic represents? Mr. Mayton said the graphic visualizes geological layers, the dipping of the bedrock, and it distinguishes the layers in underground rock formations.

Mr. Paulus asked for more information regarding the sampling events (Slide 5) in which results exceeded EPA Drinking Water Standards: By how much were the drinking water standards exceeded in the first sampling? Did these locations pass drinking water standards in the second sampling event? Ms. Sims responded, saying she did not recall exact numbers, but they were close to meeting the EPA Drinking Water Standards. Mr. Mayton responded to the follow-up question and confirmed that these locations were retested during the second sampling event and did pass inspection at that time.

Mr. Trujillo asked if the predictive modeling for regional groundwater flow includes some type of risk management or probability assessment. Could it be used to estimate, such as by percentage, the likelihood that a nearby unsampled area would contain contaminated groundwater? Mr. Mayton said that the model is currently used to predict if a plume has the potential to travel to a location and pose a contamination hazard, for instance, if a homeowner were to pump a well and essentially pull the plume to a new area.

Ms. Cook asked a follow-up question regarding the lead levels found in the first sampling event, which had returned to acceptable levels by the time of the second sampling event. In such an instance, are residents notified that lead was initially detected in the area? Mr. Adler verified that residents are notified concerning water quality. Once validated, all data are provided promptly. DOE mails letters and data packages to homeowners whose wells are tested. Ms. Sims added that DOE and TDEC work closely with the Tennessee Department of Health in notifying homeowners of these results. Mr. Czartoryski elaborated on this point, explaining that TDEC collaborates with DOE and coordinates response letters to residents, and furthermore takes care to avoid alarm when notifying residents of these results by including additional resources and contacts within the health department for residents to access more detailed information or instructions. Mr. Mayton provided an additional point to alleviate residents' concerns about lead levels. He noted that all of these samples are collected at the exit of the well before any of the water goes through filtration systems that homeowners may have in place, and which would likely filter out these contaminants.

Mr. Hemelright asked if the off-site wells have been eliminated from use by residents. Mr. Adler explained that all residents within a zone marked by DOE for groundwater concerns, sometimes referred to as the "zone of generosity," are given free city water, paid for by DOE, and instructed not to use their existing wells for drinking water.

Mr. Hatcher asked about DOE's plans to build another well off-site. Mr. Adler stated that new on- or off-site wells are potential projects. However, DOE, EPA, and TDEC are currently discussing the path forward and how best to allocate funds for the Groundwater Program. Other possibilities include further study of groundwater migration patterns or addressing on-site plume issues.

Mr. Paulus inquired about the statute of limitations on free public water for residents. Mr. Adler elaborated, saying that DOE determined any homeowners who had previously used free groundwater (from residential wells) would not see a cost increase as a result of DOE's implementation of the Groundwater Strategy. For every resident using a well for drinking water, DOE has entered into a 5-year contract to provide city water at no cost to residents. Mr. Paulus redirected, focusing on the potential for residents to draw from their existing wells, regardless of the agreement for free public water, and essentially risk migration of contaminated groundwater across the Clinch River. Mr. Adler stated that by entering into the agreement with DOE, residents forego their use of existing wells. However, these contracts are voluntary for residents, and some have elected to use wells for commercial applications, such as irrigation.

Ms. Eikelberg asked for clarification of sampling methods. What do you sample? Are you only collecting water samples or do you sample sediment as well? Mr. Mayton explained that only the water is sampled. The sampling is done by agreement with homeowners, and as such, measures are taken to preserve the integrity of the wells. Sediment sampling poses a high risk in damaging these wells. Ms. Eikelberg followed, asking if the sediment has a potential to travel to other areas. Mr. Adler stated that off-site monitoring does not currently include sediment sampling; however, some general monitoring of sediment mobilization occurs for the Clinch River. Very little migration has been observed, he added.

Ms. Price added to the discussion of groundwater sampling, providing insights on sampling techniques. One method involves collecting water from the well, filtering the sample, and analyzing only the water itself, rather than any of the fine solids or detritus from the well that may otherwise be present in the sample. Low-flow sampling, collecting water from a reduced flow rate, provides a sample with less "sediment." Ms. Price stressed, in particular, that "sediment" in this case refers to fine particulates within the well, which would be filtered out of drinking water, rather than the sediment on the ground surface. Mr. Mayton added that these wells are sealed from the surface, and thus no sediment from the ground surface is being introduced. Generally, commercial monitoring wells are built with sand packs and other filtration to keep these particulates out of the well, but because these are off-site residential wells, many of them do not have that kind of filtration system in place. Therefore, low-flow sampling is done to mitigate the lack of filtration systems standard in commercial monitoring wells.

Ms. Cook asked if the off-site wells should be plugged to reduce the risk of further contamination. Both Mr. Mayton and Mr. Adler explained that plugging wells would violate DOE's 5-year agreements with homeowners. Residents have installed these wells often at great expense. While DOE would like to prevent homeowners from pumping wells and has entered into voluntary agreements with homeowners directed toward that goal, a ban on groundwater would be more aggressive than DOE currently feels necessary. Also, the potential exists for these wells to be released for free use again if the determination is made that groundwater quality is no longer a concern. As an additional data point in favor of a moderate approach, Mr. Adler verified that all of the detections found for radionuclides with ORR signatures were below drinking water standards, so in no instance were residents drinking from a well where drinking water standards were exceeded.

Mr. Trujillo asked about the connection between groundwater sampling and regional flow modeling. How are the two projects interrelated? Mr. Adler clarified that the two projects are separate but are complementary activities and can inform future decisions concerning DOE's Groundwater Strategy.

Mr. Hemelright asked how long water agreements have been in effect with homeowners and when these would expire. Mr. Mayton responded, saying that agreements are staggered, but the first agreements were in place in 2009. DOE has renewed many of those agreements, some within the last month, so there will be at least another 5 years on agreements as of 2016.

Ms. Ross inquired about the financial impact on the sale of homes as a result of groundwater monitoring. Has residential property been stigmatized as a result? Mr. Adler said that real estate regulations require results of groundwater sampling be disclosed to potential buyers, but he observed that property continues to be bought and sold in the impacted areas. He made no guess as to the effect on property value or the sales price of homes.

Following the questions posed by the board, members of the public posed the following questions:

Mary Anne Koltowich of the Roane County Environmental Review Board asked about the general location(s) of the three wells mentioned as having exceeded EPA Drinking Water Standards during a first sampling event in FY 2015. Mr. Mayton and Mr. Adler agreed to follow up on the question and provide a general indication of the areas, as allowed with respect to privacy laws.

Committee Reports

EM & Stewardship

- A follow-up discussion addressed the January 13 ORSSAB presentation on waste disposal, combined with a tour of EM landfills at Y-12. The tour, led by Mr. Adler, was found to be immensely helpful in clarifying cleanup operations and answering questions regarding the potential for a new waste management facility.
- The committee explored the possibility of a recommendation on waste management and reached a consensus to wait until DOE has made a formal presentation on their proposal in the spring before a determination is made regarding a board recommendation.
- The next EM & Stewardship Committee meeting is scheduled for February 24. Discussion will follow on the February 10 groundwater presentation. The committee is considering the possibility of meeting in the field, and potentially touring a groundwater site, in lieu of its regular meeting. Interested parties should notify Ashley Huff at Ashley.Huff@orem.doe.gov or (865) 241-4584.

Executive

- The Nuclear Waste Technical Review Board will meet in Knoxville, Tenn. on February 17, 2016. For more information, visit <http://www.nwtrb.gov/>.
- The comment period for board members to review the K-25 Virtual Museum has closed. Mr. Hemelright has collected the comments, which will be formally presented to DOE this month.
- Planning continues for the EM SSAB Spring Chairs Meeting in April. A “Save the Date” is included in the February 10 meeting materials packet. The next agenda planning call with headquarters will be February 11. Ms. Price and Ms. Cook will participate. A draft agenda will be provided to the board. Board members are encouraged to supply comments or suggestions for topics to Ms. Price.
- The next meeting of the Executive Committee is scheduled for March 2 at 6 p.m.

Announcements and Other Board Business

- Two new board members were welcomed at the February 10 meeting, Kennetha Eikelberg and Elizabeth Ross, both of Knoxville, Tenn.
- A tour related to the Groundwater Monitoring Program is being considered for February. ORSSAB staff will provide more details as they become available. Interested board members should notify Ashley Huff at Ashley.Huff@orem.doe.gov or (865) 241-4584.
- ORSSAB's next scheduled meeting will be Wednesday, March 9, 2016, at 6 p.m. at the DOE Information Center. The topic will be "FY 2018 Budget Formulation and Prioritization Projects."
- The minutes of the January 13 meeting were approved.

Alternate DDFO Report

Ms. Noe provided an update on the planning for the EM SSAB Spring Chairs Meeting, which will be held in Oak Ridge, Tenn., at the DoubleTree Hotel on April 19-21. An event website will launch mid-February and will allow online registration as well as provide additional information. A free ORR tour highlighting EM projects is scheduled for Tuesday, April 19. A catered networking meeting (requires ticket purchase) is scheduled for Wednesday, April 20 at the Event Center on the River (formerly Riverside Grille). Board members will be able to register for either of these events on the website. ORSSAB staff will notify the board as soon as registration opens.

Motions

2/10/16.1

Mr. Paulus moved to approve the minutes of the January 13, 2016. Mr. Baker seconded and the motion passed **unanimously**.

Action Items

Open Action Items

1. Mr. Hemelright will solicit responses from absentee members. (*Carryover from 1/13/16*).
2. Mr. Mayton and Mr. Adler will supply a response to Ms. Koltowich concerning her question on the location of wells referenced in the first sampling event for the off-site groundwater assessment project.

The meeting adjourned at 7:22 p.m.

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

I certify that these minutes are an accurate account of the February 10, 2016, meeting of the Oak Ridge Site Specific Advisory Board.



Dave Hemelright, Secretary

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

DATE May 17, 2016