



Many Voices Working for the Community

Oak Ridge Site Specific Advisory Board

Monthly Meeting of the Oak Ridge Site Specific Advisory Board

Approved November 13, 2019, Meeting Minutes

The Oak Ridge Site Specific Advisory Board (ORSSAB) held its monthly meeting on Wednesday, November 13, 2019 at the DOE Information Center, 1 Science.gov Way, Oak Ridge, TN, beginning at 6 p.m. Copies of referenced meeting materials are attached to these minutes. A video of the presentation portion of the meeting was made and is available on the board's YouTube site at www.youtube.com/user/ORSSAB/videos.

Members Present

Andrea Browning
Richard Burroughs
Bill Clark
Amy Jones
Shell Lohmann, Chair

Harriett McCurdy
Marité Perez
Georgette Samaras
Leon Shields, Vice Chair
Bonnie Shoemaker,
Secretary

Fred Swindler
John Tapp
Rudy Weigel

Members Absent

Leon Baker
Brooke Pitchers

Robert Whitaker
Dennis Wilson

Noah Keebler

Liaisons, Deputy Designated Federal Officer, and Alternates Present

Dave Adler, ORSSAB Deputy Federal Designated Officer, DOE-OREM
Bill McMillan, OREM

Kristof Czartoryski, Tennessee Department of Environment and Conservation (TDEC)
Connie Jones, U.S. Environmental Protection Agency (EPA)

Others Present

Shelley Kimel, ORSSAB Support Office
Sara McManamy-Johnson, ORSSAB Support Office
Avi Duke, Oak Ridge High School Student Representative
Roger Petrie, UCOR

Nine members of the public were present.

Liaison Comments

Mr. Adler – Mr. Adler said all the Environmental Management (EM) fieldwork is still progressing well. He said centrifuge removal activity is underway, but crews will begin taking that building down soon. Additionally, crews are still in the early stages of Outfall 200. Lastly, he said the initial stages of the uranium-233 (U-233) processing campaign had just begun.

Mr. Czartoryski – None.

Ms. Connie Jones – None.

Presentation

Mr. Shields introduced Bill McMillan, presenter for the evening's topic on Molten Salt Reactor Experiment (MSRE) Updates.

Mr. McMillan began by providing members with background information about MSRE. He said the facility was built and operated at Oak Ridge National Laboratory (ORNL) in the late 1960s for the purpose of testing different types of reactor fuels in a molten salt breeder facility. Fuels tested included uranium-235 and U-233 and a smaller amount of plutonium, and fuel mixtures used fluoride salts. Residual fuel salts remain in a frozen state – in a similar density to concrete – in fuel Drain Tanks. He said the uranium was removed in the 2000s, but there is still trace plutonium; about 2.5 kilograms of uranium remains in one tank and less than that amount in the other two tanks. The radioactivity present is gamma radiation from byproducts of cesium and strontium-90. However, the main hazard, he said, is that the leftover fluoride salts constantly generate small amounts of fluorine gas.

He next gave an overview of the facility's location and layout, followed by a summary of key activities that have occurred at the facility. He said an attempted salt transfer during the 2001-2008 timeframe was unsuccessful because the salts kept solidifying.

Currently, constant generation of fluorine gas in the tanks poses the most immediate hazard at MSRE. He said those gases are pumped down every 6 months and Argon gas added. Extensive maintenance is required each time the fluorine gas is pumped down. A Reactive Gas Removal System (RGRS) is used to remove fluorine and radioactive contaminants during pumpdown cycles.

An engineering evaluation was completed to identify recommended actions to ensure reliable operations. He said this evaluation led to two key recommendations: first, design and install a continuous vent and purge system to replace the RGRS; next, address aging electrical systems.

He said the Continuous Purge System (CPS) is currently in the design phase and would replace the current RGRS. Some of the benefits of CPS include streamlining the removal of the gases, minimizing failure points, and reducing potential areas of exposure to workers since it's a passive system. The second action underway is the MSRE Layup Project to update and isolate utilities to allow MSRE to be maintained in a safe condition at reduced costs while awaiting final decontamination and decommissioning (D&D.) Utilities to be upgraded include the electrical systems and the basement sump pump. Additionally the project includes plans to upgrade the steam system to reduce dependence on the Office of Science (OSC) system, to update the fire protection system, and to add a remote monitoring system.

OREM directed a conceptual analysis of In-Situ Decommissioning (ISD), also called "entombment," to determine if the option should be further evaluated. For this analysis, OREM collaborated with subject matter experts at Savannah River National Laboratory (SRNL). He said SRNL has used ISD previously and has extensively studied the different types of grouts that can be used in entombment. DOE evaluated ISD successes at other DOE sites and ORNL and established criteria, including how implementable it would be, protection of human health and environment, cost, and land use controls if it were implemented. He said it was a successful study, and the next

step is to conduct further evaluation for a revised feasibility study in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

ISD would consist of grouting or “entombing” the contaminated below-grade structures in the reactor building. Structures above the surface would be demolished. He said OREM is currently entering the feasibility study planning process, looking at what data gaps need to be filled. The process will conclude with establishing data quality objectives for sampling results and preparing a sampling analysis plan. He said this part of the process is Phase 1, so Phase 2 of the process consists of actually going out and collecting and analyzing the data.

Mr. McMillan said the update of the feasibility study would include ISD to address options for extent of entombment, modeling of potential long-term releases, use of a “getter” material to capture fluorine, evaluating grout materials to be used, and determining what kind of monitoring systems would need to be incorporated into the plan. He said using the drain tank cells as an example, they would remove any extraneous piping that would need to be removed, then fill the whole interior area with grout and seal it all in place.

Regarding site-access controls, Mr. McMillan said there are already site-access controls planned for the reservation as a whole, so the plan would need to include any additional site-access controls necessary. Long-term surveillance and maintenance would include groundwater monitoring, air monitoring, and land-use controls.

Mr. McMillan said to do this feasibility study would take about 3 years, but he said it would have a great benefit for the cleanup mission at Oak Ridge.

After the presentation, board members asked the following questions:

- Ms. McCurdy asked how many people are currently involved with watching out for MSRE.
 - Mr. McMillan said there are about 60 to 80 staff members working in the building.
- Mr. Swindler asked for an estimate of ongoing maintenance costs and when actual D&D will be completed.
 - Mr. McMillan said MSRE’s current D&D timeline is the late 2020s or early 2030s. He said the ongoing maintenance costs are included in the overall ORNL surveillance and maintenance budget, so he’s not certain of the specific amount, but he estimates MSRE’s portion to be about \$10 million.
- Mr. Clark asked if the gases would be monitored after entombment.
 - Mr. McMillan said yes, they would be monitored until there was nothing coming out.

Questions from the Public

- Jim Rushton, project manager at MSRE from 1994 to 2000, asked how entombment would address any potential water infiltration, since the water table is relatively high at MSRE.
 - Mr. McMillan said that would be done with water-repelling grouts, similar to what is done at SRNL, noting that entombment had been done in a swamp environment in one instance at SRNL. He said he didn’t think we would have to maintain an active pump system.
- Mr. Rushton asked what fraction of the U-233 fuel has been removed.
 - Mr. McMillan said analyses indicate 98 percent has been removed from the system. He said the U-233 was captured and sent to storage at ORNL and will be part of the U-233 processing campaign.
 - Mr. Rushton said he recommended doing an accounting to ensure all the U-233 was removed.
- Mr. Czartoryski asked whether any radioactive material was left in the basement where entombment was used at SRNL.
 - Mr. McMillan said yes, the reactor core and residuals in the pumping system remained.
- Mr. Czartoryski asked what corrections could be done if there were any migrations at the grout.
 - Mr. McMillan said they would likely use some type of pumping wells. He said the likelihood of

migrations is very minimal, but it would be evaluated as part of the long-term monitoring and stewardship program.

Public Comment

Mr. Luther Gibson said notice was posted on July 2, 2019, that the EM Consolidated Business Center intended to issue a Draft Request for Proposal within 15 to 60 days for the next Oak Ridge Reservation cleanup contract. He said it has now been 134 days and that announcement remains in place as the latest public news. Shifting topics, Mr. Gibson said that at ORSSAB's monthly meeting on November 13, 2002, Connie Jones gave a presentation on environmental sampling done at the Scarboro Community. The DDFO, Mr. Gerald Boyd, said DOE is always trying to better communications with the community and offered to sponsor a workshop going into the technical details of the lifecycle baseline. Mr. Gibson noted that at the same meeting, there were seven committee reports.

Board Business/Motions

1. Ms. Lohmann asked for a motion to approve the meeting agenda.
 - a. **11/13/19.1 Motion to approve the agenda**
Motion made by Tapp and seconded by Weigel. Motion passed unanimously.
2. Ms. Lohmann presented the September 11, 2019 meeting minutes and asked for a motion to approve.
 - a. **11/3/19.2 Motion to approve September 11 meeting minutes**
Motion made by Shields and seconded by Jones. Motion passed unanimously.
3. Ms. Lohmann presented the October 9, 2019 meeting minutes and asked for a motion to approve.
 - a. **11/3/19.3 Motion to approve October 9 meeting minutes**
Motion made by Shields and seconded by Jones. Motion passed unanimously.
4. Ms. Lohmann presented Chairs Recommendation #1 on public engagement in the EM budget process.
 - a. **11/3/19.4 Motion to approve Chairs Recommendation #1 on public engagement in the EM budget process**
Motion made by Tapp and seconded Burroughs. Motion passed unanimously.

Ms. Lohmann said the main point of this recommendation was that the Chairs would like DOE to engage with the boards earlier so they may make more informed recommendations as relating to the budgets for their sites. She said the recommendation also a request for additional information related to prioritizations.
5. Ms. Lohmann presented Chairs Recommendation #2 on nuclear waste transportation.
 - a. **11/3/19.5 Motion to approve Chairs Recommendation #2 on nuclear waste transportation.**

Ms. Lohmann said in this recommendation, the Chairs would like DOE to prioritize the development of final disposition sites with the goal of reducing the interim storage footprint at each of the sites; to specify waste acceptance criteria for all forms of waste and spent nuclear fuel in a manner that will allow all sites to proceed with waste processing; and to continue to insist on a compliant budget to do those things; while also continuing to think about how to create a transportation program for safe and uneventful shipment of all waste materials. Mr. Weigel said from his understanding, DOE currently has a fairly robust transportation program, and regarding uneventful shipment, once the material is on the road there is outside DOE's control so that item

superfluous. Ms. Lohmann said she believes the intent of the item is that DOE do everything within their power – to the extent of what they can control – to assure the safe transport of materials. Ms. Shoemaker added that there was a lot of discussion, but one of the main focuses was that we need to determine final disposition so waste only needs to be moved one time and sites are not tasked with interim storage. Mr. Tapp said whether a safe transportation already exists. Ms. Lohmann said there is already a program in place, but the purpose of the item was to see how that program could be expanded.

Motion made by Jones and seconded by Shields. Motion passed unanimously.

Responses to Recommendations & Alternate DDFO Report

Ms. Noe said there are no open recommendations. She also said member Ed Trujillo resigned from the board.

Committee Reports

Executive – Ms. Lohmann said members discussed the Chairs’ recommendations and the previous EM & Stewardship meeting. She said members also began looking at potential locations for the 2020 Annual Planning Meeting, which may be held again at Tremont Lodge & Resort. The tentative date for the meeting is August 22 or 29. She said Staff updated members on new member outreach, with seven applicants for new member positions. Lastly, she said members discussed plans for a holiday social.

EM & Stewardship – Ms. Jones said groundwater project manager Dennis Mayton attended the October meeting to answer questions, and he even answered questions via email before the meeting. She said the committee opted to tentatively schedule a meeting January 22, and staff will email about the meeting status ahead of the meeting.

Additions to the Agenda & Open Discussion

None

Action Items

Open

None

Closed

None

The meeting adjourned at 7:10 p.m.

I certify that these minutes are an accurate account of the November 13, 2019, meeting of the Oak Ridge Site Specific Advisory Board.



Michelle Lohmann, Chair
Oak Ridge
Site Specific Advisory Board

2/12/2020



Bonnie Shoemaker, Secretary
Oak Ridge
Site Specific Advisory Board

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