



**Environmental Management  
Committee Meeting Minutes  
Wednesday, April 17, 5:30 p.m.  
DOE Information Center  
Office of Science and Technical Information**

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**Committee Members Present**

Alfreda Cook, Vice-chair  
Bob Hatcher, Chair  
Dave Hemelright  
Bruce Hicks  
Jennifer Kasten  
Steve Kenworthy  
David Martin  
Bob Olson

**Others Present**

Dave Adler, Department of Energy (DOE)  
Spencer Gross, ORSSAB support staff  
John Kubarewicz, RSI  
Bill McMillan, DOE  
Ken Schneider, DOE  
James Bolon, Isotek

**Absent**

Jimmy Bell  
Susan Gawarecki  
Charles Jensen  
Dick Ketelle  
Donald Mei  
Gloria Mei  
Lance Mezga  
Norman Mulvenon  
Tim Myrick  
Curt Walker  
Kevin Westervelt

**Update on the Uranium-233 Disposition Project – Bill McMillan, DOE**

Mr. McMillan briefed the committee on the status of the Uranium-233 Disposition Project at Oak Ridge National Lab (ORNL). The effort to dispose of U-233 stored in Building 3019 at ORNL has been underway for several years.

Mr. McMillan said there are several mission drivers to safely and effectively dispose of the material. Building 3019 is the oldest nuclear facility in the world and the Defense Nuclear Facilities Safety Board (DNFSB) has concerns about long-term storage of nuclear material in old facilities and has recommended that the U-233 be disposed.

Security is also a driver because the U-233 is Category I inventory of controlled nuclear material and 3019 has no enduring facility status. Mr. McMillan said 3019 and its contents drive the current security posture at ORNL.

Another mission driver is to support the Office of Science's mission at ORNL by removing U-233 so the area can be re-developed for continuing and new science projects.

The current contents in 3019 are a heterogeneous inventory of Zero Power Reactor (ZPR) Plates, Consolidated Edison Uranium Solidification Project (CEUSP) material, oxides, sodium fluoride traps containing U-233, and metals. Currently there are 963 canisters in tube vaults within heavy shielded hot cells in 3019. The original inventory was 1,008 canisters. One hundred twenty six

ZPR plates have been shipped to the Device Assembly Plant at the Nevada National Security Site (NNSS).

Mr. McMillan provided background on the history of the project. In the late 1990s after concerns by the DNFSB, DOE awarded a contract to Isotek to process the material to extract medical isotopes, eliminate the hazards of the material, and remove the material from 3019.

After there appeared to be little or no demand for the medical isotopes, Congress in 2005 directed the DOE Office of Environmental Management to dispose the inventory.

From 2007 to 2010 a baseline was prepared and approved to design and construct the processing capability to downblend and dispose of the entire inventory. Because of cost and schedule increases an alternatives analysis was conducted to re-evaluate options for disposition.

The Phase I Alternatives Analysis report in January 2011 favored a combination of direct disposition and co-processing. It includes transfer of components that could be used by other DOE programs (such as the ZPR Plates to the Device Assembly Facility), direct disposal of the CEUSP material at NNSS, and co-processing remaining inventory with other ORNL waste. It was determined that the Transuranic Waste Processing Center at ORNL could process some of the material.

Mr. McMillan said the Direct Disposition Campaign will eliminate 52 percent of the canister inventory, 77 percent of the total uranium, and 85 percent of the U-232 isotope within the inventory.

In June 2012 the ZPR Plate shipping campaign was completed and nine certified reference material canisters were transferred to ORNL in August 2012.

Mr. McMillan said the CEUSP material is currently being worked. He said it originally came from the West Valley Demonstration Project in New York in 1969 and was stored as a liquid for about 20 years. In 1986 he said it went through a solidification process that bonded the material to the canisters holding it. The canisters are stored in the tube vaults in 3019. The canisters will be removed one at a time with a Shielded Transfer Carrier and loaded into shielded shipping packages for transfer to NNSS. At NNSS the canisters will be disposed as low-level waste, covered with soil, with more low-level waste placed on top of the soil for additional security.

Mr. McMillan discussed the status of the Phase II Alternative Analysis. He said design work for this part of the project has not yet begun. He said work is being done to determine the best method for processing and to look for additional opportunities for direct disposition.

Some conclusions for the Phase II portion have been reached. Mr. McMillan said some additional programmatic demands have emerged for small quantities of the material. It's been determined to re-activate nearby Building 2026 for processing on a can-by-can basis instead of using Building 3019 for downblending. Another conclusion is that down-blended liquid can be co-processed with existing sludge in the Melton Valley Storage Tanks at ORNL.

Mr. McMillan explained there are a number of reasons for reactivating Building 2026 for this project. He said 3019 has too many restrictions for efficient operations and has no working hot cells. Building 2026 has four hot cells, plus two more to potentially enhance operations. Use of another facility other than 3019 allows for simultaneous preparation for processing. Building 2026 is across the street from 3019, which simplifies transportation and security. Building 2026 has a working connection to the ORNL liquid low-level waste system. It also has laboratory space and a good ventilation system, with a dedicated stack and carbon traps.

Mr. McMillan discussed the current timeline for operations. He said the completion of the CEUSP shipments is to be determined. Cleanout of 2026 is set to begin during FY 2013. Preparation of the building is to be done during FY 2015-19 and the processing campaign to be done during FY 2019-23. Disposal of excess depleted uranium and facility stabilization is to be done during FY 2024. Mr. McMillan noted that opportunities exist to accelerate operations, but they are contingent on budget appropriations for FY 2104 and beyond.

Mr. McMillan said there are some ongoing initiatives of the project. Plans are being finalized for shipping CEUSP material to NNSS. Alternatives are being re-evaluated for final disposal of downblended waste. Alternatives are continually evaluated for programmatic use of the remaining inventory.

Mr. Kenworthy asked how it was decided the best way to processing the material. Mr. Bolon said when the CEUSP campaign is completed there will be 559 canisters remaining; 41 of those are sodium fluoride traps that will have to be treated differently. He said the first thought was to handle batches differently, but it was determined most of it could be treated the same. Keeping quantities small would avoid criticality issues and lower security requirements. He said the current processing plans save money and provide safety.

Mr. Kenworthy said the ZPR Plate and CEUSP campaign appear complicated and asked if that is related to security. Mr. McMillan said it's a dose issue; the canisters emit about 300 rems per hour and require heavy shielding.

Mr. Kenworthy asked about the National Environmental Policy Act requirements of handling the material. Mr. Schneider said special analysis was done to make sure the requirements were covered and no additional work is needed. Mr. Adler noted that when the project is completed 3019 will be demolished under the Comprehensive Environmental Response, Compensation and Liability Act.

Mr. Hicks asked why there was no market for the medical isotopes, if it was a cost factor. Mr. Bolon said he didn't know why Congress directed the change from extraction of isotopes to disposal. Mr. Olson said at the time of the change there were a number of people who appeared before the board saying the isotopes were still needed. Mr. Adler said that while there still was some interest in using the isotopes there wasn't enough interest to participate financially to help in the extraction campaign. Mr. Olson said there were also differences of opinion in the usefulness of the isotope.

Mr. Martin asked why the U-233 wasn't shipped to Y-12 years ago. Mr. McMillan said that was one of the alternative analysis options considered. He said transportation requirements were going to drive how the material was packaged and by the time all that work was done it was more feasible to downblend.

Mr. Hatcher asked what the final cost is expected to be. Mr. McMillan said about \$600 million.

#### **Discussion of possible recommendation on presentation**

The committee viewed the presentation as an information update and determined no recommendation was needed.

#### **Report from Dan Goode on Groundwater Strategy Workshops – extra called meeting of the EM Committee on April 29**

Mr. Hatcher said Mr. Goode will be brief the committee on the progress of Groundwater Strategy Workshops that are being conducted with DOE, EPA, and the Tennessee Department of Environment and Conservation. Mr. Goode is acting as an observer of the workshop proceedings

for ORSSAB. The briefing will be held Monday, April 29 at 5:30 p.m. at the DOE Information Center.

**Discussion of possible recommendation on nickel in long-term storage on the Oak Ridge Reservation**

Mr. Hatcher said some board members had indicated interest in working on a recommendation related to nickel stored at East Tennessee Technology Park. He said staff had provided some recommendations on nickel to committee members that had been sent to DOE by the Paducah and Portsmouth SSABs. Mr. Hatcher asked if the committee wanted to pursue a recommendation on nickel.

Mr. Hicks said the discussion about nickel has been that if it is released and allowed to go on the open market, the price of nickel would drop. He asked what the recommendation would be, unless it was not to allow the nickel go on the open market. He said he was not sure about any contamination of the nickel. He said if the decision is made not to allow the nickel to go on the market, perhaps a recommendation could be made to DOE to capitalize on the supply in some way.

Mr. Martin said it would not be in the best interest if nickel were dumped on the market. He said there have been discussions about recycling nickel. He said there are some classification issues involved. Mr. Olson said there was some incentive to sell the nickel on the market, but there was also opposition to it because of slight contamination. He said it could be expensive to extract any contaminants before releasing nickel. He didn't know what it would take for DOE to re-consider the nickel issue. He thought perhaps it could be used as radioactive waste containers, since it was already slightly contaminated.

Mr. Adler said if any committee or board member wanted to do the homework on the issue and draft a recommendation that would be welcome. He said some things are happening that is motivating DOE to do something about nickel. Mr. Adler didn't say what might be prompting that. Currently there is a ban on recycling the nickel, but he said there is some thought about re-evaluating that decision. He said some believe that it does not have major value, but does incur significant surveillance and maintenance cost and it may be more cost effective simply to dispose of it. Mr. Hicks said that may be true, but it seems like recycling is more beneficial.

Ms. Cook suggested allowing Portsmouth and Paducah take the lead on the issue since those sites have the largest stocks of nickel. Mr. Martin suggested writing a letter from ORSSAB to the Portsmouth and Paducah SSABs asking what steps they are taking and offering ORSSAB support to their efforts. Ms. Cook asked if that should be done without a cost/benefit analysis being done. She asked if the topic could be brought up at the upcoming EM SSAB chairs webinar on April 25. Mr. Martin said he would try to bring the topic up during the product development portion of the webinar.

**Discussion of need of paper copies of presentations and other documents**

Mr. Hatcher noted that DOE and staff are trying to reduce the use of paper copies for presentations and other documents. He asked the committee for comments on need for paper copies at meetings. Some members like to have copies of presentations; others don't need them. Mr. Gross said the problem he encounters is not knowing exactly how many people will attend committee meetings and he doesn't know how many copies to have.

Mr. Olson suggested Mr. Gross print about two-thirds the number of people he expects to attend meetings. Those who want copies would have some available. Mr. Gross said he tries to provide pdf files of presentations prior to meetings if he has them available so people would have them if they want to print their own copies.

**Discussion of tour of Transuranic Waste Processing Center**

The work plan for May indicates a tour of the Transuranic Waste Processing Center. Mr. Hatcher asked if committee members had a preference for date and time to go on the tour. Mr. Adler suggested allowing leadership of the center to suggest dates and times for a tour. Mr. Gross will work with Karen Deacon to determine possible dates and times for a tour.

**Action Items**

None.

The meeting adjourned at 6:52 p.m.

rsg