West Valley Demonstration Project
Summary of Quarterly Public Meeting – November 20, 2013

Members of the Public and Others Present

Diane D'Arrigo, Barbara Frackiewicz, Joanne Hameister, Lee Lambert, Kathy McGoldrick, Barry Miller, Orlando Monaco, Joe Patti, Paul Sapierski, Ray Vaughan, Barbara Warren.

Agency and Contractor Participants

Department of Energy (DOE): Bryan Bower, David Cook, Marty Krentz, Moira Maloney, Sandy Szalinski, Ben Underwood, Zintars Zadins.
New York State Energy Research and Development Authority (NYSERDA): Paul Bembia, Douglas Coble, Lee Gordon, Elizabeth Lowes, Andrea Mellon, Allyson Zipp*.
CH2M Hill B&W West Valley, Inc. (CHBWV): Charles Biedermann, Dan Coyne, Cindy Dayton, Mike Furner (American DND), David Kleule, John Rendall, Bill Schaab.
Enviro Compliance Solutions Inc. (ECS): Dhananjay Rawal*, Joe Yeasted*, Presenters: Sean Bennett, Steve Marschke, Bill Thomas, Greg Tucker.
New York Department of Environmental Conservation: Patrick Concannon, Ken Martin, Tim Rice.
Nuclear Regulatory Commission: Chad Glenn*.

Introductions and Announcements

The facilitator Bill Logue welcomed all present and reviewed the meeting protocols and documents and noted that the Phase 1 Studies website was currently down[1]. He briefly reviewed the process for the formation of the Phase 1 Studies Subject Matter Expert working groups and Independent Scientific Panel (ISP), submission of recommended studies and feedback process. Lee Gordon of NYSERDA announced that feedback on the Exhumation Working Group (EXWG) recommendations should be provided to the DOE and NYSERDA by January 15. The Agencies will then provide the EXWG recommendations and any associated feedback to the ISP.

Project Update

Dan Coyne of CHBWV provided project updates for the four contract milestones.

Milestone 1 – High Level Waste (HLW) Canister Relocation & Storage System. Status: The High-Level Waste (HLW) Storage Pad has been poured and is curing. The pad dimensions are 110 x 144 ft. A fabrication pad was built in the parking area to construct the vertical storage casks. Eight are complete, and potentially more casks will be fabricated in the spring and summer. In total there will be 56 vertical storage casks, and each will contain a multipurpose canister which will hold five HLW canisters.

Milestone 2 – Shipment of Legacy Waste. Status: To date, 70,751 ft^3 of low-level legacy waste and 4,992 ft^3 of mixed Low-level Waste (LLW) have been shipped. In addition, shipment of newly generated waste under the current contract includes; 472 ft^3 of hazardous/universal waste, 114,379 ft^3 LLW, 737 ft^3 of mixed LLW and 100,000 ft^3 industrial waste from the buildings that have been demolished. There is now room in the waste buildings to bring more inside. Efforts are continuing to remove the high-dose transuranic waste from the Chemical Process Cell (CPC) in order to demolish the Main Plant Process Building (MPPB). Grouting was completed on the Melter, and is now ready to ship pending final details. Rail and truck shipment is anticipated and bids are being solicited, but shipment may not happen until next year due to the current funding situation.

[1] Documents and materials relating to the Phase 1 Studies and West Valley Demonstration Project updates are available in the public meetings section of www.wv.doe.gov.
* Participated by telephone.

Milestone 3 – Demolition and removal of the MPPB and the Vitrification Facility. Status: Efforts are currently underway in preparing the MPPB for decommissioning and demolition, including completion of tank sampling in the Liquid Waste Cell, characterization of high hazards areas, asbestos abatement in the 3rd floor office area, and continuing deactivation of the Upper Warm Aisle and Hot Cells. In the Vitrification Facility, efforts continue to clean out equipment, materials and debris from the Vit Cell.

Milestone 4 – Complete all work described in the Performance Work Statement. Status: Continued deactivation, demolition and waste load out of the Vitrification Diesel Fuel Oil Tank Storage Pad, New Cooling Tower, Vit Hill Trailers, and Expanded Environmental Lab.

Questions

Questions were raised regarding the Vertical Storage Casks. Mr. Coyne explained that the anticipated contact dose from the casks will be less than 5 mR per hour. They are built for a 50-year lifespan. In response to a question regarding ventilation of the casks, Mr. Coyne explained that these casks differ from those for spent nuclear fuel (SNF) in that they do not have passive ventilation. The reason for that is that unlike SNF, the vitrified HLW in these casks will not have decay heat, and therefore do not need that kind of ventilation.

An additional question was asked regarding the rail shipment of the Melter. Mr. Coyne explained that there are currently two pinch points (points where the load is too large to pass by rail) preventing shipment directly from the site. Therefore, the Melter will be trucked to a rail site (potentially West Seneca) for shipment to a disposal facility.

Erosion Working Group – Uncertainty Considerations & Prioritization of Recommended Phase 1 Erosion Studies

Erosion Working Group Members Dr. Sean Bennett and Dr. Greg Tucker presented an update on the latest report of the Erosion Working Group (EWG). Following the July 2012 submission of the EWG study recommendations to the ISP, the EWG was asked in January 2013 to look at the issue of uncertainty in erosion predictions and to make recommendations on how to reduce uncertainties and to prioritize the EWG's recommended studies.

Dr. Tucker explained that six sources of uncertainty were identified: experimental, estimation, temporal, theoretical, geologic, and cognitive. Further, the EWG identified that the parameters used within erosion models can be characterized in terms of both uncertainty and sensitivity. Uncertainty refers to the range of possible or likely values, and sensitivity refers to how much the parameter matters. For some parameters, smaller degrees of uncertainty will have a greater impact on model results as a result of the parameters higher degree of sensitivity. Dr. Bennett then explained the uncertainty evaluation methodology, through which erosion model parameters and inputs were ranked in terms of sensitivity and current uncertainty. Parameters and inputs were evaluated for low, moderate, or high uncertainty based on the degree to which values are known or the degree to which possible values may vary. The degree of uncertainty then corresponds to a ranking of weak, linear, or strong sensitivity. From there, the EWG identified parameters that require greater attention as they had the greatest potential for uncertainty reduction.

Dr. Bennett continued to explain that the EWG then revisited their previously recommended studies to prioritize activities that would result in the most efficient use of resources. Under the focus of study areas 1 (terrain analysis) and 2 (age dating), the EWG identified three tasks for additional study in order to reduce uncertainty:

1. Relate postglacial climate events to stratigraphy or erosion and deposition, and their discrete history with time;
2. Calculate average rates of erosion since the last glacial maximum; and
3. Construct a geologic and geomorphic history of the WVDP.

For study area 3 (recent erosion and deposition processes), the EWG recommends focusing data collection on refining estimates and quantifying uncertainty for parameters related to material resistance to erosion and transport;

precipitation; morphology; and soil hydrologic properties. They did not recommend changes to study area 4 (modeling), but noted that it would make use of the refined data from the other study areas.

Questions

Several questions were raised following the presentation. In response to a question regarding worst-case scenarios for erosion during which several recent events in Western New York and Colorado were cited, Dr. Tucker explained the EWG is interested in examining a spectrum of future scenarios, including worst-case. Questions were also raised regarding climate change data predictions and data sources. Dr. Tucker explained that this is a level of detail not approached by the EWG yet, but that their efforts would seek to include data on climate change and precipitation. Dr. Bennett confirmed for those inquiring that the EWG is aware of the need for precipitation data, and specifically data that accurately reflects the region encompassing the site. In response to another question Dr. Bennett noted that they hope to look at depth to bedrock as it will impact erodibility under a variety of hydrologic conditions.

An additional question was asked regarding the degree to which judgments were made in assessing parameter uncertainties. Dr. Bennett confirmed that some professional judgment was used, but that the EWG examined all parameters in a model as well as multiple models, and then aggregated a score to arrive at their evaluation of uncertainty and sensitivity. Further questions regarding models to be used were raised and Dr. Tucker responded that looking at and deciding on a model(s) would be part of further discussions, and has not been decided yet. Future reports and findings of the EWG will be made available to the public.

Exhumation Working Group – Recommended Phase 1 Exhumation Studies

Exhumation Working Group members Bill Thomas and Steve Marschke presented the recommendations for Phase 1 Exhumation Studies from the Exhumation Working Group (EXWG). The EXWG consists of six members: Dr. Frank Parker, Dr. Ralph Wild, Mr. Jay Pride, Mr. Michael Travaglini, Mr. Bill Thomas, and Mr. Steve Marschke. Dr. Joseph Yeasted serves as Study Manager for the EXWG on behalf of ECS. The mission of the EXWG is to develop and execute studies that address key issues and related uncertainties pertaining to Phase 1 Potential Areas of Study, including:

- Alternate approaches for, costs of, and risks associated with complete waste and tank exhumation
- Viability, cost, and benefit of partial exhumation of waste and removal of contamination
- Exhumation uncertainties and benefit of pilot exhumation activities

The work of the EXWG was focused by seven topical questions prepared by DOE and NYSERDA related to the potential areas of study. From these questions, the EXWG recommends three studies that will help answer each of these questions.

Study 1 – Waste Inventory Analysis – updating the radionuclide inventories for the Nuclear Regulatory Commission-Licensed Disposal Area (NDA), State-Licensed Disposal Area (SDA) and Waste Tank Farm (WTF), and processing waste inventories. The last radionuclide inventories were completed between 2000-2005, and the EXWG recommends updating inventories to a new reference year (2020) and for 30, 60, 90, and 120 years thereafter. The updating is needed to account for radioactive decay with time. Regarding the waste inventories, the work would include quantifying the inventory of a given radionuclide that could be removed in a range of exhumation scenarios, and to determine the percentage of total waste inventory removed under a range of partial exhumation scenarios. This will inform decisions regarding various removal scenarios because the volumes and types radionuclides will be better known, as will the associated protection requirements and costs of the removal options.

Study 2 – Evaluation of Methods to Reduce Uncertainty – evaluating the approaches that could be implemented to better understand and reduce the level of uncertainty associated with radionuclide inventories and locations of waste within the NDA, SDA and WTF. Work components would include evaluating how conducive the SDA and NDA waste

inventory process is to a statistical evaluation of uncertainty; evaluating the results from previous radiation studies completed at the site; and evaluating the field characterization methods and technologies. There was a discussion of both intrusive and non-intrusive methods that may be used in the disposal areas.

Study 3 – Review of Precedent Projects – evaluating the experiences in exhuming or treating waste disposal areas and tanks at DOE, commercial, and international sites to determine state-of-practice and state-of-the-art in exhumation and treatment technologies; methods for worker, public and environmental protection; lessons learned; and key uncertainties and how they were addressed. Work components would include a literature search and, if warranted, interviews with personnel directly involved in selective projects.

Questions

A question was raised regarding structural integrity of the Waste Tank Farm, and whether that would be examined prior to looking at other sites. Mr. Thomas responded that these may be looked at in parallel, and that changes that have occurred since 2005 would need to be taken into account. Paul Bembia of NYSERDA also responded that the agencies are aware of the need to address the longevity of the tanks and are keeping that in mind as they make decisions. Another question was asked regarding the need to build facilities for exhumation. Mr. Marschke confirmed that as there are no facilities over the tanks, a facility may need to be built in order to conduct exhumation. Part of the studies will be to look at whether exhumation of the tanks and NDA and SDA wastes can be performed safely with shields and controls different from the robust concrete structures described in the FEIS. In response to another question, Mr. Marschke confirmed that options such as a mobile exhumation facility will be considered in the studies. A question was asked regarding the use of a tunneling approach for exhuming the SDA and NDA. Mr. Marschke indicated that tunneling would be considered.

A question was asked about a paper by Edward Esko in 2012 regarding Low Energy Nuclear Reactions (LENR) in order to reduce the concentration of uranium and plutonium in the disposal areas. A copy of the paper was provided by a member of the public.[2] The EXWG agreed to review the article and consider the technology as it may apply to their studies.

A member of the public noted that Ralph Wild was not credited as the author of the most recent waste inventory reports for the NDA, published in 2000, and SDA, published in 2002, and asked if Dr. Wild had authored or assisted in the earlier waste inventory reports. This member of the public strongly disagreed with the EXWG conclusion that these inventory reports were the most accurate, and asked that the EXWG review the previous waste inventory reports and assign probabilities for the total waste inventory based on all of the waste inventory reports generated to date. Similar comments were also provided during the public comment period on the Final Environmental Impact Statement (see public comments 110,111 and 112), and the example given noted the differences in the Plutonium-239 inventories in several studies. The EXWG agreed to review and consider the earlier inventory reports in the context of their proposed studies. Another individual stated the best use of resources would be to exhume all wastes. A member of the public suggested that both the EWG and EXWG address unexpected risk, such as through erosion, through the use of moving averages.

Topics for Next QPM

Before the conclusion of the meeting, Mr. Logue asked for suggestions of topics for future QPMs. Suggestions were received, including presentation of the contamination of the northeast corner of the HLW pad, information regarding the controlled release of contaminated water into Buttermilk Creek, and clarification regarding the Phase 1 Studies

[2] Esko, E. (2012). LENR-Induced Transmutation of Nuclear Waste. *Infinite Energy*, Issue 104, pages 9-15.

work and timeline. A request was made that the public be informed prior to any controlled release into Buttermilk Creek.

Documents Distributed

Document Description	Generated by; Date
Meeting Agenda	ECS; 11/20/13
CHBWV Presentation – Project Update	CHBWV; 11/20/13
Erosion Working Group Presentation	ECS; 11/20/13
Exhumation Working Group Presentation	ECS; 11/20/13