



FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
TANK WASTE COMMITTEE**

February 7, 2018

Richland, WA

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This is only a summary of issues and actions discussed at this meeting. It may not represent the fullness of represented ideas or opinions, and it should not be used as a substitute for actual public involvement or public comment on any particular topic unless specifically identified as such.

Opening

Bob Suyama, Chair of the Tank Waste Committee (TWC) welcomed committee members and introductions were made. The January meeting minutes were approved by consensus.

Announcements

There were no announcements made.

Waste Treatment & Immobilization Plant (WTP) Pretreatment Technical Issues

Agency Presentation

Bob Suyama introduced the topic of WTP Technical Issues and Langdon Holton, Senior Technical Authority for WTP with the U.S. Department of Energy-Office of River Protection (ORP) provided members an update on the WTP Technical Issues.

Key points from Langdon's presentation:

- In August 2012, ORP slowed down project activities at both the High-Level Waste (HLW) and Pretreatment (PT) facilities, due to the significance of management issues and other technical issues. In discussion with the State of Washington, ORP agreed to focus first on HLW Facility. The technical and management issues were sufficiently resolved to return the HLW facility to conditional production engineering by August 2014. After this, ORP's focus was the PT Facility. The PT Facility had more technical issues compared to HLW.
- In September 2012, former Secretary of Energy Steven Chu established a team to review the PT facility. At that time, five primary issues had been identified with the PT Facility. Another three were added after, for a total of eight primary issues. The PT Facility technical issue resolution is anticipating completion of work in the Spring of 2018.
- In December 2016, three of the eight technical issues were identified as "resolved," which are T1 Hydrogen Gas Events in Vessels, T2 Criticality in Pulse-Jet Mixer (PJM) Vessels, and T3 Hydrogen in Piping and Ancillary Vessels.
- For T4, the design of the pulse jet mixed vessels that would contain solids will be changed. A new design was established, which was tested at full scale to qualify the design. This new vessel design would replace 5 designs in the current baseline vessel design.
- There are 27 installed PJM mixed vessels within PT. Engineering analysis methods are being validated to confirm the adequacy of the mixing performance for these vessels and verify their designs. This work still remains to be complete.
- The T5 Erosion and Corrosion has been a long-standing issue for the project. There are installation holds on vessels, which were originally identified in 2006. Washington State Department of Ecology (Ecology) was concerned of the adequacy of some of the vessels and the ability to maintain integrity over their operation of life due to material degradation due to erosion and the selection of materials of construction.

- In November 2017, a design report was issued for T6 Design Redundancy and In-Service Inspection. This technical issue is identified as “resolved.” One of the requirements in the basis of design that was established in the 2004 timeframe for piping components that are in hard to reach areas, is that they needed to have demonstrated 40 years of operational life or be redundant. The design of the vessels and the correspondent piping was changed to further assure the achievement of a 40-year operational life.
- For T7, the installed vessels were ordered and installed in the 2002 or 2004 timeframe. At the time, the original structural analysis was not complete. A plan is being established to complete the structural re-analysis of the vessels.
- The T8 Facility Ventilation and Process Offgas Treatment design report for the HVAC system was issued in November 2016 and the process ventilation system report was complete in September 2017. This technical issue is identified as “resolved.”
- Out of the eight identified technical issues, five are identified as “resolved.” Early on, ORP recognized that design changes and PT flowsheet changes needed to be made. The PT flowsheet changes included the removal of oxidative leaching process, reduced aluminum leaching temperature, and removal of cesium concentration evaporator. The testing of the Standard High-Solids Vessel (SHSV) at full scale was one of the most important strategic elements, as well as updating the nuclear safety analysis. All of these strategic elements have been completed for the technical issue resolution.
- When a technical issue is identified as “resolved,” it means that the testing and/or analysis have been completed and there is sufficient confidence to proceed with the design and finalization of the safety basis analysis. Closure of the issue does not occur until the design and safety basis analysis are complete and approved.
- Early on it was concluded that replacement and design of the certain PJM mixed vessels was needed to be made in order for the issues to be resolved. Currently there are 27 low-solids vessels installed. Upon evaluation, it has been concluded that eight vessel design will be replaced with 16 smaller sized vessels. The conceptual design layout of the revised PT Facility shows the redesigned layout for the Black Cell SHSV. The design concept derived from previous testing and evaluations.
- Based on the way the technology works the PJM is only effective in mixing the fluid on the bottom third of the vessel. In order to get complete mixing in vessels containing high solids concentrations, the spargers are used to help promote and continue mixing in the upper region of the vessel.
- A prototype of SHSV was built and the test took place in dynamically similar conditions of the plant. PJM control testing began in December 2016. Mixing testing completed in September 2017.

Agency Perspective

Dan McDonald, Ecology gave his perspective on the WTP technical issues resolution. Dan stated that a few years ago Ecology reviewed many of the calculations that DOE had done. Ecology and DOE both found that the margin calculations were so slim they were not credible. This is part of what informed the change. A very simplistic view of erosion and corrosion that may help people understand the difference between the two are that corrosion is chemical, erosion is mechanical. Erosion and Corrosion are problematic on their own but when they are together the problem can be more so. The two of those exacerbate each other. The problem and effects of those happen more quickly than one or the other happening on their own. Part of what is occurring is taking a look at how the mitigator is eliminating those particular effects. Sodium is a corrosion inhibitor and was added to the tanks in great amounts over the years. This is part of the chemistry that needs to be considered as we move forward with erosion and corrosion.

Committee Member Questions (Q), Responses (R), and Comments (C):

Note: This section reflects individual questions, comments, and agency responses.

Q: "What's does the PJM and spargers do?"

R: "The PJM draws fluid into the body itself and the spargers pushes the fluid down."

Q: "It's my recollection that there are only 10 tanks with plutonium oxide?"

R: "Yes, that is correct."

Q: "What does a micron of plutonium weigh?"

R: "It's not very much, plutonium oxide is about 12 grams/cubic centimeters."

Q: "I hear sludging, wet sand, etc. could cause the pipes to plug. Is there something in place that will break down the particles more so the pipes don't plug up?"

R: "A lot of the particles are easily sheared. The concerns that we have with plugging are with the pipe flow and things settling. Those settled particles could lead to potential flooding."

C: "I really want to thank you for your candidness and openness with your presentation and the definition of your version of resolution versus closer."

C: "I am aware that this new administration doesn't have PT as one of the funding priorities, which is concerning."

R: "I appreciate that, I believe you will be having Mr. Vance in here."

Q: "I want to ensure that I have a better understanding of something you said about the PJMs. What I heard and correct me if I'm wrong, originally PJMs were considered safety class, but since it could not be moved, they are not safety class now? Did I understand that correctly?"

R: “You are correct. We concluded when we looked at the instrumentation that would be used to the control the PJM, we would not be able to demonstrate that the PJM operated reliably. This influenced our requirement to change the design.”

Question & Answer Session with Brian Vance, Manager for ORP

Bob Suyama introduced Brian Vance, Manager for ORP. Introduction were made and Brian thanked members for the opportunity to speak at the TWC meeting. Brian started the discussion with a brief introduction before the Question and Answer session.

Brian has been with ORP in the role of the Manager for three months. He previously worked with CHPRC for 16 months on the 300-296 Remote Soil Excavation Project. Prior to his role at CHPRC, Brian worked for Westinghouse in Pittsburg, Pennsylvania as a Product Manager for the AP1000 Nuclear Power Plant was being built. Brian’s role was to identify ways to deliver a major capital project, such as a new nuclear plant more safely, efficiently and timely. Brian spent about 6 months of his three years with Westinghouse, based in the United Kingdom (UK) as the Home Office Director for a developmental project. He worked with regulators in the UK with their process for design approvals. Before Westinghouse, Brian worked for AREVA in Lynchburg, Virginia in various capacities, including his role as a Deputy Director for the design certification project before taking on the role of Licensing Director. Brian was in the Navy for 25 years as a nuclear trained submarine officer. Brian received a Masters Degree in Business from the University of North Carolina.

Brian took the management opportunity with ORP, as he recognized it was a hard job worth doing and a great opportunity. Brian spent some time in Washington DC at DOE Headquarters, as well as visited Capitol Hill and met with both the committees and delegation members.

Brian met with Susan Leckband, Chair of the Hanford Advisory Board (Board) for more perspective on the Board. He wanted to also meet with members to answer any questions and discuss the direction ORP is going.

Brian stated that there are some key areas of focus that he recognized when he took on the management position with ORP. One being the transition from a long-term construction project into an operations organization as ORP prepares for the transition of the Low-Activity Waste (LAW) facility in conjunction with Direct Feed Low-Activity Waste (DFLAW). He recognizes the fundamental shift in the mindset and how business is done overall, which will need to be addressed with the staff and contractors, as ORP moves forward. Brian expressed that it’s not something that’s trivial, as he has experienced something similar during his time in the Navy. Brian has communicated his focus for transition with his team and will be making some organizational movements within ORP to better align in order to support the mission. He stated that with the support from Brian Reilly, Bechtel and Rick Holmes, Waste Treatment Completion Co. (WTCC), both of whom have commissioning experience, will be helpful with the transition. He also expressed another area of focus, which is the working relationship with Ecology and the delegations. This is to ensure ORP is working with key stakeholders, as well as tribal nations so there is a better understanding in the direction ORP is going. He stated that it’s important for ORP to remain as transparent as can be in order to keep the community involved and gain community support. ORP certainly recognizes the HAB in this, as well. ORP is also looking at their role as an owner of an operating facility and the customer to the contractors. ORP will be focusing heavily on ensuring that not

only will they be looking at the contracts, but also shifting to an accountability model with contractors to ensure they are working more effectively together.

Brian stated that Hanford is a complex place and the work ORP is doing is very complex, as it's not typical to have a 17-year construction project. There has been a lot of progress and the waste treatment plant is in throws of transition to start up commissioning. Brian expressed that he is impressed with the team and contractors with the knowledge and experience they have, as well as the progress.

Brian stated that he is working closely with Doug Shoop, Manager for DOE-Richland Operations Office (RL) to ensure both RL and ORP are cohesive as a team. Brian recognizes that RL and ORP share the same DOE Hanford Mission and wants to ensure any internal challenges don't slow down the efforts. ORP is also working with Ecology on an integrated priority list to ensure the work is prioritized going forward.

Committee Member Questions (Q), Responses (R), and Comments (C):

Note: This section reflects individual questions, comments, and agency responses.

Q: "Last summer there was a lot of talk about RL/ORP merger and that ORP was going to sunset. Are you aware of this, if so what's happening with this?"

R: "Doug and I are looking at areas where we can optimize resources and work better together. There are areas that we are thinking about how they can be merged in order to be most effective as a team. It is true that there is a sunset opportunity at the end of 2019, but our preliminary discussions with DOE HQ have been focused on the timing. We don't want to be in a position where we take our eye off the ball as were trying to reorganize. I think it's going to go beyond 2019 and I've already made a case to wait until vitrification starts plant operations, then reassess at that point."

Q: "There was a lot of discussion on the VIT plant, but other part of your job is the tank waste issues. I noticed in the newspaper there was an article about potential releases of vapor. What can you tell us about these kinds of things going on?"

R: "I think as you recognize the work force has been trained correctly to be very sensitive to the potential exposure to vapors. If there is anything they smell that is out of the ordinary, we go right into the process of ensuring we remove them from the area and take samples to make sure that we can safely progress with operations. We have continued to look at all the data and have put a significant amount of effort to ensure that we have a good characterization. Once we go in and start to stimulate the tanks we have to be hypervigilant."

Q: "In years past there were Facility Representatives out in the field all the time, but I haven't seen them out there since we have been on the Self Contained Breathing Apparatus (SCBA). It feels like they don't care about the work force or they don't want to go on SCBAs. I personally feel more comfortable when we have a Facility Representative out in the field because I know stuff is being done right. How many are on staff now for tank farms and will we see more of them now that you are in charge?"

R: "I appreciate your feedback, as we haven't changed the number of Facility Representatives on staff. I'm surprised the visibility has gone down. That's good feedback for me to have and I will take it back for review. One of the things we are looking at doing is combining the Facility Representatives between

tanks farms and the waste treatment plant into one team. This is part of the focus on the transition to operations, as we will need to having a more seamless Facility Representative representation on both sides.”

Committee Business

Committee Leadership Nominations

Bob Suyama was nominated for Chair of the TWC committee. Steve Wiegman was nominated as Vice Chair of the TWC committee. Both nominees agreed to serve another term as leadership for the TWC committee. The leadership selections were approved by consensus.

3-Month Work Plan

The TWC member discussed the 3-month work plan.

There will be no committee call in February.

Other items

TWC FY2020 Budget Priorities:

- Infrastructure (Issues and Maintenance)
- Safe Retrieval of Tank Waste
- Defining the Process of Closure of Single-Shell Tanks (SSTs)
- Construction of DFLAW and Related Facilities
- Funding for New Tank Waste and Expediting the Permitting Process
- Funding for New Tank Waste Storage Capacity (ref. advice #284)
- Continued Funding for Vapor Engineered Exposure Controls (Worker Safety)
- Continued Funding for Design and Construction for the VIT Plant

Open Forum

Bob Suyama introduced the topic of open forum. Bob explained to TWC members that the idea behind the open forums is that it provides an opportunity for committee members to bring topics for discussion that may not be on the agenda.

Bob Suyama discussed a list of suggested topics that may be of some interest for future HAB discussions.

- Code of Record
- Alternative Tank Waste Treatment

- Vadose zone monitoring is not being done anymore

System Plan 8 Proposed Advice Discussion

Bob Suyama provided committee members a brief synopsis of the System Plan 8 proposed advice and the process in which the Issue Manager Team went through to get to the version they have for review. Bob noted that the Issue Manager Team had two issue manager calls on January 24, 2018 and February 1, 2018 to discuss the draft edits for the proposed advice.

Jeff Burright, Oregon Department of Energy (ODOE) and TWC committee member, talked through the draft advice and how the Issue Manager Team progressed to the current version for review. Jeff stated that the advice initially had 24 advice points, but through multiple discussions via email between the Issue Managers, they minimized the advice points down to nine. The advice points are divided into three different categories, which are HAB Participation, Equipment/Facility Vulnerability, and Definition of Risk Framework. Jeff assured the members that even though the advice points were less than the initial version, the advice points that were removed, they are saved to ensure the hard work is not lost. Jeff communicated that the focus for the TWC committee with this piece of advice is to make a decision about what advice points and information should go into the final piece of advice.

Susan Leckband advised the TWC members that when drafting the advice, to not ask to be involved with the negotiations between the Tri-Party Agreement (TPA) Agencies. Those negotiations are not for the HAB and does not follow the HAB process. She advised the committee to tread carefully in what is asked for in the advice.

Bob opened the discussion for the members to review the latest draft of the proposed advice and provide additional comments. Committee members engaged with each other while giving input on various aspects of the draft advice. The draft advice went through a vigorous editing process live during the meeting.

Next Steps: There will be an issue manager call on February 14, 2018 at 10:30 a.m.

Attachments

Attachment 1: Status of Waste Treatment & Immobilization Plant Pretreatment Technical Issues

Attendees

Board Members and Alternates:

Phil Lemley	Susan Leckband	Helen Wheatley
Jeff Burright	Dave Rowland	Rod Skeen
Bob Suyama	Paige Knight	Tony Umek
Rebecca Holland	Pam Larsen	Richard Bloom
Tom Carpenter	Vince Panesko (Phone)	Liz Mattson (Phone)
Margery Swint	Ken Niles, (Phone)	Dan Solitz (Phone)

Others:

Dieter Bohrmann, North Wind/DOE-ORP (phone)	Echo Dahl, North Wind/DOE-ORP	Dan McDonald, Ecology
Ginger Wireman, Ecology	Langdon Holton, DOE-ORP	Mark McKenna, WRPS
Dawn MacDonald, DOE-ORP	Brian Vance, DOE-ORP	Lindsay Strasser, ProSidian
Melissa Amaro, ProSidian	Annette Carey	