FINAL MEETING SUMMARY

COMMITTEE OF THE WHOLE
(DIRECT FEED LOW-ACTIVITY WASTE)

April 10, 2018
Richland, WA

Topics in this Meeting Summary

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

Susan Leckband, Washington Leagues of Women Voters and Hanford Advisory Board (HAB, Board) Chair welcomed Board Members, Agency Representatives, and other interested parties. Introductions were made.

Susan stated the Committee of the Whole (COTW) is a meeting which is conducted similarly to a committee meeting but focuses on one complex topic.

Announcements

Gary Karnofski, Tri-Cities Industrial Development Council and Budget & Contracts Committee (BCC) Chair informed members that long-time HAB Member, Russell Jim of the Yakama Nation has passed away.

Direct Feed Low-Activity Waste (DFLAW) Initiative

Agency Presentation

Bob Suyama, Benton County and Tank Waste Committee (TWC) Chair provided an overview of the agenda and a brief synopsis of the Direct Feed Low-Activity Waste (DFLAW) initiative.

Brian Vance, Manager for U.S. Department of Energy (DOE), Office of River Protection (ORP) thanked the HAB for the opportunity to discuss the DFLAW project and the progress for moving forward. Brian introduced members of the ORP Management Team; Rob Hastings, Assistant Manager for Technical and Regulatory Support; Delmar Noyes, Waste Treatment and Immobilization Plant (WTP) Startup and Commissioning Integration; Tom Fletcher, Assistant Manager for WTP; and Glen Trenchard, Assistant Manager for Tank Farms Project.

Brian noted the following key points from ORP's presentation[1]:

- ORP's mission is to safely and effectively treat the waste from tank farms and ensure WTP and operations are in place to support that mission, which is considered the key area of that mission. ORP's mission statement has been changed over the last few months to focus on the delivery of WTP and the treatment of waste to final disposition.

- ORP's priorities are defined by the consent decree and the Tri-Party Agreement (TPA). ORP continues to work through the priorities appropriately within the funding that has been granted.

- Slide three of the presentation shows a map of layout of the Hanford Site. This map reflects the enormity of the challenge with the geographic distances between the tank farm location and the proximity of WTP. None of the challenges are insurmountable, but there is a lot of work that will need to be done in order to reduce risks and create success-based projects to be successful.

[1] Attachment 1: DFLAW and the Road to Near-Term Tank Waste Treatment

- From a project perspective, there is a challenge to managing 152 feet of saltcake, supernate, and sludge, but the challenge is not insurmountable. A typical Double-Shell Tank (DST) has about 1-million-gallon capacity.

- The Balance of Facilities (BOF) are all of the facilities surrounding the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility, Low-Activity Waste (LAW) Facility, and the Analytical Laboratory. The BOF consists of 16-20 facilities, which are necessary to operate and support the LAW Facility. Once the LAW Facility is operational with Direct Feed, WTP will be 75% operational. The LAW Facility and the LAB are nearing completion. The Direct Feed plan is currently moving forward.

- With the technical issues related to HLW being resolved, the focus has now shifted to planning for reduced risks that would affect milestones in the 2030 timeframe. ORP did receive some budget authority for FY2018 for HLW and PT, which will be used over 2018 through 2020 to move forward with these projects within the funding restraints. The focus for PT will be to resolved the remaining technical issues.

- It is important for ORP to focus on a way to move the project forward to start treating waste at Hanford in consideration of the challenges we have seen over the last several years at HLW and PT. The DFLAW is the best approach to effectively creating LAW Feed without having to rely on the completion of the PT Facility. There are a number of advantages to this approach, as it allows for the waste treatment. This allows for the WTP to be operational at 75%. The DFLAW approach addresses liquids in the most mobile form and creates space in DSTs. The cultural change that will need to be made is no less important, not only for ORP, but for Bechtel and for future contractors. All of those transitions will need to be executed well for this major transition to be successful. The tank farms will transition from an oversight and operation perspective.

- Slide 8 of the presentation shows a diagram of the DFLAW overview, which are multiple facilities that tie together to form the LAW PT System (LAWPS).

    - For AP Farm, ORP received a proposal from Washington River Protection Solutions (WRPS) that identifies the upgrades to the AP Farm, which will need to be in place to support the Tank Side Cesium Removal (TSCR) capability. There will be hose/hose transfer lines and pumps that will installed into the AP Farm, which will connect to the TSCR location. These connections will be located between tanks two and six in order to move the feed into the source tanks for the LAW Facility. There will also be pipeline modifications from tank farms to the interface point at WTP. These are considered tank farm upgrades in order to use four AP Farm tanks to support and store the feed until the LAW Facility is ready.

    - For TSCR, WRPS received three bids for the TSCR design and construction. WRPS is currently reviewing these bids and the source selection process is being observed by ORP. WRPS is required to communicate with ORP before the contract award, in which ORP will evaluate the award, process, and the awardee. TSCR is similar to the Tank Closure Cesium Removal (TCCR) system that is going to Savannah River Site (SRS) and

uses technology that is currently being used at Fukushima Daiichi Nuclear Power Plant (Fukushima). From a risk perspective, TSCR has manageable risks as a system.

  - For the LAWPS Facility, also referred to as the Cesium Removal Facility, ORP received proposals from WRPS. From company to business case, ORP is reviewing a number of scenarios for risk management and the funding profile. ORP is also evaluating different scenarios for the permanent piping that will be installed to the LAWPS Facility. This also includes a second TSCR.

- ORP reviewed TCCR and the design to see if it could be used at Hanford. It was determined that there were some design aspects being used for TCCR that would need to be changed for TSCR. TSCR is transportable much more than the Cesium Removal Facility would be. ORP will be fully engaged in the design, build, test and delivery cycle from a WRPS perspective to ensure the project is well executed.

- Slides 10 – 14 of the presentation are the year by year progress to the 2022 startup of WTP. Each year as the project progresses the diagram displays a color coding chart that signifies what each stage means. The goal for 2021 is to have the TSCR commissioning and testing complete, with WTP ready to support DFLAW operations for 2022.

Agency Perspective

Alex Smith, Nuclear Program Manager for Washington State Department of Ecology (Ecology) provided Ecology's perspective with a presentation. Alex noted that because all of the facilities in the DFLAW system are Resource Conservation and Recovery Act (RCRA) facilities, Ecology is the lead agency for permitting.

Alex noted the following key points from Ecology's presentation:

- The concept of DFLAW arose between 2013 and 2016. The state proposed new DSTs, which is one of the reasons DFLAW was introduced. The state was concerned that there wasn't enough DST space while waiting for WTP operations.

- DFLAW is now reflected in the 2016 amended Consent Decree. The Consent Decree only addresses the LAW Facility. The only Consent Decree milestone is for the hot commissioning for the LAW Facility for 2023. None of the other facilities being discussed are in the Consent Decree.

- The purpose for DFLAW is to get the waste treatment going while ORP addresses the technical issues with the PT and HLW Facilities. DFLAW's purpose is to turn the tank waste into its final glass form and ready for disposal, which also give ORP the operational experience and to show progress for the tank waste treatment at Hanford.

- Ecology has been very encouraged by the progress made towards meeting the 2023 Consent Decree deadline by ORP. Ecology looks forward to the transition from construction to commissioning.

- One of the challenges Ecology has had some concerns with is the change in direction for LAWPS. The concerns are primarily because there is not a lot of information on TSCR and the redesign of the LAWPS Facility. The prior LAWPS design was to have newly built tanks within the facility. This is not the case now with the redesign and the TSCR system. The existing AP farm tanks are going to be used in the process instead of new tanks.

- With all the changes, the permits are now required to change. Ecology is ready to move forward with the permitting of new and/or different facilities once the plans are fully fleshed out.

Committee Member Questions (Q), Responses (R), and Comments (C):
Note: This section reflects individual questions, comments, and agency responses.

Q: "We're being asked to weigh in on level of confidence that DFLAW can be achieved by 2022, but I would like to hear from ORP, what your level of confidence is for achieving DFLAW by 2022?"

R: "I am confident that we have a solid plan. You will see as we talk about this more, is a number of horses in the race to get us to that point. There are tank farm upgrades and the TSCR system that will need to be in place. LAW needs to be completed, as well as the transfer lines to WTP need to be in place. The LAB will need to be ready to support the transition. Fundamentally, the team from an oversight perspective and the team at Bechtel is ready for transition to operations. I am confident and will continue to work day to day to increase our confidence. One of the things that we recognize, is there will be challenges as the project moves along. This is a complicated project of a wide range of organizations and teams. I am very confident in our team and the quality of our team. We are committed to achieving this mission."

Q: "How much more funding in the next 3 years would you like to see in those budgets in order to accomplish the projects?"

R: "That's a great question, which is a question we are asking ourselves right now. Part of the challenge was not knowing what the budget would be for FY2018 until we were able to see it. Now that we have the budget for FY2018, we are looking at it for the next couple years to lay out a plan. ORP is trying to take a long view approach for the projects, but sometimes the political process thinks in two-year and four-year windows. Our job is to help the political leadership recognize that we cannot look at this project in that way and be successful."

Q: "You mentioned that you have had discussions with your leadership, but have you had any discussion or meetings with Ann White, the newly appointed DOE Assistant Secretary for Environmental Management."

R: "I've already had several discussions with Anne White on a number of issues. I am very encouraged with the discussions we have had, as she is asking a lot of great questions. I will be in Washington D.C. next week, so I am hopeful to be able to meet with her in person, although her schedule is very challenging right now."

Q: "Is the Nuclear Technical Review Board going to be able to review the resolutions of the technical issues?"

R (Tom Fletcher): "We do not have an answer on the technical issues, so we will have to get back to you on that."

R: "From a technical perspective, there has been no more testing going on, but I think we've completed the analysis. We are now in the packaging phase to ensure the responses for the technical issues are under further review."

Q: "It is really hard to not think that the tank farm is going by the waste side, especially when we see the budget constraints. When you are starting this new process of DFLAW, how much of the budget gets taken from the WTP to the DFLAW project?"

R: "As we transition to operations, there is going to be an element of focus from an oversight perspective. We will select a contractor that we believe will be successful and ensure their programs support that. We will continue to maintain a construction focus and oversight of the construction side that we have maintained. On the budget side, there will always be a challenge, but we will continue to work with it every day."

Q: "Where is the fully integrated schedule that identifies the completion of construction, integration of the tank farms and infrastructure, and the training of staff? I assume you have an integrated schedule with all of those elements. Is that the case?"

R: "We do have a One System that integrates the schedules in many facets. When I took on this role, that was one of the things I reviewed and feel like it needs some work."

Q: "Does the One System identify the critical path for each of the sub-elements? If so, is it available to the HAB?"

R: "It does. I do not know from a process perspective if its available, but I will check on that. I will say that the critical path will change over time. There are five or six critical paths or near critical path activities that we will need to keep visual on through completion."

Q: "Does the One System go through a verification and validation process?"

R: "That is typically tied to a software tool that we use. All of the tools that we use have been validated, but there is an art and a science to the schedule development that we have to ensure we look at that. We are looking at the contractual requirements established for the WTP and Bechtel schedule to ensure those contractual requirements are reflected into the schedule properly."

Q: "Is ORP receiving support from Headquarters for all this new work?"

R: "It's not new work necessarily, as it is all work that was in the scope that we knew we had to execute. We are going to look at it at a much more granule level to ensure that the plan is set and the budget supports the plan. There is a commitment from the Assistant Secretary of Environmental Management to ensure the work that needs to be done is successful."

Q: "There was an assessment released on the LAW that identified 7 priority findings. A lot of those issues were related to safety. Has that kind of assessment been addressed to evaluate issues? Is that kind of assessment being done on all the facilities?"

R (Rob Hastings): "You are referring to the Design Operability Report (DNR) related to the LAW Facility and all the actions that are being tracked. I don't know where we are with each of the actions. Over the course of the last two years we have been in full force in completing the Nuclear Safety Basis for the LAW facility. It has been a huge effort. A revision to the Preliminary Documented Safety Analysis (PDSA) was issued two years ago. We have been spending the last year updating hazards for the LAW Facility, which identifies all of the scenarios, hazard controls, safety significant requirement, etc. The hazard analysis has been completed. The Documented Safety Analysis (DSA) was submitted to us and we are reviewing before we issue our approval. The approval is issued in the form of a Safety Evaluation Report (SER). We are scheduled to issue the SER in May."

Q: "What is the scope for the TSCR contract?"

R: "Essentially the contract will be a Design/Build/Test/Deliver type of contract. I did ask the question of whether or not the bids where is the same ballpark. If we wrote the requirements well, we will get bids that are consistent. If we didn't write the requirements well, they might be inconsistent. I can say that all of the bids were consistent. This gave us confidence that the requirements were written well. We did review the requirements with WRPS before the Request for Proposal (RFP) was issued to ensure the information was correct."

Q: "Can you explain what the Cesium Removal Facility can do that TSCR cannot do?"

R: "That is part of the business assessment that is currently ongoing. There may be factors that will enlarge the columns and change them less frequently to improve the proficiency. There could be some architectural things that can be changed to make it more proficient. TSCR was designed with a 5-year life span. The Cesium Removal Facility may have to operate longer than that. ORP is reviewing all of these factors from a cost, risk management, and schedule perspective."

Q: "What range of funding for this facility?"

R: "I am afraid to even mention that because the numbers I've seen before might be different. It is prudent to let the process work before we put out an announcement on what the cost is."

Q: "Are non-elutable resin going to be used similar to Fukushima. I've seen pictures of Fukushima of rows of canisters waiting to be disposed. Do we have an idea what the disposal path will be?"

R: "Correct. We are assessing that now. I think it's possible technically to have a disposal path, but we need to look at it more before we make any determinations on what the options will be."

Q: "Is the TSCR really going to be tank side in the tank farms? Is there dome loading considerations?"

R: "It's going to be outside the AP tank farm, just south of the exhauster."

Q: "I heard at the Oregon Hanford Cleanup Board that the TSCR filter specification is 10x coarser than the DFLAW filter specification. Is this correct? If so, what allows for this change and why is the specification for DFLAW so much finer?"

R (Glyn Trenchard): "We changed the filter specification on the overall process as part of the overall LAWPS optimization. Basically, we aligned the specification on the tank side to match the specification on the WTP side. Now it is a lot coarser than it used to be, which allows us to go to a TSCR type system."

Q: "What is the basis for making this decision?"

R (Glyn Trenchard): "It's aligned with the WTP. It doesn't make sense to us to filter to .1 micron if downstream is a 10 micron. So, by us aligning on the tank farm side, we are not overly constraining ourselves."

Q: "As the colors change showing the progression of the project, do the contractors change as well?"

R: "No. The contractors are Bechtel and Waste Treatment Completion Company (WTCC) are taking over after the construction through commissioning."

Q: "Is there a plan for a new contract for that work, or is that already in Bechtel's contract?"

R: "Bechtel will do the work up to the hot commissioning. The tank farm operations contract has yet to be issued."

Q: "At what year will that transition?"

R: "That's a good question. We are currently working on a WRPS contract extension for one year, that has yet to be approved. If the contractor is awarded as planned, then transition will start at the end of FY2019."

Q: "So TSCR is taking the waste out of one tank and putting it through TSCR and then into an empty tank? When does that tank become empty and how does that process work?"

R: "Correct. Basically, before TSCR operations, the waste will be moved out of the tank, which is the DST that has no solids in it now."

Q: "Thank for this presentation and conversation. This has been one of the best tanks conversation we have had in many years. If there is a tank failure in AP farm in the next three to four years, how does that impact all of this?"

R: "The DFLAW can tolerate one more tank loss. If AP-106 becomes unusable, we would then have to adjust."

Q: "You mentioned that the Consent Decree only deals with the WTP, not the PT step, so was Ecology involved with the decision to go the TSCR route?"

R (Ecology): "It wasn't up to us, but we were told about the change in direction. Ecology would've been happy to stay with the original design, but we understand it become cost prohibited for the facility as originally designed."

Q: "So it was a cost issue that warranted this change?"

R (Ecology): "That is my understanding."

R (ORP): "It was a cost issue and a schedule issue. The complexity had gotten to the point to where I was concerned. We wouldn't be making glass by 2022, if we did make the change in design."

Q: "If the design for the TSCR is based on something that is already being used at SRS, what is the confidence level that this will work from the data you have?"

R (ORP): "Well it is not actually being used at SRS. TCCR was built here in town and shipped to SRS. They are still in the testing phase. The TCCR was built for one tank and filter through it with the results put into another tank. We are watching what they are doing, so we have that data."

R (Ecology): "We are very cognizant that the waste at SRS is very different than the waste here at Hanford."

Q: "Will Ecology be permitting the canisters? As you know there is going to be a lot of them and we definitely don't want them stored here indefinitely at Hanford."

R (Ecology): "We still need to have the conversations about that. We can encourage them to put them in containers that are ready for transportation, but I don't think we can require it."

Q: "With this new path, do you think that there is going to be National Environmental Policy Act (NEPA) coverage?"

R (Ecology): "I have not been involved or looking at that yet, so I can't answer this yet. All of the permits that we issue, generally have two public comment periods associated with it."

Questions & Answer Session

Lindsay Strasser, HAB facilitator noted that members will have an opportunity to review the posters around the room and write down questions and/or comments for the ORP management team.

Brian noted that the management team will go in order of the DFLAW process. Glyn Trenchard will address the tank farm and interface questions, Tom Fletcher will address the WTP questions, Delmar Noyes will address the commissioning questions, Rob Hastings will address a licensing related question, and Brian Vance will address the bigger-picture questions.

Glyn Trenchard

Q: "The TSCR will filter the waste to 10 microns, but where will the back wash of the filters go?"

R: "It goes back to AP Farm, particularly the plan is in AP-108 tank."

Q: "Could TSCR treated Supernate be stored in an above ground tank?"

R: "Yes. The original LAWPS plan was to have it stored in separate tanks or a vault. There is no reason in the dose rate that they couldn't be stored in an above ground tank."

Q: "When will proof of concept be completed?"

R: "WRPS sought out bids for the TSCR contract and we expect that contract to be awarded in June 2018 with the design to be completed in 2019, construction in 2020, and startup/commissioning in 2021. TSCR will be treating and putting the waste in AP-106 tank.

Q: "I am very concerned about TSCR generating orphan waste? What is Fukushima doing with their cesium canisters?"

R: "I am concerned too. Every time I hear the term orphan waste, it makes me cringe. We are being very conscious of not creating orphan waste. We do have a pathway, which is to take waste and turn it into glass. Fukushima has their canisters out sitting on a pad."

Q: "What about Strontium-90 (SR-90)?"

R: "SR-90 is more in the tank solids and not part of DFLAW. We are going after the Supernate mostly. The resin we are using will filter it out."

Q: "Did they find other changes in the exercise with the filter specification going from .1 micron to 10 microns?"

R: "During that process we looked at the process of going from an elutable resin to a non-elutable resin. It changed in the tank storage, as the original plan for LAWPS was to use new tanks, but that plan changed to using an existing tank."

Q: "How will sampling be done to identify waste acceptance criteria for the LAW Facility?"

R: "Its sampling and full characterization of the waste currently in AP-106."

Q: "What is involved in developing a waste acceptance criterion?"

R: "The big picture waste acceptance criteria is starting with the end in mind. In the end in this case is a LAW glass canister in the Integrated Disposal Facility (IDF)."

C: "One tank leak in AP Farm away from jeopardizing the TSCR DFLAW program, is not ok. Build in tank capacity contingency."

R: "It's not just AP Farm. If we had an additional DST leak, we would still be okay."

Q: "Why is cesium removal from groundwater at Fukushima relevant to proving that any of the cesium removal alternatives here at Hanford would work for tank waste?"

R: "We do groundwater remediation through pump and treat, but we use different processes. The relevance to Fukushima, is Crystalline Silico-Titanate (CST) that they use and that we will use for LAWPS and TSCR. We specified to the vendors in the proposal to use CST for the ion exchange."

Q: "What are the barriers to shipping the cesium canisters off site?"

R: “At this point we are not planning to use a Department of Transportation (DOT) canister. We are only moving them a short distance from TSCR or the LAWPS to a nearby pad. They are not designed for shipping.”

Q: “These posters do not address key safety and environmental questions. How will chemical vapor emissions from ground level TSCR be controlled?”

R: “The TSCR itself is ventilated back to the DSTs, so the Offgas from the ion exchange column will be drawn back through the AP ventilation so that the DST ventilation will take care of it.

Q: “Which contractor technologies are most readily vitrifiable?”

R: “I interpret this question as if there are other media technologies that make glass. The goal is to take the ion exchange media and run it through WTP. So, did we look at which brands make the best or most glass, and the answer is no we did not. We selected CST as the media to make glass.”

Tom Fletcher

Q: “How will you ensure LAW containers do not exceed low-level waste Class C limits?”

R: “Ensuring the waste acceptance criteria in the LAW Facility are met. Once it is met, then ensuring the glass is formed.”

Q: “What radioactive and hazardous constituents will be fed to the law vit plant after pretreatment?”

R: “I can’t go through the list of that chemical list, but a majority of it is caustic, highly corrosive solution mostly containing sodium. There will be a significant number of highly hazardous chemicals with a small amount of radioactivity. TSCR will remove the two remaining components that is in the Supernate fraction of cesium and strontium.”

Q: “What is the estimated total curie count for each LAW container?”

R: “That is dependent on the batch of incoming feed. The incoming feed will drive the curie content, but in totality all of the LAW canisters will be contact handled canister.”

Q: “What is glass former facility? What does it do?”

R: “The glass former facility is a little of a misnomer. Unlike SRS where they use a frit, which is a batch of glass former that is already mixed. The WTP process uses a recipe. The glass former facility is a set of silos that allows you to individually batch the glass based on the chemistry on the batch coming from LAW feed. The silo is a measuring facility that takes the individual components needed to create the individual batch of glass, mixes it in a frit, then sends it to the LAW Facility to be fed into the melter.”

Q: “What if a bad batch is sent to WTP?”

R: “We would send it back to tank farms.”

Q: "What is the size of a LAW container? How many cubic feet can a container hold?"

R: "The canister itself if 4 ½ foot in diameter and 7 feet tall. From a glass production, it holds 6 tons of glass. From a cubic foot, which is not usually a measurement we use is 119 cubic feet."

Q: "What is the fate of the Tc-99 and I-129 in the DFLAW Offgas? How many curies do we expect to not be immobilized in glass?"

R: "The TC-99 is expected to be captured in the glass, but we do expect some will come off in the Offgas. The Effluent Management Facility (EMF), allows for the TC-99 and I-129 to be pulled from the bottom and pushed back to the front of the evaporator. This will create a recycle loop. Three to five cycles of continuous looping will capture the TC-99."

Q: "What is the schedule path for the IDF in relation to DFLAW?"

R: "The IDF pieces and parts are integrated in the schedule. The component of IDF and Waste Incidental to Reprocessing (WIR) are managed by ORP. The IDF and permitting aspects are being managed by DOE Richland Operations Office (RL). These components are integrated into the system. The facility itself is built and ready, but it's the paperwork that needs to catch up."

Q: "Will provisions be made at or near the IDF for low level waste to deal with failed containers? Is there going to be a second IDF or a replacement one?"

R: "In the performance assessment that we use to ensure are protective of human health and environment, there is no credit given to the waste container itself. The performance assessment assumes that the waste container doesn't exist. The only thing in the cell is the glass itself for the long-term longevity. From a human health and environmental perspective, there is no impact for having a failed container. From an operational perspective, there are protocols, such as if a container falls over, to handle the situation."

Q: "What is the estimated total curie count for the IDF within LAW?"

R: "In general terms, 90% of the waste is LAW, which contains 10% of the radioactivity."

Delmar Noyes

Q: "How much is start-up and commissioning going to cost? Where is this budget going to be coming from?"

R: "The startup and commissioning is part of the WTP project and the existing approved funding of $690 million per year. Once hot commissioning starts up, the operational funding kicks into the new Project Baseline Summary (PBS) 70."

Q: "Will transition to the operating contractor be in stages or all at once, as facilities complete commissioning or when all facilities are online?"

R: "We looked at this and decided that LAW, LAB, and BOF will go to the new operating contractor all at once."

Q: "Where will DOE and the Contractors recruit for the oversight and review experts for the Operational Readiness Review? Where will the personnel for commissioning and operations crews come from and how will the personnel train and qualify commissioning and operations crews?"

> R: "A lot of the engineering crews will come from the existing engineering workforce. We also have a small contingent of operator personnel on hand. Bechtel has a construction organization, startup organization, and a commissioning organization."

Q: "Is there a single point failure that can shut down the DFLAW process once it is started? If so, what is being done to prevent it from occurring?"

> R: "This is an integrated system from tank farms to WTP, and through IDF. All these facilities are required to work together to treat the waste and put it in a safe disposable form. We have built and are building all of these facilities with a specific operational frequency failure analysis."

Q: "During start up and commissioning and operations, will ORP be exchanging operator visits from similar facilities around the world like the World Association of Nuclear Operators (WANO)?"

> R: "Absolutely. Our contractors as well as our organization have been working extensively across the complex. We have been monitoring the salt waste processing facility at SRS Defense Waste Facilities. We have some of our people visit at least every six months.

Rob Hastings

Q: "Can the recovered cesium be defined as incidental waste through the waste incidental to reprocessing process and disposed as other than high-level waste based on its actual hazard?"

> R: "The short answer is no. The cesium from tank farms is currently classified as HLW."

Brian Vance

Q: "The Hanford annual budget has been typically near 2 billion. To bring the DFLAW system into operations by 2023, will it be necessary to exceed this budget level annually between now and 2023? How reasonable is it to assume Hanford will receive the needed budget (and increase of required) in order to accomplish operation of DFLAW by 2023?"

> R: "The FY2018 budget has been approved, as you may know, there is a brief next week to the regulators and a brief to the public the following week. The budget picture will be provided at the appropriate level. DOE is our advocate for funding with congress. There are some limitations granularly that DOE allows us to talk about. There has been a consistent commitment from Secretary Rick Perry to support DFLAW from a financial perspective. Our job is to communicate our budgetary needs over the next few years in order to accomplish the Consent Decree requirements and the TPA requirements."

Q: "What can the HAB do to assist in supporting budget needs for DFLAW? Do you have a rough idea of how much budget increase is needed through 2022 and beyond?"

R: "I am not willing or able to talk about the future budget yet, as we are still building the FY2020 budget now. We are also looking at our 2019 and 2020 budgetary needs. We are still doing our homework on these two budgets, so I am not at a point to share that just yet."

Q: "If you move ahead with DFLAW, what is the on-going work do you stop or minimize?"

R: "We are moving ahead with DFLAW. We started an Integrated Priority List (IPL) process with Ecology just before the holidays of last year. We listed all the cleanup missions we had around the site and our first submission to Ecology was alphabetized. There are general agreements on the priorities at Hanford on what we should cleanup. I have shared the list with Dave Einan, Region 10 Manager for Environmental Protection Agency (EPA). We asked EPA to review the list and prioritize. ORP will be meeting with Ecology and EPA in early May to discuss the IPL."

Q: "When will an integrated schedule be made public? Including assumptions, critical path cesium? Will the HAB be allowed to review and comment on the RFI/RFP for the new tank farm and WTP operations contract?"

R: "We should be in a place to share at the end of summer. We should be at a place that we will know more than we do today with respect of all the proposals. The RFPs are issued as draft and accessible to the public."

Q: "What assumptions show the most risk in completion in 2019?"

R: "We look at risks in each element of the system and work to mitigate the risks individually. The One System division looks at the broader risks. We will continuously review our risks to ensure we don't overlook an issue that can cause a challenge in the end game."

Round Table / Sounding Board

Lindsay Strasser, HAB facilitator introduced the sounding board process. Each committee member was provided up to two minutes each to respond to two framing questions round-robin style. These framing questions were:

- Based on today's discussion, what is your level of confidence that DFLAW can be achieved by 2022?
- What would increase your level of confidence in the DFLAW approach?

The following paragraphs are transcribed member responses which do not represent consensus views of the Board.

Bob Suyama, Benton County

I think the DFLAW approach is our best path forward to stabilizing waste, that we have had in some time. However, my level confidence that it will be reached by 2022 is low. My main concern is the budget, as I don't see how there will be any funds to complete this by 2022. Unless we get congressional support to get more money for Hanford, I just don't believe it can be

accomplished in the next four years. As a Board, we can work to get the word out and inform the public that there is a path forward.

Gene Van Liew, Richland Rod & Gun Club

I missed much of the today's activities, so I am looking forward to hearing from all of you and will be taking a lot of notes.

Jeff Burright, Oregon Department of Energy

I am very impressed with the knowledge shared today, which gives me confidence. The things that I see as potentially the biggest risks between now and 2022, is if you had to do a NEPA process, which could somehow slow down the process. Another concern is safety oversight that would identify issues that were not thought of yet. One that comes to mind is the hydrogen that would be put back into the tanks, which causes concern for hydrogen build up in the canisters. I heard that Double-Shell Tanks (DSTs) have good longevity over time, so I would like to hear more about that. I read a paper from the National Academy of Sciences that said something different, so I would like to compare notes on that. Things that would increase my level of confidence in the overall approach would be any kind of guarantee that the ion exchange product over time would end up turned into glass. I think what is planned between now and 2022, shows that there is a path forward.

Ken Niles, Oregon Department of Energy

I would like to offer my thanks, as this was a great discussion. Knowing all of what is being considered for this process, does increase my level of confidence. Having been involved with the Hanford Cleanup since 1989, there have been too many things that have not happened. I would hope that in 2022 we are close enough to at least know for certain when DFLAW can begin. The budget issue is a concern, as I don't want to see RL robbed of funding for the ORP projects. I am concerned how the budget may be divided if the RL/ORP merger happens. The cleanup that we've had has been based on choices. I believe that taking the cesium out of the tanks and storing it on a concrete pad is a whole lot better than keeping it in the tanks. You could say that Hanford's spent fuel is an orphan waste right now because there is no repository to put it.

Gary Karnofski, Tri-Cities Industrial Development Council

I also would like to give my thanks, as I appreciated the presentation. I am confident that ORP has the right team. I am concerned that there is not a better integrated cost schedule. I think that is a critical point and I am concerned that as were going through this process, the WRPS contract is being extended another year. I am concerned that the procurement side is out of your control, as that will be a critical element moving forward. I am also concerned we've had a history in the procurement process with transition and the TSCR will be under a new contract, but what happens if the contract is protested.

Tom Carpenter, Hanford Challenge

I will echo the sentiments that your team is very prepared with information today. I am worried about the emphasis on schedule and cost, but very little on safety. It feels to me that ORP took a U-turn on some of the plans to save cost and time. While that is important, it is not as important as work safety. I am worried of the abrupt nature of how it is all playing out so quickly. It seems to me that WTP is in hurry mode and that opens up for lots of failure. The TSCR process is concerning to me for safety of workers to vapor exposures

Shelley Cimon, Columbia RiverKeeper

I appreciate all of the team being here, but I have a lot of concern. We will be seeing RL and ORP merging again. It's concerning because I can see arm wrestling between Doug Shoop and Brian Vance going forward in terms of the work that needs to be done. I think about the work that needs to be done and it's a lot of expensive work. I don't want to see other projects fall to waste side. I don't want to see Ecology suffer either. I am very concerned about the cost and the schedule.

Jan Catrell, Public at Large

I would like to thank this ORP team for coming. We have some real "horse power" here today. The program management is clearly being the key to this project and now we have a new program manager that has experience. This gives me confidence in that. Regardless of the problems are, you have strategies for a path forward. The problem as I see is the TSCR. I thought it was in use already. Its concerning because it is a critical piece of equipment that has not been designed or used yet. I believe that leadership is the key and this idea of the critical path forward has been identified. I can tell you that I would not want to have the critical path football on my desk.

Rebecca Holland, Hanford Atomic Metal Trade Council

I would like to thank you for coming today. I actually feel like I have enough information from today. Usually when I go to the HAB or committee meetings, I will go back to my coworkers and share the information I learned. I think that putting the cesium back into the tanks is the dumbest thing I ever heard. I am concerned about worker exposure and the environment. I was with a work crew that would pull samples that were 550r per hour in this little tiny bottle. I have another 12 years before I retire, so I am hoping that this project is up and running by then. When I see the grout facility it makes me concerned because I don't want this to be the solution in the future.

Paige Knight, Hanford Watch

I am going to do something a little different and read this quote to you. "*The most precious gift we can off others is our presence. Mindfulness embraces those we love and what we love, they will bloom like flowers."* I feel hopeful with this process, but I always feel hopefully and I am let down. I feel you can make this happen, but I am concerned about the worker safety and all of the aspects surrounding that.

Susan Leckband, Washington League of Women Voters

Thank you all for coming. I am very hopeful, more hopeful than I have been in a very long time. I say that because we want you to succeed. I see the kind of respect you have shown by answer all the questions honestly. I really like the fact that you are not going to change any other shiny objects. I am really hoping that TSCR is not the next shiny object. This frank exchange of information and dialogue is incredibly helpful to us in order to understand your path forward and help support you. I don't know how I feel about whether this can be achieved by 2022. I've been doing this a long time. I am cautiously optimistic moving forward. Consistent achievement will increase my level of confidence.

Dan Solitz, Oregon Hanford Cleanup Board

I feel like DOE is getting smarter. I am more confident than I was yesterday that this can be done. I am concerned about the waste that doesn't get turned into glass and where is will go. I fear that we won't stop making glass and waste will go into a leaking tank. I think the only way to get ahead of this is to build more tanks. There is a lot of technology today that its doable. It might be worth investigating build more and better tanks to keep any of the issues from happening.

Steve Wiegman, Public at Large

I give my accolades to a great team but you have a great challenge ahead of you. Don't let this be the next shiny thing. We have a history of shiny things that doubles or quadruples in price because we add scope to the project. I'm confident that you a team that can do it but my concern is that you have a team that may not be able do it. I know you have capability to do it if you are allowed to do it. Don't repeat history expecting a different result. Thank you for being here today.

Gerry Pollet, Heart of America Northwest

I would like to echo what everyone else has said because my answer this morning would have been that I had zero confidence. Now I can say that I have some confidence that there is an opportunity to start a dialogue that will address the critical issues. It remains to be seen whether or not we can address those critical issues for worker safety. From my perspective, TSCR and DFLAW is the shiny thing that is being chased. Its concerning that there has been no work done to assess the critical path elements needed for public and regulatory confidence (SEPA and NEPA). I am very disappointed that Alex Smith from Ecology isn't here right now because many of these issues are state issues. We should not be focused on 2022 or 2023 before a full analysis can be done for safety issues.

Rudy Mendoza, Public at Large

There is a lot of very intelligent people in this room that have more of the technical knowledge than I do. One of the biggest concerns that I run into with people that don't work out at Hanford, is that it is tax payer dollars that are funding these projects. I thinking the biggest thing is seeing the progress. I think going the direction of DFLAW builds additional support from other people

not necessarily familiar or associated with Hanford. I appreciate the honest and open communication.

Dave Rowland, Yakama Nation

Thank you for the presentations today. From the Yakama Nation's perspective is that their biggest fear is what is being left in the ground and what happen with the site. I think that is there biggest concern.

Richard Bloom, City of West Richland

I will put my confidence level at a .1%. I appreciate all of the information today but I would've appreciated it more if you would've brought some of the proposal slides. My level of confidence is if you would hold firm that, TSCR only ventilate to existing AP exhauster. Hold that solid and that address many of the vapor concerns, a huge permitting benefit, and a procurement benefit. A new train will cost you 18 months after design. I have no faith and confidence that you are prepared to work under a RCRA Permit. You have no idea what you're up against.

Sam Dechter, Public at Large

Thank you for your presentations. You have all the fun in the world. Unfortunately, we do plan and schedule "oops" in our systems in our planning. I have very little confidence that we will get to where we need to get by 2022, but I believe we will get there eventually. My confidence will increase as we get closer to the end and can see more of the progress. The number of actions and activities that have to be completed in the next four years are really significant. I have seen nine months of planning for a three-week prototype. There are opportunities for failures. No matter what you do there is always something that comes down the path that you can't anticipate it.

Emmitt Moore, Washington State University

I'm not informed as much as I should be even though I tried to do a little homework since our last board meeting. You have the brains, so use them. With sufficient money, this thing will be working by 2022.

Committee Business

Next Steps

The committee members discussed various topics from the COTW that would require Issue Manage teams for further follow up.

Issue Manager Topics

- TSCR System – Bob Suyama and Jeff Burright
- Disposal Path Forward for TSCR – Dan Solitz
- NEPA Requirements – Jeff Burright and Paige Knight
- DFLAW Scope – Gerry Pollet and Bob Suyama

- ORP letter to Bechtel – Tom Carpenter and Bob Suyama
- Critical Path (50,000ft level) – Bob Suyama
- Integrated Schedule – Bob Suyama
- Integrated Priority List – Budget & Contracts Committee
- DSA Report – Becky Holland and the Health, Safety and Environmental Protection Committee
- Performance Assessment for IDF – Bob Suyama

Other items for discussion

Double-Shell Tank Failure Draft Advice

Bob Suyama introduced a draft piece of advice on Double-Shell Tank Failure for the TWC committee. Copies were distributed for review. Bob gave a brief synopsis of the draft advice and requested a "thumbs up" or "thumbs down" to move the to the full TWC committee in May.

Committee members voted "thumbs up" to move the draft advice forward to the May TWC committee meeting.

"John Price" Challenge

Bob Suyama informed members of the Issue Manager meeting scheduled for Thursday, April 12, 2018 from 9:00 a.m. to 12:00 p.m. The purpose for the meeting is to start the process of reviewing which scenario or combination of scenarios are preferred.

Attachments

Attachment 1: DFLAW and the Road to Near-Term Tank Waste Treatment

Attendees

Board Members and Alternates:

Jan Catrell, Member	Susan Leckband, Member	Bob Suyama, Member
Dave Rowland, Alternate	Tom Carpenter, Alternate	Gary Karnofski, Member
Emmett Moore, Member	Helen Wheatley, Alternate	Ken Niles, Member
Rodolfo Mendoza, Alternate	Dan Solitz, Alternate	Paige Knight, Member
Shelley Cimon, Member	Sam Dechter, Member	Tom Galioto, Member
Kristie Baptiste, Member	Gene Van Liew, Member	Richard Bloom, Alternate
Rebecca Holland, Member	Gerry Pollet, Member	Steve Wiegman, Alternate

Richard Jaquish, Alternate	Todd Martin, Member (Phone)	Kristen McNall, Member (Phone)

Others:

Dana Gribble, MSA	Jennifer Colborn, MSA	Echo Dahl, Northwind supporting ORP
Paula Call, ORP	David Swale, BWXT	George Rangel, WTP Project
Tom Fletcher, ORP	Tom Rogers, WDOH	Sybren Cody, WSU
Annette Cary, Tri-City Herald	Steve Pfaff, ORP	Janet Diedike, ORP
Yvonne Levardi, ORP	Randy Bradbury, Ecology	Ginger Wireman, Ecology
Alex Smith, Ecology	Mark Heeter, RL	James Lynch, ORP
Dan McDonald, Ecology	Delmar Noyes, ORP	Glyn Trenchard, ORP
Jennifer Copeland, CHPRC	Rob Hastings, ORP	Earl Fordham, WDOH
Lindsay Strasser, ProSidian	Melissa Amaro, ProSidian	Sherri Schatz, ProSidian