



Hanford Advisory Board

FINAL MEETING SUMMARY

April 13-14, 2016

Richland, WA

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

Executive Summary

Hanford Advisory Board Action

The Hanford Advisory Board (HAB or Board) adopted one piece of advice regarding Board budget priorities for Fiscal Year (FY) 2017 and FY 2018.

Hanford Advisory Board Business

The Board approved one letter. The first letter regarded public involvement associated with planned vertical expansion of Hanford's Environmental Restoration and Disposal Facility (ERDF).

Presentations and Updates

The Board received the following presentations and updates:

- Tri-Party Agreement (TPA) agency Program Reports
- DOE Site-wide Safety Culture Perspective
- Introduction to the HAB's Cesium Management and Disposition Alternatives white paper
- Introduction to the HAB's Waste Treatment and Immobilization Plant (WTP)
- Board Committee Reports

Public comment

One public comment was provided.

HANFORD ADVISORY BOARD

April 13-14, 2016 Richland, WA

Steve Hudson, Hanford Watch and Board chair, called the HAB meeting to order. The meeting was open to members of the public and offered opportunities for public comment.

The Board meeting was audio-recorded.

Welcome, Introductions, and Announcements

Joanne Grindstaff, DOE Office of River Protection (ORP) and co-Deputy Designated Federal Officer (DDFO) for the HAB, noted that the Board was meeting in accordance with the Federal Advisory Committee Act (FACA). Joanne said that ORP was in the process of nominating a new co-DDFO to take her place, and she anticipated that Dawn MacDonald, ORP, would be approved to serve in the capacity by the next HAB meeting. Joanne stated that she would continue to work with the Board and the EM SSAB in the coming weeks as Dawn transitioned. Joanne thanked Board members for the experiences and the opportunities that they provided her with over her year-and-a-half tenure as co-DDFO.

Jon Peschong, DOE Richland Operations Office (RL) and HAB co-DDFO, recognized that RL was also in the process of nominating Kyle Rankin, RL, as the office's new co-DDFO. He also noted that this change would be effective beginning at the next Board meeting. Jon said that it had been a pleasure serving with HAB members.

Cathy provided members with an overview of the meeting agenda and provided attachments. She encouraged members to thoroughly review draft advice and letters prior to discussing them.

Steve confirmed the adoption of the February 2016 Board meeting summary, including the incorporation of a minor edit proposed by a Board member and received within the FACA-stipulated 45-day time period.

Announcements

Steve White, Columbia Riverkeeper and HAB member since 1994, noted that he would no longer serve on the Board. Members thanked Steve for his years of service and his many contributions to the Board's work.

Jean Vanni, Yakama Nation, requested clarification on passing advice with a dissenting opinion. Steve Hudson answered that HAB advice could be passed with an attached dissenting opinion; however, he underscored that the strength of HAB products comes from collaboration and the consensus process. Steve encouraged members to always strive for consensus as HAB products are created, clarified, and finalized.

Tri-Party Agreement Agencies – Program Reports

U.S. Department of Energy–Office of River Protection

Jonathan “JD” Dowell, Deputy Manager of ORP, provided Board members with a presentation highlighting recent ORP activities and progress. He also introduced Dieter Bohrmann, North Wind, as a new member of the ORP communication team, noting that Dieter would be supporting the HAB’s work alongside co-DDFO Dawn MacDonald at future HAB meetings.

In his presentation ¹, JD covered the following key information:

- Work at Hanford tank farms will likely switch to tropical hours soon. This means that there will be an early morning shift and that work will end before noon, when the hottest part of the day begins.
- Recent and planned work in the tank farms is dominated by evaporator campaigns, tank waste retrievals, and construction at single-shell tank (SST) farms A and AX.
 - The 242-A Evaporator recently began its fourth campaign following recent capability upgrades. The 242-A Evaporator continues to perform as anticipated. Recently, the 242-A Evaporator processed approximately 500,000 gallons of tank waste and freed approximately 130,000 gallons of tank space. Three additional evaporator campaigns are planned for 2016.
 - On March 14, 2016, volume displacement at SST C-111 indicated that there were approximately 1,600 gallons of solids remaining in the tank. ORP believes that retrieval technologies are at their limit for C-111 and the office suspended retrieval operations in March 2016. Washington River Protection Solutions (WRPS) conducted a water wash-down of the final materials, and now ORP is in the process of conducting a final assessment for the Retrieval Certification Report, which will validate that the tank is retrieved to the abilities of current technologies. ORP anticipates that the certification process confirming that C-111 is retrieved will be completed by mid-April 2016.
 - C-105 is an assumed leaking tank; therefore, retrieval efforts are moving forward carefully. ORP plans to install an extended reach sluicing system and use high pressure water to get as much of the remaining waste out of the tank as quickly as possible. ORP anticipates that C-105 will be retrieved during the first half of calendar year 2017.
 - SST T-111 is a known leaking tank. To mitigate the severity of the leak, WRPS installed an exhauster in the tank to get as much water out of the waste as possible. This effort has been very successful, and the evaporator has so far removed 5,000 gallons of interstitial water. WRPS will continue to run fans to remove as much water as possible.

Attachment 1: Office of River Protection Agency Update (DOE-ORP presentation, April 13, 2016)

- Retrieval at leaking double-shell tank (DST) AY-102 is exceeding expectations. WRPS began retrieval efforts on March 3, 2016, one day earlier than anticipated. The initial supernatant retrieval campaign took approximately four days and retrieved around 550,000 gallons of liquid waste. Two additional sludge removal campaigns removed approximately 50,000 gallons of waste each. AY-102 tank wastes are currently 92% retrieved, and approximately 58,000 gallons of sludge remain inside of the tank.
- Progress and construction remain on-schedule at SST farms A and AX. To facilitate efficient retrieval, construction is being completed at once (as opposed to tank-by-tank). Construction and infrastructure installation is anticipated to take approximately two to three years, then operators will manage individual tank retrievals.
- For most work inside of SSTs and for waste disturbing activities in DSTs, workers wear self-contained breathing apparatuses to help mitigate potential exposure to tank vapors. WRPS is rapidly progressing through Phase One of the Implementation Plan for Hanford Tank Vapor Assessment Report Recommendations. Phase One includes activities such as characterizing contaminants in tank head spaces, enhancing rounds and routines, developing 222-S Laboratory capabilities to detect, mitigate, and process some contaminant activities, and evaluating cartridge capabilities. Phase Two of the Implementation plan is anticipated to start in September 2016, and it will examine information gathered in Phase One to find permanent protective actions moving forward.
- Work at the Waste Treatment and Immobilization Plant (WTP) complex is progressing. From a construction complete standpoint, the activities for the Analytical Laboratory, the Low-Activity Waste (LAW) facility, and the Balance of Facilities are on track for construction completion, startup, and operational readiness for a 2022 deliverable of targeted Direct-Feed Low-Activity Waste (DFLAW) treatment. DFLAW and the treatment of LAW is ORP's primary treatment priority.
 - At the LAW facility, there were a number of outstanding issues highlighted in the recent U.S Government Accountability Office (GAO) Design and Operability Report. ORP is looking to deliver solutions to all issues highlighted in the report by 2017. Recent deliveries for high risk items at the facility include the Thermal Catalytic Oxidizer, the Ammonia Dilution Skid, and the LAW melter lid. ORP looks forward to working closely with the Washington Department of Ecology (Ecology) on the many environmental permitting processes required to get DFLAW running.
 - DFLAW is planned to bypass the Pretreatment Facility. The Low-Activity Waste Pretreatment System (LAWPS) will fulfill this pretreatment role for LAW. A part of LAWPS is the Effluent Management Facility (EMF). The EMF is functionally an evaporator facility—it will take off-gasses from the melting of LAW, process them, and split them into waste streams. EMF is approximately 45% design complete.
 - The presentation includes a list of Pretreatment Facility Technical Issues. ORP is well-along the path to completing several of these identified technical issues, including T1,

hydrogen gas events in vessels, T2, criticality in pulse-just mixer vessels, and T3, hydrogen in piping and ancillary vessels. ORP is targeting 2019 as the completion year for all technical issues at the Pretreatment Facility.

- LAWPS continues to make progress. The 30% design review was successful, and ORP plans to have a 60% design review in fall 2016. In 2017, LAWPS will enter Critical Decision 3A—which will allow ORP to begin staging some of the early groundwork and procuring large, complex acquisitions.
- The DFLAW Target '22 graphic lays out the upcoming process and target dates for beginning treatment of LAW by 2022.

U.S. Department of Energy–Richland Operations

Doug Shoop, Deputy Manager of RL, provided Board members with a presentation highlighting recent RL activities and progress. Doug thanked HAB members for volunteering their time to assist in the cleanup of the Hanford Site.

Doug highlighted the following key information in his presentation²:

- The 2015 RL Vision served DOE well as both a schedule and a guidepost. RL did not achieve everything in the 2015 Vision, but great progress was made. The new 2028 RL Vision is also ambitious, and it will serve as a framework for the upcoming contract acquisition process.
- The Plutonium Finishing Plant (PFP) is likely the most difficult, complicated, and dangerous facility that DOE has ever or will ever demolish, and the CH2M Hill Plateau Remediation Contract (CHPRC) has made great strides in demolishing PFP to slab-on-grade. Workers are working in extremely hazardous environments and in protective clothing, and they need to be very comfortable stopping work when potential issues may arise.
 - Recently, workers discovered granular residue in a PFP ventilation system. They recognized that this material was unexpected, and they stopped work while the material was analyzed. A TPA milestone is driving cleanup, but it is extremely important that the work be conducted very safely. DOE is in partnership with Ecology and the U.S. Environmental Protection Agency (EPA) on this point.
 - Gloveboxes from the PFP are being removed. A goal of RL is to decontaminate gloveboxes and other materials to a point that they are considered Low-Level Waste (LLW) and can be disposed of on-site at ERDF. Gloveboxes categorized as LLW as opposed to TRU waste represent a significant cost savings, as TRU waste must be appropriately stored, packaged, and sent to New Mexico's Waste Isolation Pilot Plant (WIPP).

Attachment 2: Richland Operations Office Agency Update (DOE-RL presentation, April 13, 2016)

- Through conversations with the workforce and CHPRC, RL is resequencing the work at PFP and moving forward more methodically. RL is hearing that the workforce is embracing this resequencing effort.
- The movement of K Basin Sludge from the River Corridor to interim storage at T Plant is ongoing. All production equipment is installed for testing at the Maintenance and Storage Facility; cold-commissioning of the equipment is underway. Once cold commissioning is completed, the same equipment will be taken to K Basin, installed in the radioactive sludge facility, and then tested again. RL will go through a readiness evaluation with CHPRC, and then begin the process of filling the canisters for transfer to T Plant.
- At the 618-10 Burial Ground, Washington Closure Hanford (WCH) augered approximately 40 vertical pipe units (VPU). RL is working to retrieve the least hazardous VPUs first and gain knowledge and efficiency before moving onto more challenging units. At 618-10, there are a number of waste drums buried in trenches very close to VPUs. Retrieval of these drums will need to wait until VPUs are removed.
- Due to funding and technical issues, WCH will not complete all work included within their contract by the close of FY 2016. Remaining work under the WCH contract, including remediation of the 618-10 Burial Ground, the 618-11 Burial Ground, and contamination under the 324 Building, will transition to CHPRC.
 - A transition of work from WCH to CHPRC will begin in spring 2016.
 - CHPRC is examining the design of the WCH plan to remediate contamination under the 324 Building. CHPRC will then verify that the design is appropriate and begin the process of purchasing the long-lead items needed to address the 324 Building contamination. RL is closely watching the budget to ensure that there is adequate funding to completely remediate the 324 Building waste site.
 - 618-10, 618-11, and ERDF will transition from the WCH contract to CHPRC near the end of FY 2016.
- RL is tasked with installing infrastructure that will support the long-term cleanup mission at Hanford. Infrastructure updates will be ongoing, and it will take RL several years to get infrastructure updated to serve the long-term Hanford Site cleanup mission.
 - RL is working with the Bonneville Power Administration to determine best strategies for replacing the 230 kilovolt North Loop high-voltage electrical transmission system. The North Loop is vital to providing power to the Energy Northwest generating station, the WTP, and the Tri-Cities. The North Loop is old and degrading, and it moves through areas of cultural significance to Tribal Nations. A new line provides the opportunity to update and better place the North Loop in preparation for future Hanford Site work.
 - Roads on the Hanford Site need to be repaired at regular intervals.

- Groundwater operations at the 200 West Pump-and-Treat Facility are serving the site very well. RL recently discovered a leak in the fluidized bed reactors; CHPRC anticipates that they will be able to resolve the leak fairly quickly. At present, the 200 West Pump-and-Treat Facility is operating at a limited capacity until the leak is fixed.
 - 200 West Pump-and-Treat Facility is working to treat some perched water near B, BX, and BY tank farms.
 - RL is drilling additional groundwater wells in the 020-UP-1 Operable Unit to help characterize and map the chromium contamination in the area.
 - RL initiated a uranium sequestration test in the 300 Area. Interim results from the first phase of this pilot study are anticipated in May 2016.
- RL added ten additional tours to ensure that the public has access to the Site. DOE is also working closely with the U.S. National Park Service to author foundation documents for the new Manhattan Project National Historic Park.
- RL is currently working to create a Response-to-Comment document, which will compile input received on proposed changes to TPA milestones associated with the Central Plateau cleanup.

Washington Department of Ecology

John Price, Ecology, provided the program update on behalf of Tom Tebb, Acting Program Manager for the Nuclear Waste Program. John noted that Alex Smith, Ecology's new Nuclear Waste Program Manager, would begin soon, and he highlighted upcoming opportunities for HAB members to engage with Alex.

John noted the following information in his presentation³ to the Board:

- The current Hanford Sitewide Dangerous Permit is Rev 8c. There is ongoing activity associated with modifying this permit, and many of these efforts involve public comment periods.
- Ecology is preparing for an update of the entire Hanford Sitewide Permit Rev 9. For the last update of the full permit, Ecology received approximately 5,000 comments. To prepare, Ecology is developing Sitewide Conceptual Agreement Packages for each portion of the permit. Ecology is working through internal workshops as well as workshops with DOE and DOE contractors to determine where current permit deficiencies exist. Ecology is reading the received comments to ensure that the Rev 9 is responsive to identified questions and concerns.
- In addition to working with DOE, Ecology also has a Memorandum of Understanding with two other Ecology programs and EPA Region 10 to ensure that the Ecology permitting approaches remain consistent across the State of Washington and consistent with EPA processes.

Attachment 3: Washington Department of Ecology Nuclear Waste Program Agency Update (Ecology presentation, April 13, 2016)

- Ecology has a Public Participation Grant (PPG) program administered through Ecology’s Waste Two Resources Program. Grants encourage public involvement to investigate and cleanup sites as well as eliminate or reduce waste. Several HAB member organizations receive PPGs. The Washington legislature eliminated this funding in the 2016 supplemental budget; therefore, PPGs will not be distributed this biennium. This places additional financial pressure on public involvement associated with Hanford cleanup.

U.S. Environmental Protection Agency

Dennis Faulk, EPA, updated HAB members on recent EPA activities. Dennis mentioned recent staffing changes in the EPA Hanford Project Office, noting that Chris Guizzetti was transitioning off of Hanford work and that a new intern would begin in the office at the end of May 2016. Dennis anticipated that the EPA intern would begin working on groundwater projects in the 300 Area. Dennis also recognized that the EPA Region 10 Office of Environmental Cleanup recently acquired a new director in Sheryl Bilbrey.

Key information presented in Dennis’ briefing included:

- The Consortium for Risk Evaluation with Stakeholder Participation (CRESP) Omnibus Report recommended that DOE and EPA should gather to discuss and set nationwide priorities for the entire EM complex. The meeting showcased that EPA Region 10 is the only region where the state, EPA, and DOE are in alignment regarding cleanup priorities. This is not the case anywhere else in the nation; elsewhere, regulatory agencies do not feel that cleanup money is being spent where it should be. EPA is hopeful that the cleanup budget for the Hanford Site can be expanded to facilitate the completion of more cleanup work.
- TPA agencies are in the last phases of finalizing changes to TPA Central Plateau cleanup milestone changes, based on public comment. There is no longer a “to be determined” date associated with the M-016 milestone. Hopefully Board members are pleased with the changes resulting from received public comments; they did make a difference.
- EPA is looking into strategies for more effectively disseminating materials for public involvement. On the 100 D/H Proposed Plan, there will be a fact sheet that helps to describe to the public what work has already been completed at the 100 D/H Area and what cleanup remains.

In closing, Dennis encouraged HAB members to attend the 2016 Salmon Summit on May 3, 2016 if they are in the Tri-Cities area.

Board member questions and responses

Note: This section reflects individual questions, comments, and responses, as well as a synthesis where there were similar questions or comments.

Q. The EMF appears to be a modified design well-built plan. From the lessons learned from past construction at the Pretreatment Facility, why did DOE chose to pursue this strategy of construction before design completion?

R. [ORP] ORP needs the EMF evaporator soon to begin DFLAW treatment by 2022. The EMF is an essential component to the system, and it will ensure that less waste is returned to the tank farms than is being processed through DFLAW. The plan for EMF is well-tested and already in use across the EM complex. ORP is working with Bechtel National, Inc. (BNI) to avoid beginning construction before design completion as much as possible. However, there is no way to meet the 2022 goal for DFLAW without beginning construction while design is still in process. The design is still at 45% complete, which is much further along than the Pretreatment facility was when construction began on it.

Q. ORP included more substance than past reports have, likely due to the resolution of the Consent Decree arbitration. When does ORP anticipate that the Board will be briefed on Consent Decree updates.

R. [ORP] There are several legal items associated with the Consent Decree resolution that ORP is still looking into; however, ORP will likely not appeal the decision. ORP looks forward to candid conversations with the Board, the public, and Ecology moving forward.

C. There was an article published recently in the Tri-City Herald that focused on the increased safety confidence of workers and their ability to raise concerns. It was encouraging to read.

Q. Suspected leaking SST C-105 has approximately 35,000 gallons of waste left in it, and ORP is planning to deploy an extended reach sluicing system to continue retrieval efforts. Will ORP use hot water or tank supernatant to sluice C-105? Hot water may be the better option, since it is a leaking tank.

R. [ORP] At the moment, sluicing is conducted using supernatant. However, WRPS and ORP will continue to evaluate strategies as retrieval efforts continue.

Q. The evaporators are extremely important to the Hanford cleanup mission. An evaporator recently failed at the Savannah River Site—how is the failure of the Savannah River evaporator informing operation of Hanford’s 242-A Evaporator and the construction of EMF?

R. [ORP] Representatives from Savannah River have shared information with ORP. The evaporator designs between the two sites are very different; therefore, there were very few lessons that ORP could gather from the Savannah River. However, it was clear from the Consent Decree that the emphasis of the 242-A Evaporator facility as a single failure point was important to both ORP and Ecology. ORP is planning to begin the acquisition process for a reboiler for the 242-A Evaporator. This procurement is likely to take longer than was stipulated by the updated Consent Decree.

Q. Is ORP engaging Ecology regarding the final disposition strategy to empty Hanford tanks?

R. [ORP] ORP is not pursuing these discussions yet, though further clarity on tank end states is on ORP’s priority list.

R. [Ecology] There is a milestone for ORP to submit a closure plan for Waste Management Area C, and this milestone is currently in dispute. Ecology and ORP are having productive discussions

regarding overall closure strategies, but the agencies have not yet begun discussing specifics of tank disposition.

C. Ecology's approach to tank closure is a tiered approach—there are certain closure plans that come in for an area or for a tank. One of those plans is currently for Waste Management Area C. Tanks are planned for a landfill closure. The soil underneath tanks is a different creature, and that soil may need to be remediated and cleaned up as High-Level Waste (HLW) or be reclassified.

R. [Ecology] The decision to do a landfill closure of tanks has not yet been made. Landfill closure will need to go through a process where there is public comment on the permit modification, and Ecology will need to provide a decision under the State Environmental Policy Act.

Q. With the resequencing of work, is the TPA milestone to have PFP slab-on-grade by this year in jeopardy?

R. [RL] It may be. RL's focus at the moment is to make safe progress at PFP, and RL will continue to have discussions with regulators regarding completion timelines.

R. [EPA] The resequencing is likely not the reason for the PFP completion milestone being in jeopardy. There is difficult work remaining.

Q. Could Board members request a presentation from DOE-Headquarters (DOE-HQ) that would provide a better picture of where Hanford exists in the overall priority of waste disposition at WIPP. Is DOE-RL concerned about the Hanford Site's ability to get TRU waste off-site and emplaced in WIPP?

R. [RL] RL does have a level of concern, and these concerns will remain until TRU waste is safely shipped off-site and emplaced at WIPP. There is a significant quantity of TRU waste at the Hanford Site that needs to be shipped to WIPP. RL would like to see funding that will allow the Hanford Site to begin preparing for and packaging TRU waste for shipment off-site soon. RL will look into bringing a presentation on this topic from DOE-HQ to the Board at a future HAB meeting.

Q. At the 618-10 Burial Ground, there have been several incursions of material out of the site. What strategies has RL incorporated to ensure that no additional incursions of contaminants occur?

R. [RL] RL has relayed concerns to WCH. The clamshell exhumation strategy was successfully deployed at Hanford in the past. RL's concerns are associated with the impending end of the WCH contract. WCH is aware of RL's expectations regarding the spread of contaminants out of the 618-10 Burial Ground.

Q. Could RL share more about the progress being made at 618-10?

R. [RL] There are 94 VPUs at the 618-10 Burial Ground. Most of these are 50-gallon metal drums augered on top of one another. To date, WCH augered 40 of these VPUs. Augering is going well and as expected. WCH retrieved one of the VPUs, and it took approximately four days

to retrieve. RL anticipates that retrieval will occur more rapidly as workers become more familiar with the process.

Q. What is perched water?

R. [RL] Between the surface layer and groundwater, there are some impermeable layers that hold pockets of water above groundwater. When the water was pumped for treatment, RL discovered that perched water continues to recharge.

Q. Additional submarine reactors are continuing to be moved to the Hanford Site. How much longer will this disposal continue?

R. [RL] RL could provide a presentation on this at a future HAB or committee meeting. There is no sunset clause on the U.S. Navy's ability to ship submarine reactors to the site, and the Navy is currently looking into the possibility of sending additional, larger submarine cores to the Hanford Site for disposal.

Q. Will the Board receive a briefing to educate Board members about chemical hazards at the Hanford Site?

R. [RL] RL can put together a short presentation on chemical hazards and toxicity. RL will work with EPA and Ecology to pull this information together.

C. Please include information about cancer risk, as well.

Q. Considering final end dates for cleanup and the full operation date of the WTP, at what point do the TPA agencies need to change the proposed end dates?

R. [ORP] The new Consent Decree is an amendment to the 2010 Consent Decree, and it modifies the existing 2010 requirements. ORP and Ecology went through the process of legal review of the Consent Decree, and now there are dates for delivering a large portion of the ORP mission. It is hard to determine dates for mission completion until cleanup is further down the road. The current mission completion dates are emptying SST by 2040 and processing tanks by 2047.

R. [Ecology] In 2010, there were TPA milestones associated with the Consent Decree agreement. One milestone was called a System Plan negotiation; this milestone, currently in dispute, calls for Ecology and ORP to get together once every six years to look at the end date for the tank waste treatment mission. However, the TPA milestones were intended to accelerate the end dates as opposed to extend them. Ecology currently does not know when ORP and Ecology will revisit this discussion.

R. [EPA] In the early 2040's, EPA will likely disappear from Hanford Site cleanup, unless removal of the reactors is moved up.

Q. What is the status of moving the cesium and strontium capsules at the Waste Encapsulation and Storage Facility into dry-cask storage?

R. [RL] RL has approval of the mission needs statement from DOEHQ. RL requested money to place these capsules into dry storage. Now, RL is examining alternatives to placing capsules into dry storage. Next steps will be to choose a strategy and examine cost and schedule for the project. RL looked for data on the impacts that radiation fields have on concrete—the fear is that radiation from the cesium and strontium capsules may have weakened the concrete pools that the capsules sit within. RL is confident that there is little danger posed by the capsules within the next five years; however, RL’s certainty decreases thereafter. RL believes that it makes the most sense to move cesium and strontium capsules into dry-cask storage from both a cost and safety perspective.

Q. Could Ecology tell Board members more about the process for permitting DST AY-102 retrieval?

R. [Ecology] There are two permits that were required—one of which was an air permit, which is very complex. Air permits are made up of two pieces: a radioactive license (Ecology works with the Washington Department of Health on this piece) and an air toxics permit. Ecology had to scramble to ensure that the permit was in place for air permitting.

Q. RL’s program update noted that CHPRC would need to confirm WCH’s proposed approach to remediation of contamination under the 324 Building. How will this transition affect the workforce and which members of the workforce will be maintained?

R. CHPRC needs to confirm that the technical approach devised by WCH is appropriate before moving forward. RL would like the majority of the workforce to move over from WCH to CHPRC. The two contractors are working closely on this transition process.

R. [ORP] The ORP budget went up nearly \$200 million between FY 2015 and FY 2016. These additional funds went almost exclusively to WRPS. The additional budget at tank farms may help to balance out lost opportunities on other contracts.

Q. If the 300 Area uranium sequestration treatability test is not successful, what could potential next steps be?

R. [EPA] Results are looking promising, and EPA believes that the test will be successful. If it is not, TPA agencies will look into potential alternative strategies for managing the uranium contamination.

Draft Advice: Fiscal Year 2017 Budget and Fiscal Year 2018 Input Request

Jerry Peltier, Budgets and Contracts Committee (BCC) Chair and lead issue manager, said that draft advice for the FY 2017 DOE Budget and the FY 2018 DOE input request⁴ was prepared for Board review earlier in the year than normal, due to DOE requesting the information sooner. Jerry recognized

Attachment 4: Hanford Advisory Board Draft Advice on Fiscal Year 2017 and Fiscal Year 2018 Budget Priorities

that the budget advice was discussed and clarified during a Committee of the Whole meeting in March 2016; therefore, all HAB committees had the opportunity to provide comments and clarify the ideas included within the advice.

Jerry said that the advice contained a list of cleanup priorities, identified by members of the HAB and divided into “near-term” and “long-term” lists. He noted that this represented a departure from the HAB’s general practice of not stating cleanup priorities, but he highlighted that the new approach included these priorities as supplemental information within the advice’s background. Jerry reminded Board members that the priority list was not definitive, and he noted that it could be reiterated and updated within future budget advice.

Finally, Jerry said that DOE representatives and Board members had been extremely engaged throughout the creation of the draft budget advice. Jerry was thankful for the level of budget detail provided by both RL and ORP. He thanked Board members for their participation, and he was hopeful that the robust dialogue contributed to strong, holistic, and useful advice.

Agency Response

Jon Peschong, RL, thanked Board members for the effort and thought that they put into authoring the advice. He said that the advice format that issue managers used was very helpful to DOE.

JD Dowell, ORP, noted that the near-term priorities noted within the advice background were largely focused on the work of RL. He said that the recently released Consent Decree amendment would begin to drive the expectation of budget requests from ORP. He also said that that WTP will soon shed nearly one-third of its costs into an operational mode—meaning that the construction of the HLW facility and the Pretreatment facility would still continue at the Consent Decree driven limit of \$690 million per year, but the operational wedge (including tank operating contracts) would continue to take more of the budget. JD noted that ORP assumes that construction will continue according to the construction stipulated by the Consent Decree, and that the funding level will continue to be at least \$690 million.

Regulator Response

Dennis Faulk, EPA, complimented issue managers on the encompassing list of near- and long-term priorities written within the advice background. Dennis did recommend that Board members reconsider illustrating the advice background with the TPA milestone M-016-250, as the milestone was inconsequential to the budget and it would not drive site-funding or changes to the lifecycle cost. Dennis noted that updates to the Hanford Lifecycle Scope, Schedule, and Cost Report would likely incorporate significant changes in the coming years.

John Price, Ecology, recognized Ecology’s concerns regarding the FY 2018 President’s budget request, which was \$800 million. John said that recent renegotiations of TPA milestone series governing the cleanup of Hanford’s Central Plateau planned for an approximately \$1 billion appropriation to RL every year (plus escalation). He encouraged Board members to add additional detail within the advice highlighting this vital level of need in funding. John was concerned that there would be significant milestone implications if the \$1 billion in RL funding was not maintained in future appropriations.

Board member questions and responses

Note: This section reflects individual questions, comments, and responses, as well as a synthesis where there were similar questions or comments.

C. The State of Oregon has already submitted budget priorities. The list of priorities included within the background is helpful; however, it does not include mention of deep vadose zone funding needs. The vadose zone will continue to supply contamination to groundwater if it is not addressed by remediation efforts.

R. [RL] There is a limited amount of characterization initiating in 2016 for the deep vadose zone in support of the newly created Central Plateau cleanup milestone.

C. Though a list of HAB priorities are not included within the advice; the advice bullets do closely mirror the priorities list. Should the Board look into altering this in some way so that HAB priorities do not unintentionally make their way into advice? The Board has always been hesitant to prioritize cleanup.

R. Issue managers believed that, if the background priorities were correct, then funding advice would closely mirror those identified priorities.

Q. In the past, the Board changed positions on advising ORP to build additional DSTs. Most recently, advice has recommended that ORP build additional tank storage. This budget advice notes that new tank storage capacity “may” be necessary. Is the Board backing away from a firm statement advising new tank construction?

R. Issue managers were trying to look at the wording in the Consent Decree amendment. The federal judge provided an opportunity for evaporator campaigns to free additional tank space; if this does not work, then ORP may need to construct additional tank space. The wording encourages design of additional DST space, as the process will likely take years.

C. Communication is a key issue, and the Board should consider an addition to advice point ten. DOE could potentially incorporate a quarterly newsletter to members of the public that could help people understand what is happening at the Hanford Site.

R. The advice may already cover that area. It already notes that DOE should increase public engagement and public participation... recommending the means of public engagement may move beyond policy advice. The Board can continue to discuss this idea at the upcoming EIC leadership workshop.

C. The Board should make a plea in this budget advice for additional funding for groups that have lost Ecology PPGs. The Board is about to lose three of these organizations that provide strong support for Hanford Site public involvement services. One of the TPA agencies should intervene and provide funding to these groups that have lost state PPGs.

R. The Board only provides advice to the TPA agencies, and Ecology does not have control over this funding. It was removed from the Washington state legislature. If Board members feel that the loss of PPGs is an issue of great importance to Hanford cleanup, issue managers could reference the matter in the advice background.

R. DOE is currently the only large waste generator in Washington that does not pay into the grant funds. This is an appropriate point to include within the advice.

R. [Ecology] The current state process for distributing PPGs is competitive and statewide.

R. [RL] The PPGs are important; however, as they are statewide and not specifically applicable to Hanford cleanup, including a request for funding in this letter seems like an overreach. The PPGs and their distribution are not directly related to the federal budget process.

R. PPGs have been very helpful with regards to engaging the public about Hanford cleanup. It could be incorporated into the advice background as an illustrative example. The advice should not include language that is too strong, otherwise it would constitute a conflict of interest for Board seats that have received PPGs from the state.

Q. Could EPA provide additional background regarding M-016-250?

R. [EPA] M-016-250 is an interim milestone in a larger package to provide seed money for low priority work in the 200 Area, where there are already cleanup decisions made. The amount of money to accomplish this milestone is relatively small and it will not drive any significant schedules. The draft advice background attributed an inaccurate level of importance to M-016-250.

C. To address Ecology's concern that the FY 2018 President's Budget does not provide adequate funding for RL's recently renegotiated work schedule, the advice could include the following language within draft advice point 11: "The Board believes that it is imperative to increase the FY 2018 RL funding request to ensure adequate funding to meet cleanup goals, regulatory commitments, and public and Board expectations."

R. [EPA] It is important to also note in the point that the TPA agencies recently renegotiated legal cleanup milestones predicated on at least a \$1 billion allocation per year for RL.

C. The priorities identified within the background are very consistent with the long-term priorities that the Board has highlighted over the years.

R. Board members have near- and long-term interests, but, ultimately, members would like to see all of the Hanford Site cleaned up. Can the background remove the word "priorities?" The language sounds too definitive.

R. The terminology of near- and long-term priorities is consistent with budget recommendations provided by Oregon and Washington. As written, the priorities list in the background of the

advice is nothing the DOE needs to respond to, and the priorities are flexible in coming years. It is important that the language stays in.

R. [RL] RL has a lot of work that is four to five years in scope, and near- and long-term priorities are very useful as noted in the draft advice. For RL, the HAB's near- and long-term priorities will be compared to the office's 2016-2028 Vision to ensure that RL is emphasizing the right cleanup projects to meet the Board's and the public's near-term expectations, so the list is very useful.

C. ORP did not provide the public with Analytical Building Blocks (ABB) for the office's FY 2017 and FY 2018 budgets. The advice should be rephrased to explicitly call out the importance of this. The public needs the ABB format to have meaningful dialogue regarding priorities.

R. [ORP] ORP is continuing to improve transparency. ORP did provide ABB, but the office does not refer to budget items as an Integrated Priority List.

Q. Should the budget advice acknowledge removal of the reactors along the river?

R. This advice likely does not need to note removal of the reactors, as work on these buildings will occur so far in the future.

C. Yakama Nation requested the addition of an advice point to include a cumulative risk assessment.

R. [EPA] DOE may be funding a composite analysis which may accomplish the same goals as a cumulative risk assessment.

R. This has the potential to be a very expensive activity. As a Board, members need to decide whether or not a risk analysis is important enough to forego other cleanup work. The Board may wish to author advice on Hanford Site end-states, and this recommendation may be more salient in future advice.

Q. How is a cumulative risk assessment different from the recent study done by the CRESP?

R. CRESP conducted a risk evaluation tool based on their own parameters, not a comprehensive risk assessment. However, this topic likely needs to be discussed further at a future meeting, as there are likely differing ideas among Board members as to what a comprehensive risk assessment includes.

After incorporating agreed upon revisions and minor wording changes, the Board approved the advice. Members agreed to send the advice to local DOE Managers and the Assistant Secretary for EM, as well as a CC to EPA, Ecology, and the Oregon and Washington congressional delegations.

Department of Energy Site-wide Safety Culture Perspective

Richard Bloom, City of West Richland, provided an introduction to safety culture conversations that HAB committees recently had. Richard noted that safety culture is a complex topic that often means

different things to different people; therefore, the Board is planning to host a sounding board at the June 2016 HAB meeting to provide member seats with the opportunity to provide their unique feedback and perspectives. Richard introduced Ed Parsons, RL, and Rob Hastings, ORP, to provide a briefing on DOE site-wide safety culture perspectives in anticipation for the upcoming sounding board.

Richard also encouraged Board members to review the provided Introduction to Safety Culture⁵.

Agency Presentation

Ed and Rob covered the following key information in their presentation⁶:

- DOE safety culture began in earnest in the late 2000's, and the idea culminated in the Defense Nuclear Facilities Safety Board Recommendation 2011-1, a recommendation on identifying safety culture issues at the WTP. DOE then expanded this recommendation to examine other DOE complexes across the nation.
- DOE scanned resources and incorporated lessons from the Nuclear Regulatory Commission, the Nuclear Energy Institute, the Industry of Nuclear Power Operations, the chemical industry, and other industries that deal with hazardous materials. DOE then defined integrated safety management (ISM) expectations in DOE O 450.2, ISM Order and DOE P 450.4A, ISM Policy, and DOE G 450.4-1C, ISM Guide (attachments three and ten).
- Organizational culture often determines how comfortable an employee feels raising issues and speaking out. Safety culture is a part of the overall organizational culture, and a safety conscious work environment is then an aspect of safety culture.
- Attachment ten to DOE Guide 450.4-1C is very important to future HAB discussions. It emphasizes continuous improvement to leadership, employee engagement, and organizational learning.
- ORP developed a safety culture sustainment plan for developing, monitoring, and improving office safety culture. Every six months, ORP staff and management sit down and discuss safety culture improvements and opportunities. ORP also has an organizational safety culture improvement council that is made up of volunteers who meet biweekly. There is also a higher level organizational safety culture support team that meets with senior ORP management on a biannual basis. ORP also utilized the Federal Employee Viewpoint Survey to inform efforts, and the DOE Office of Enterprise Assessment conducted three assessments on WTP safety culture. Assessments have demonstrated that ORP safety culture is on the right track. Contractors also have incentives and sustainment plans specifically associated with safety culture.
- RL's current focus is on organizational culture, as efforts at the organizational level will positively influence safety culture attributes, and the office adopted a two-year cycle on

Attachment 5: Introduction to Safety Culture (v2, 3/21/2016)

Attachment 6: Safety Culture at Hanford (DOE presentation, April 13, 2016)

maintaining a focus on safety culture. RL also analyzes the Federal Employee Viewpoint Survey, and Safety Culture Viewpoint Surveys. Each department within RL has tailored improvement actions to fit the department's particular needs.

Board member questions and responses

Note: This section reflects individual questions, comments, and responses, as well as a synthesis where there were similar questions or comments.

Q. How is the safety culture model transmitted to contractors, and how is DOE ensured that contractors are implementing this? Are there contractual requirements or other opportunities for contractor management?

R. [ORP] Each contractor has their own actions and requirements. DOE provided Health, Safety, and Environmental Protection Committee (HSEP) members with a briefing from WRSP regarding safety culture. Also, BNI has a contract requirement for nuclear safety and associated performance objectives. ORP will then issue a scorecard to BNI that provides feedback on performance. These scorecards are available to the public.

Q. How does ISM influence safety culture?

R. [RL] DOE recognizes that there has been a lot of emphasis placed on the work activity level with ISM; however, DOE is continually working to apply ISM to other levels (organizational, leadership). This is where safety culture and ISM are really beginning to work together more closely at Hanford.

Q. Does DOE still host the annual Hanford Health and Safety Expo?

R. [RL] Yes. This year it will be on May 10—11 at the TRAC Center in Pasco.

Q. From a management perspective, the DOE presentation provided good information. First line supervisors, those new managers, often feel that their personal success and livelihood are dependent upon keeping tight schedules. How does DOE convey safety culture principles to this level of management?

R. [ORP] Not all first line supervisors are brand new to the site or to the job. A number of first line supervisors grow through the union ranks and had specific experience. All first line supervisors are trained to ensure that they have the appropriate skills to lead their work crew safety and effectively.

C. The best tool for ISM is likely a worker's ability to stop ongoing work. DOE should reinforce the stop work program and do more analytics on stop work events and their causes. There is a pressure on management to not have stop works, but the importance of this policy should be continually emphasized.

R. [ORP] Stop work procedures are in place across both RL and ORP as well as all contractors. There is a low bar for stopping work at Hanford. There are a number of stop work events on site, and that is not necessarily viewed as a bad thing by DOE.

R. [RL] The stop work policy has advanced DOE safety culture considerably in the past 15 years.

Q. Are cost and schedule risks balanced against environment and health risks? Schedule risks should never preempt environmental and health risks.

R. [RL] DOE has to move forward with work; however, DOE can move forward with work in a conservative manner to maintain public and environmental safety. DOE moves forward with all work with the highest level of focus on human and environmental health, and DOE leadership ensures that this is the reality.

R. [ORP] As Hanford is an EM site, DOE places a premium on protecting workers, the public, and the environment.

Q. What risk expertise and capability do DOE managers have and how do they use it? Are they risk-informed? Does DOE have technical experts?

R. [ORP] DOE has a technical qualification program that the technical workforce is cycled through. Senior leaders go through a similar program called the Senior Technical Safety Manager qualification program that includes training on environmental regulations and nuclear safety requirements. Technical experts also work for DOE and they are available to provide their expertise.

In preparation for the June 2016 sounding Board, Richard encouraged Board members to talk to their constituents and consider the DOE presentation on safety culture.

Cathy, facilitator, reminded Board members that the sounding board would provide each Board seat with a 60-second opportunity to reflect on two questions that would be provided in advance. Cathy noted that additional information on sounding boards was included in the HAB Process Manual.

Introduction: Cesium Management and Disposition Alternatives

Bob Suyama, Benton County and Tank Waste Committee (TWC) chair, provided an introduction to the Cesium Management and Disposition Alternatives white paper⁷. Bob highlighted the differences between the white paper format and the advice format, noting that white papers are lengthier and that they provide more information, a higher level of technical detail, and a broader range of perspectives. He highlighted that Steve Pfaff, ORP, requested that the Board look into potential pathways for cesium pulled out of tank supernatant as it was prepared for DFLAW treatment. Bob noted that the guiding questions for the document were included as bullets on the first page of the white paper and that details on explored disposition pathways were summarized in a figure on page three and a table on page four.

Attachment 7: Cesium Management and Disposition Alternatives for the Low Activity Waste Pre-treatment System (v1, 3/30/2016)

Bob said that, since the white paper format is a departure from normal HAB products, the Cesium Management and Disposition Alternatives document was provided to members for early review and comment in anticipation of adoption at the June 2016 Board meeting.

Agency Presentation

Steve Pfaff, ORP, thanked issue managers for their work on the white paper. Steve noted that, in order to get LAW vitrified as part of DFLAW, the cesium needs to be extracted from it. ORP plans to manage the cesium by sending it back to DSTs; however, Steve noted that DOE -HQ was potentially interested in exploring other management options for the removed cesium so that it did not have to be returned to Hanford tank waste. Steve noted that ORP explored several alternative options for managing cesium, and returning it to tanks made the most sense. Steve said that he was pleased to see that the HAB arrived at the same conclusion after analyzing data, highlighting that it was the best strategy to get LAW vitrified as soon as possible. He noted that the white paper was very helpful to ORP.

Regulator Perspective

Suzanne Dahl, Ecology, stressed that cesium is considered to be HLW, and that it will eventually need disposal in a deep geological repository outside of Washington. Suzanne noted that the Board's option 1A for cesium management, return the cesium to tanks but keep it segregated from other wastes so that the cesium would not need to move through Pretreatment again, was an intriguing idea.

Suzanne thought that the white paper drew strong conclusions, and she congratulated issue managers on their thorough work.

Board member questions and responses

Note: This section reflects individual questions, comments, and responses, as well as a synthesis where there were similar questions or comments.

Q. Is there a commercial need for cesium?

R. Yes. Issue managers looked into this. There are potential commercial applications for cesium removed from tank supernatant; however, it will likely not solve the problem.

Q. Cesium has a 30-year half-life; therefore, in approximately 300 years, the cesium no longer exists as a radioactive hazard. However, as it is a hot gamma radiation emitter, concentrated cesium presents a severe handling problem and a high radiation source. A good option for cesium management may be just storing it as it decays.

R. There is a percentage, perhaps 5-30%, of the eluent as you concentrate cesium that will be TRU waste. This is a complication to the strategy of concentrating and storing cesium on-site. DOE and Ecology do not want additional TRU waste canisters sitting at Hanford.

Q. Sending the cesium back to the tanks seems like DOE is creating a new orphan waste stream. Non-elutable ion exchange medium that is not elutable creates a large volume of waste, and it is not sustainable. The simplest solution is likely best in this case. It would be a good strategy to construct a

stainless steel lag storage facility that will hold the cesium until it can be fed into the HLW facility for treatment.

R. [ORP] When the cesium is removed from the ion exchange resin, a stainless steel tank could potentially hold the cesium nitrate solution until the HLW melter be online. Then the cesium could be fed directly into the HLW melters. ORP is talking about this option. ORP could either build a new tank, or choose a single, existing DST to hold all of the cesium returned to DSTs. Each of these options is expensive.

R. The estimate for a stainless steel lag tank is approximately \$200 million.

Q. If a lag tank were to be constructed, could it potentially be used again?

R. [ORP] A lag tank could potentially be used again as a part of the Tank Waste Characterization and Staging Facility. ORP anticipates a need for an intermediate facility that will help to condition the solids from the tank farms. A stainless steel tank could potentially be used for both cesium storage and for this facility, and ORP is exploring this potential opportunity.

Q. Did the white paper process appropriately respond to the ORP request?

R. [ORP] Yes.

Bob thanked Board members for their perspective and questions. He encouraged Board members to send any questions or feedback to the facilitation team within the coming week. TWC members planned to discuss questions and major edits to the white paper at the committee's April 2016 meeting, and then present a final white paper to Board members at the June 2016 HAB meeting.

Introduction: Waste Treatment Plant Communications Approach Strategy

Bob Suyama, provided an introduction to the WTP communications approach white paper⁸. He highlighted that Bill Hamel, ORP, initially requested the communications approach so that ORP could be better prepared to communicate HLW facility Authorization to Proceed and DFLAW as the Consent Decree arbitration reached resolution. The white paper also noted approaches and techniques that may be used to effectively communicate this information to both technical audiences and members of the public.

Bob noted that a summary of ideas contained within the WTP communications approach, broken up by audience, could be found on the table beginning on page three.

Liz Mattson, Hanford Challenge and Public Involvement and Communication Committee (PIC) chair, said that the PIC committee recently proposed several changes to the WTP communications approach. These changes included:

Attachment 8: Waste Treatment and Immobilization Plant Communications Approach (v1, 3/29/2016)

- Move the communications approach table to the end of the document
- Clarify that the white paper was a compilation of suggestions from various Board members
- Add an “Intent of Communication column to the table (e.g. education, gathering input, building trust)
- Underscore the need for to invite public input into WTP decisions
- Include an overview paragraph that reflected board history with the WTP
- Include a paragraph about how ORP could use the Board’s communications approach to inform their own communications plan
- Include missing audiences in the communications approach table (e.g. congressional staff) and more specific audience examples to a separate column within the table

Agency Perspective

Joanne Grindstaff, ORP, thanked members of the TWC and the PIC for their work on the WTP communications approach. Joanne said that white paper did an excellent job of incorporating perspectives from the different HAB constituents. She also recognized that the WTP communications approach was a very difficult document to prepare, and she commended issue managers on their creativity. She noted that the table was a helpful strategy to organize audiences, approaches, and communication strategies.

Joanne said that the WTP communications approach will help to inform ORP’s planned outreach on DFLAW and HLW. Joanne looked forward to working with the Board and the public to communicate updated information to the public in strategic ways.

Regulator Perspectives

Suzanne Dahl, Ecology, highlighted the approaches that issue managers included within the table, noting that they would be useful to Ecology, as well. She encouraged issue managers to connect Ecology to the noted communication strategies to assist her agency in planning for future conversations with the community.

Board member questions and responses

Note: This section reflects individual questions, comments, and responses, as well as a synthesis where there were similar questions or comments.

C. The document has the potential to be very useful to agencies. The white paper should explicitly state that it is a span of ideas that that the agencies can draw from, not a fully prescriptive document.

C. High school students represent an additional audience that could be added into the table and developed.

C. ORP should be prepared to speak to other facilities, such as the Pretreatment Facility, in conjunction with HLW and DFLAW. The community likely has questions about other aspects of the WTP. It is likely

that community members also have questions about the potential risks associated with changing course and focusing on alternative strategies for the treatment of tank wastes.

C. Now that an amendment to the Consent Decree is released, that segment of the WTP communications approach needs to be enhanced with updated information. The communications approach also needs to focus on the importance of open lines of communication.

Bob thanked Board members for their perspective and questions. He encouraged Board members to send any questions or feedback on the communications approach to the facilitation team within the coming week. TWC members planned to discuss questions and major edits to the white paper at the committee's April 2016 meeting and then present a final white paper to Board members at the June 2016 HAB meeting.

Board and Committee Reports

Budgets and Contracts Committee

Jerry Peltier, City of West Richland and BCC chair, thanked members of the Board for their helpful feedback regarding the FY 2017 and FY 2018 budget advice.

Jerry remarked that BCC members recently received a briefing by the DOE Office of Hanford Acquisitions (OHA) on the planned process for preparing for creating, bidding out, and transitioning Hanford Site contracts. Jerry stated that BCC members are interested in providing OHA with advice as staff create a Master Acquisition Plan; he stated that the June 2016 Board meeting would be the ideal opportunity to pass this acquisition advice. To facilitate the creation of draft advice, Jerry requested a half-day BCC meeting in May 2016. He encouraged BCC issue managers to look into past advice as a template for draft advice and as detail for committee discussion.

Health, Safety, and Environmental Protection Committee

Becky Holland, Hanford Atomic Metal Trades Council and HSEP chair, said that committee members worked throughout the first two quarters of FY 2016 to author advice on infrastructure and traffic safety, discuss safety culture, plan for the upcoming safety culture sounding board in June 2016, and receive updates on the Hanford Beryllium Program.

Becky encouraged HSEP member to join a committee call in April 2016.

Public Involvement and Communications Committee

Liz Mattson, Hanford Challenge and PIC chair, recognized that Shannon Cram, Citizens for a Clean Eastern Washington, was the new PIC vice-chair for 2016. Liz noted that recent committee accomplish involved discussing the TPA agency Public Involvement Calendar and upcoming public comment periods, the WTP communications approach white paper, and draft TPA agency fact sheets.

Liz anticipated a committee call in May 2016 and a committee meeting in June 2016.

River and Plateau Committee

Pam Larsen, City of Richland and River and Plateau Committee (RAP) chair, thanked outgoing vice-chair Gary Garnant, Grant and Franklin Counties, as well as incoming vice-chair Jan Catrell, Public at Large.

Pam said that committee members had worked throughout the first two quarters of FY 2016 to plan for the release of the 100 D/H Proposed Plan, author advice on changes to TPA milestone changes associated with the Central Plateau, discuss ERDF expansion and learn about ERDF macroencapsulation. Pam was hopeful that the committee would discuss CHPRC's plans for the remediation of contamination beneath the 324 Building at an upcoming committee meeting.

Pam said that RAP planned to hold a committee meeting in April 2016. She was hopeful that upcoming discussions could further explore information related to PFP demolition, waste sites associated with the 200-PW-1, PW-3, and PW-6 Operable Units, and ERDF.

Tank Waste Committee

Bob Suyama, Benton County and TWC chair, said that committee members worked throughout the first two quarters of FY 2016 to author the white paper on WTP communications approaches, author the white paper on cesium management, learn more about the proposal for potential Direct-Feed High Level Waste, learn more about retrieval at AY-102, C farm, and A/AX farms, and discuss safety culture. Bob said that the committee would begin looking into authoring an additional white paper on tank waste retrieval in upcoming months.

Bob said that TWC would hold a committee meeting in April 2016. Bob said that the committee had requested additional briefings on retrieval efforts at AY-102.

Executive Issues Committee

Steve Hudson, noted that the Executive Issues Committee (EIC) consists of the chair, vice-chair, national liaison, and committee leadership. Steve reminded Board members that the EIC looks into Board and committee meeting schedules, meeting agendas, Board protocols, and advice development strategies. Steve said that the EIC would meet in early May 2016 for the annual leadership workshop.

National Liaison

Shelley Cimon, Columbia Riverkeeper and HAB National Liaison, provided interested Board members with international and national articles of interest. Internationally, Shelley highlighted that Japan is looking to release hundreds of thousands of tons of tritiated water into the Pacific Ocean. She also noted that it has been 30 years since the meltdown of the Chernobyl reactor in Ukraine. Nationally, Shelley noted that there is a plume of chromium migrating off-site at the Los Alamos National Lab, and also that South Carolina would no longer accept highly enriched uranium and plutonium from other countries. Shelley also reminded Board members of ongoing challenges associated with WIPP closure and the United States' lack of a deep geological repository.

Shelley was hopeful that the provided information could help Board members continue discussion on cleanup at the Hanford Site.

Environmental Management Site-Specific Advisory Board

Steve said that the chairs and vice chairs of the seven Environmental Management (EM) Site-Specific Advisory Board (SSAB) meet once each six months. He stated the next meeting would take place in April 2016 in Oak Ridge, Tennessee. Steve was excited to report that Dr. Monica Regalbuto, Assistant Secretary for EM, was scheduled to attend the meeting, and he noted that he would provide an update on EM SSAB activities at the next HAB meeting.

Public Comment

Kristin McNall provided comment, inviting Board meeting attendees to the upcoming Oregon Hanford Cleanup Board meeting in Mission, Oregon on the afternoon of May 9 and the morning of May 10, 2016.

Board Business

Draft Letter on Environmental Restoration and Disposal Facility Expansion and Public Involvement

Liz Mattson, Hanford Challenge and issue manager, said that Board members first heard about the vertical expansion of ERDF at the February 2016 Board meeting. Liz noted Board concern that DOE did not engage the public while planning for this vertical expansion, and members of the RAP committee began looking into strategies for providing questions and feedback on the topic to RL. Liz stated that the committee eventually decided to author a letter⁹ that encouraged additional public involvement and information sharing regarding design and future plans for ERDF.

Liz noted that the ERDF framing questions¹⁰ were included as a separate document. She said that RAP and PIC would use the list of questions to work with TPA agency liaisons and devise strategies for educating the public.

Agency Perspective

Jon Peschong, RL, highlighted the timeliness of the topic and the need for additional public outreach, highlighting ERDF as one of three facilities that RL will need to operate for an extended period of time. He noted that Mark French, RL, would be available to answer Board questions.

Attachment 9: Environmental Restoration and Disposal Facility Draft Letter

Attachment 10: Environmental Restoration and Disposal Facility Questions (v1, 4/1/2016)

Regulator Perspective

Dennis, EPA, noted that Ecology should not be referenced in the letter. He said that ERDF is a joint venture between only DOE and EPA.

Board member questions and responses

Note: This section reflects individual questions, comments, and responses, as well as a synthesis where there were similar questions or comments.

C. The letter need to quantify the word “enormous.” Ideally, this term should be inserted as an approachable comparison (e.g. football fields).

R. [EPA] The footprint of ERDF is large, but the landfill is also 70 feet deep. Seventeen million tons of waste have been disposed of in the landfill already. ERDF is one of the largest landfills in the nation.

Q. What regulatory requirements were assumed as DOE and EPA considered vertical expansion of ERDF? Will there be additional vertical expansions of cells?

R. [EPA] It is important to recognize that there will be need to be additional horizontal expansion of ERDF in the future. There is some waste that will need to be emplaced underground. DOE could build ERDF as high as practicable, if needed. It really comes down to loading. For example, ERDF can only take so many curies of technetium-99, regardless of where it is situated within the landfill. Also, if too much weight is stacked on top of the leachate layer, the potential exists for collapsing it.

Q. Are the loading limits for ERDF (e.g. technetium-99) noted in the final Record of Decision?

R. [EPA] The limits would be in the Waste Acceptance Criteria. Agencies can adjust loading, but there is not an infinite amount of contaminants that can be disposed of in ERDF.

R. [RL] The DOE Performance Assessment for ERDF sets the limits for radionuclides.

Q. Are the technetium-99 limits for all technetium-99 or just leachable technetium-99?

R. [EPA] It is all technetium-99. However, DOE and EPA are now looking at technetium-99 coming from the 200 West Pump-and-Treat Facility. In this case, the technetium-99 is permanently locked into exchange resin and it is unable to be removed or leached.

Q. Why is ERDF vertical expansion still continuing when the Board has noted concerns and is in the process of authoring a letter for agencies recognizing these concerns?

R. [EPA] This is an educational opportunity for both the public and agency staff. It will take time to pull answers to these questions. Waste will continue to move into vertically expanded areas.

From a regulatory standpoint, EPA is very comfortable with the 20-foot vertical expansion. The end state will be a gentle slope that will not impact the skyline.

Q. Has the vertical expansion of ERDF been approved of by an Independent Qualified Professional Engineer? If it has not yet been done, why is DOE moving forward with the expansion?

R. [RL] RL will look into the engineering assessment that was accomplished and then provide further information.

C. The letter should explicitly state that the Board requests a public workshop regarding ERDF.

R. [EPA] The current plan is to work with the RAP committee and then hold a public workshop in the evening, after a Board meeting, if there is public interest.

R. The workshop would not be a part of the HAB meeting, it would be in the evening and it would be open to the public.

R. The letter should not explicitly request a public workshop, because the conversation has not evolved to that level. The language should only note that the developments may turn into a public workshop.

Board members accepted the letter, incorporating minor updates to its language and structure. The Board agreed that the letter should be forwarded to Stacy Charboneau and Dennis Faulk.

Framing of Issue: Environmental Restoration and Disposal Facility Expansion

Board members were provided with a list of draft questions regarding ERDF. The questions were compiled by RAP members, and Liz Mattson requested that Board members review and discuss them to ensure that all needed information was covered.

Liz noted that the questions would be passed along to DOE to inform their future interactions with the public regarding expansion and end-state of ERDF.

Board member questions and responses

Note: This section reflects individual questions, comments, and responses, as well as a synthesis where there were similar questions or comments.

Q. How will DOE and EPA respond to the questions highlighted by Board members?

R. [RL] The agency response is yet to be determined, and it will be informed by the contents of the letter and the Board's final list of questions.

R. [EPA] The document contains two general types of questions: (1) those that agencies have not explicitly answered over the years and (2) questions specifically related to vertical expansion. In the coming months, EPA and DOE will look for best strategies to address both types of questions.

Q. How will ERDF's liner and leachate be managed once the facility is closed? Will the liner be punctured once the final closure is capped?

R. [EPA] Current plans do not call for the liner to be punctured at the time of closure. When the leachate ceases to exist, operators will abandon the system. The plan is to not have leachate generation once it is dewatered.

R. Water will likely get through the cap; therefore, leachate will always be a problem. Puncturing the liner is a way to avoid the bathtub effect, where water fills the liner and overflows into the environment.

R. That there is still uncertainty as to whether or not the liner will be punctured speaks to the changing nature of ERDF design and underscores the need for additional public information.

C. ERDF may present an opportunity to do an evening briefing during an upcoming Board meeting, potentially in September 2016. This would allow the HAB to play a role in reaching out to members of the community.

C. DOE and EPA should make Board members and the public confident that expansion will not undermine the original design of parameters of ERDF. The additional vertical load could potentially impact the leachate collection system, the liner placement, and the liner efficiency. There are also concerns that the vertical slope may cause a mudslide effect. From a research and design perspective, how much work did DOE and EPA invest in the study of the vertical expansion?

R. [EPA] EPA requested that DOE mock-up graphics of how the vertical expansion will impact the end-state. DOE could also provide additional detail on vertical expansion design. The design will handle the planned vertical expansion, and the slope will be gentle.

C. [EPA] On cells that were interim closed, there is a liner that DOE needs to remove to stop preferential flow to the side as crews work on loading additional waste. The liner will be replaced as the cells are filled vertically.

C. There were assumptions made about ERDF when it was built, and some of those assumptions changed as the landfill was constructed. The Board is most interested in hearing about those changes. The leachate is a topic of particular interest to Board members. For example, when ERDF was conceptualized, Board members did not realize how much water would be needed for purposes of dust abatement. Also, will the 200 West Pump-and-Treat Facility be able to handle leachate from ERDF?

R. [EPA] ERDF expansion may inform whether or not interim closed cells have less leachate. EPA will look into this as work at the landfill continues.

Q. Does DOE plan to continue doing vertical expansion of ERDF?

R. [EPA] ERDF will need to expand vertically; however, the grade of the cap needs to be kept at consistent height throughout. Therefore, cells will need to be vertically expanded an even 20-foot height across the entire landfill.

Q. Would puncturing the liner at the close of ERDF defeat the purpose of having a liner in the first place? The liner is supposed to catch any infiltration and then shunt it to the leachate system, where it may be pulled out for treatment.

R. [EPA] The liner at the base of ERDF is a double liner, and the leachate collection system is between the two liners. A liner is also placed over the top. Work is currently puncturing the top liner to add additional waste material. Once ERDF is closed and the leachate system is drained, the question remains as to whether or not we will puncture the liner to avoid a bathtub effect. EPA does not believe that DOE will employ this strategy, but EPA will do additional research and then present better information.

Liz Mattson recorded questions as members asked them during discussion. She added these questions to the working list that Board members were provided with. Liz noted that the list would be updated and then discussed further at the upcoming RAP meeting.

Draft Letter from Site-Specific Advisory Board Chairs on Community Investment Clauses in Contractor Packages

Steve provided members with a brief introduction to the content of the EM SSAB letter recommending the incorporation of community investment clauses in DOE contract packages¹¹. He believed that it originated from either the Paducah, Kentucky or the Portsmouth, Ohio Site. He encouraged Board members to review the letter, discuss its contents, and provide any clarifying ideas to him in advance of the April 2016 EM SSAB meeting. Steve reminded Board members that the letter would pass if a majority of Board members provided their support.

Board member questions and responses

Note: This section reflects individual questions, comments, and responses, as well as a synthesis where there were similar questions or comments.

Q. The Board requested that these community investment clauses be included within the last round of contracts that DOE negotiated. When this advice was provided, DOE responded and noted that the agency was unable to do this.

R. When the HAB last recommended this, it was not a legal requirement.

C. The letter should explicitly note that chairs “believe” that DOE has a role in the community once their mission is done. That moves away from calling it a legal requirement.

C. Many DOE complexes are extremely remote, and, as cleanup at the Sites tapers, jobs often migrate away and leave the communities with limited access to familiar resources. The United States public has

Attachment 11: Community Investment Clauses on Contractor Packages Draft Site-Specific Advisory Board Chairs’ Letter

high expectations of the federal government, and communities should not feel abandoned after cleanup is done.

C. The Oregon Department of Energy would be more comfortable with the letter if it explicitly states that the funding for community investment should come from funds set aside for contractor profits as opposed to cleanup funds.

C. From the perspectives of the communities near DOE Sites, this is an important letter. However, the Yakama Nation is against the transfer and the reindustrialization of DOE lands at Hanford. Discussion at the EM SSAB needs to note that, from the perspective of Tribes, DOE needs to cleanup lands and then leave.

R. The letter does not recommend that there be a transfer of lands; however, the Board chair will relay the message during the EM SSAB meeting.

Board members approved of Steve suggesting these changes to the letter at the upcoming EM SSAB chairs' meeting.

Overview of HAB Leadership Workshop

Steve provided the Board with a brief preview of the upcoming HAB leadership workshop. He noted that committee and Board leadership would meet with TPA agency representatives on May 3–4, 2016 at the Ben Franklin Transit Center to discuss upcoming HAB working strategies, the FY 2017 HAB calendar, and the FY 2017 HAB Work Plan. Steve encouraged Board members to convey any questions, ideas, or concerns to EIC members.

2015 HAB Annual Report and HAB Logo

Board received a copy of the 2015 Annual Report¹². Cathy encouraged Board members to review the new, condensed format of the report and provide feedback to the HAB facilitation team. Cathy noted that PIC members would look into authoring content for biannual updates to the Report; she anticipated that PIC would look into updating the Report in the first quarter of FY 2017.

Board members were also presented with the HAB's new logo, which was designed in 2016 using feedback provided by EIC members and agency liaisons.

Attachment 12: 2015 HAB Annual Report

HAB Annual Survey Results

Cathy provided Board members with a review¹³ of the 2015 HAB Annual Self-Assessment Survey. Cathy noted that Board members and TPA agency liaisons were invited to participate in the survey, and a total of 36 individuals participated in the 2015 survey.

One Board member noted that the presentation incorrectly compared results from the 2014 and 2015 survey. This error made it appear that Board members were less satisfied with Board work than they likely were in reality. Cathy said that she would revise the presentation and provide it to EIC members at the upcoming HAB leadership workshop.

EIC members also hoped that a comparison could be made between Board members who “disagreed” and “strongly disagreed” with the HAB Annual Survey questions.

Preliminary June 2016 Board meeting topics

Cathy reviewed the following tentative meeting topics for the June 2016 Board meeting:

- Agency updates
- Safety culture sounding board
- Advice of the Master Acquisition Plan
- Review and confirmation of the WTP communications approach white paper
- Review and confirmation of the Cesium Management and Disposition Alternatives white paper
- Presentation of draft HAB FY 2017 work plan and calendar
- Committee reports

Closing Remarks

Steve thanked Board members for their attendance, thoughts, and decisions. The meeting was adjourned.

Attachment 13: HAB 2015 Evaluation Results

Attachments

Attachment 1: Office of River Protection Agency Update (DOE-ORP presentation, April 13, 2016)

Attachment 2: Richland Operations Office Agency Update (DOE-RL presentation, April 13, 2016)

Attachment 3: Washington Department of Ecology Nuclear Waste Program Agency Update (Ecology presentation, April 13, 2016)

Attachment 4: Hanford Advisory Board Draft Advice on Fiscal Year 2017 and Fiscal Year 2018 Budget Priorities

Attachment 5: Introduction to Safety Culture (v2, 3/21/2016)

Attachment 6: Safety Culture at Hanford (DOE presentation, April 13, 2016)

Attachment 7: Cesium Management and Disposition Alternatives for the Low Activity Waste Pre-treatment System (v1, 3/30/2016)

Attachment 8: Waste Treatment and Immobilization Plant Communications Approach (v1, 3/29/2016)

Attachment 9: Environmental Restoration and Disposal Facility Draft Letter

Attachment 10: Environmental Restoration and Disposal Facility Questions (v1, 4/1/2016)

Attachment 11: Community Investment Clauses on Contractor Packages Draft Site-Specific Advisory Board Chairs' Letter

Attachment 12: 2015 HAB Annual Report

Attachment 13: HAB 2015 Evaluation Results

Attendees:

HAB MEMBERS AND ALTERNATES

Gabe Bohnee, Member	Tom Galioto, Member	Armand Minthorn, Member
Antone Brooks, Member	Gary Garnant, Member	Melanie Myers, Member
Don Bouchey, Member	Becky Holland, Member	Jerry Peltier, Member
Shelley Cimon, Member	Steve Hudson, Member	Gerry Pollet, Member
Alissa Cordner, Member	Pam Larsen, Member	Bob Suyama, Member
Robert Davis, Member	Susan Leckband, Member	Gene Van Liew, Member
Sam Dechter, Member	Liz Mattson, Member	Dawn Wellman, Member
David Bernhard, Alternate	Larry Lockrem, Alternate	Margery Swint, Alternate
Richard Bloom, Alternate	Kristen McNall, Alternate	Jean Vanni, Alternate
Gary Busselman, Alternate	Emmett Moore, Alternate	Helen Wheatley, Alternate
Dale Engstrom, Alternate	Edward Pacheco, Alternate	Steve White, Alternate
Jeff Hunter, Alternate	Dan Serres, Alternate (phone)	

AGENCY, CONTRACTOR, AND SUPPORT STAFF

Mark Coronado, DOE-RL	Dennis Faulk, EPA	Dee Millikin, CHPRC
Kristen Holmes, DOE-RL	Suzanne Dahl, Ecology	Mike Hassell, CHPRC
Ed Parsons, DOE-RL	John Price, Ecology	Jennifer Colborn, MSA
Jon Peschong, DOE-RL	Rochelle Twomey, Ecology	Jennifer Copeland, MSA
Kyle Rankin, DOE-RL	Ginger Wireman, Ecology	Dieter Bohrmann, North Wind/DOE-ORP
Owen Robertson, DOE-RL	Tom Rogers, WDOH	Sharon Braswell, North Wind/DOE-ORP
Doug Shoop, DOE-RL		Peter Bengtson, WCH
Pam Zimmerman, DOE-RL		James Hamilton, WRPS
Jonathan Dowell, DOE-ORP		Steven Shepard, WRPS
Mark French, DOE-ORP		Tammie Gilley, EnviroIssues
Joanne Grindstaff, DOE-ORP		Cathy McCague, EnviroIssues
Yvonne Levardi, DOE-ORP		Brett Watson, EnviroIssues
Dawn MacDonald, DOE-ORP		
Delmar Noyes, DOE-ORP		
Steve Pfaff, DOE-ORP		
Alex Teimouri, DOE-EM		

MEMBERS OF THE PUBLIC

Katherine Bittinger	Shintaro Ito, PNNL	Kelsey Shank, SN3
Annette Cary, Tri-City Herald	Brian Mathis, SN3	Rod Skeen, CTUIR
Jack Cooper	Kristin McNall, OHCB	Joy Shoemake