



FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
RIVER AND PLATEAU COMMITTEE**

*January 17, 2017
Richland, WA*

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

Opening

Jan Catrell, River and Plateau (RAP) committee chair, welcomed the committee and introductions were made. Committee members approved the November 2016 meeting summary.

Announcements

U.S. Department of Energy – Richland Operations Office (DOE-RL) introduced Tom Fletcher, the new deputy manager of DOE-RL. Tom previously worked at the U.S. Department of Energy – Office of River Protection (DOE-ORP), managing the Tank Farms and Waste Treatment Plant startup operations.

Susan Leckband, Hanford Advisory Board (HAB or Board) Chair-Elect, thanked the Board's facilitation team, EnviroIssues, for their long-term service facilitating the HAB. ProSidian Consulting will support Board facilitation beginning in February 2017.

PFP Update

RAP committee members continue to receive briefings on the progress of the demolition work at the Plutonium Finishing Plant (PFP). Physical demolition began on November 1, 2016. Snow, ice, and freezing rain conditions prevented demolition activities throughout December.

Agency Presentation

Tom Teynor, DOE-RL, provided the RAP committee with a brief update on the demolition work at PFP. His presentation included two videos and photos depicting the type of remediation work happening on the site. Key points from Tom's presentation include:

- The fifth and six floors of the facility have been removed. Crews with CHPRC (CH2M Hill Plateau Remediation Company) have started to demolish the fourth floor.
- Demolition of the McCluskey Room began on December 20, 2016. Crews had to halt further demolition work due to winter weather conditions.
- Demolishing 242-Z will require the removal of two long chemical processing tanks before the walls are removed. CHPRC is expecting to begin demolition of 242-Z in February 2017.
- Deactivation work in 236-Z continues to progress, including the removal of process lines, ventilation ducting, and a significant amount of asbestos.
- Waste from 242-ZB (part of the McCluskey Room) was contained and sent to the Environmental Restoration Disposal Facility (ERDF). The 242-ZA is expected to be demolished in February.
- PRF is expected to be demolished in April 2017 and 240-5Z will be demolished in September 2017.
- Some items require a special handling procedure during demolition, such as ventilation ducting. Those items are placed into containers and sent to Perma-Fix.

- CHPRC does not anticipate a change in their schedule to meet the Tri-Party Agreement (TPA) milestone (M-083-00A), despite the estimated three-week setback caused by poor weather.
- CHPRC plans to hire twenty workers to handle asbestos. Workers are assigned to projects inside the building when outside demolition is not feasible due to poor weather. CHPRC needed to hire additional workers to complete the milestone date.
- DOE-RL has secured funding to characterize the soil beneath the 236-Z and 242-Z slabs. Those slabs will be removed, pending the characterization data, time constraints, and cost of removal. There has not been indication that there is contamination located underneath those slabs.
- The work package was modified to allow debris on the ground and fix any contamination with paint at night, if the characterization data supports that process.

Agency Perspective

Stephanie Schleif, Washington State Department of Ecology (Ecology), shared concerns about changes in the schedule due to the delays caused by winter weather. She noted that it was a momentous occasion when workers began demolition work at PRF last fall and that she was pleased with the progress that has been made. She stated that Ecology is monitoring that waste sites are correctly identified and placed into the correct operable units (OUs).

Committee Questions and Response¹

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

Q. Was there unexpected contamination found during demolition?

R. [DOE-RL] No unexpected contamination has been detected. There is less contamination than previously thought. The bulk of contamination is located in the canyon, which will be demolished in March.

Q. When will the stack be demolished?

R. [DOE-RL] The stack is expected to be demolished in July 2017.

Q. Is there a special process used to treat the asbestos before it goes to ERDF?

R. [DOE-RL] All of the asbestos is bagged and correctly labeled before leaving the PRF site.

Q. Where do the specially handled waste items go after they are sent to Perma-Fix?

R. [DOE-RL] Those items are transuranic (TRU) waste. They will stay on the Hanford Site until a decision for shipping TRU waste is decided.

Attachment 1: Transcribed flipchart notes

Q. Are there concerns about subsurface contamination being affected by the water supply used for demolition?

R. [DOE-RL] Water management was a concern. CHPRC ordered an additional high-reach excavator to spray in a top-down manner. There are groundwater monitoring wells on the perimeter of the site. DOE-RL has not seen measurements that cause concern for contamination in the groundwater.

Q. Was there a slant well drilled underneath or near PFP that captured and characterized contamination?

R. [CHPRC] No, that well is located near the 216-Z-9 crib.

C. This demolition work is very exciting! Thanks to the extraordinary and talented workforce for continuing their efforts.

The RAP Committee thanked Tom for his presentation and Stephanie for her agency perspective. The committee anticipates receiving reoccurring updates on the PFP demolition at future committee meetings.

Waste Encapsulation Storage Facility

Since the mid-1970s, the Waste Encapsulation and Storage Facility (WESF) has stored radioactive cesium and strontium in double-walled, stainless steel capsules that are kept in pool cells. The radioactive waste originated in underground storage tanks and were removed to reduce the amount of heat generated by tank waste and for commercial application of cesium and strontium.

There are currently 1,936 capsules located in pool cells at WESF. 1,335 of those capsules are cesium and 601 are strontium. The capsules contain approximately 100 million curies of radioactive waste.

Agency Presentation

Julie Reddick, DOE-RL, provided an update on current activities at the Waste Encapsulation and Storage Facility (WESF). Key points from Julie's presentation² include:

- The WESF Stabilization and Ventilation Project replaced the existing exhaust ventilation system, known as K3. The new system, K3N, will stabilize legacy contamination to prevent release to the environment.
- K3N was completed in 2016. The project was essential for safety and compliance operations and will be compatible with future activities at WESF, including the removal of capsules from the pool cells. The new system does not prevent movement of the capsules in the pool cells.
- A clean cap was placed over the K3 filter pit after contaminated water was displaced from the pit.

Attachment 2: Waste Encapsulation and Storage Facility (WESF) Capsules (DOE-RL, 1/17/17)

- Hot cells allowed workers to safely handle radioactive waste by providing shielding, manipulators, and processing equipment. Workers began to prep the hot cells for grouting, which will stabilize contamination, in June 2016.
- Workers have completed grout work in the K3 duct, duct trench, hot pipe trench and A-Cell airlock. 77% of five hot cells have been grouted to date.
- CHPRC awarded a contract to NAC International in November 2016 to design and fabricate a Cask Storage System for the cesium and strontium capsules. The capsules will be removed from the pool cells and placed into dry storage.
- NAC International is experienced in building casks for spent nuclear fuel. DOE-RL estimates they will need 16-20 casks to hold the cesium and strontium from WESF.
- The cask storage system is currently at the conceptual design stage. Critical Decisions 2 and 3 are expected to be completed by July 2019, with operations beginning in August 2022. The project timeline is subject to change based on the findings between conceptual design and the design submittal.
- The cask storage system is one of three components of the Management of the Cesium and Strontium Capsules Project. The other two activities include a Capsule Storage Area and modification to WESF.
- There is a possibility to reuse West Valley equipment to remove capsules from the pool cells, such as a vertical cask transporter and tug and welding equipment. Capsules will be removed from the pool cells, welded into a container, and placed into an additional container.

Agency Perspective

Stephanie Schleif, Ecology, noted that hot cells are classified as a Dangerous Waste Management Unit and therefore require a permit. There is a final closure plan to grout hot cells A-F and remove the building underneath those hot cells. Ecology is interested in working with DOE-RL to determine a schedule for construction and operations of the dry storage area. She stated that the cask storage system will require a permit.

Committee Questions and Responses¹

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

Q. Was material removed from the hot cells during the grouting process?

R. [DOE-RL] No material was removed. DOE-RL worked closely with Ecology to determine a closure plan.

Attachment 1: Transcribed flipchart notes

Q. Will WESF be demolished in the future?

R. [DOE-RL] Yes, the closure plan calls for removal of the facility at some point.

Q. Are the capsules of high enough integrity to be moved without fracturing and contaminating the pool water?

R. [DOE-RL] Yes, the capsules are checked frequently with a robust capsule movement test.

Q. Is there a requirement for a revised safety basis to cover the risks of the dry storage for a long time?

R. [DOE-RL] Yes, there will be an updated safety doctrine.

Q. Are you planning to cut a section out of the degraded concrete wall for analysis? The data would be very valuable for the life extension analyses of the commercial nuclear reactors.

R. [DOE-RL] It is too early in the process to make that decision.

Q. Will a new building need to be constructed to hold the casks?

R. [DOE-RL] No, the casks will be placed on an outdoor storage pad, equipped with shielding, storage container, and fencing.

Q. The radioactive waste in the capsules is classified as high-level waste (HLW). What is the path forward for moving this material to a geologic repository?

R. [DOE-RL] The capsules have been managed as HLW, but they are not determined as HLW. There is not a formal disposal path, although there have been evaluations on shipping the waste to Yucca Mountain, Waste Treatment Plant, or placed in a borehole.

Q. If the definition of HLW changes, would DOE-RL consider shipping the waste to the Waste Isolation Pilot Plant (WIPP)?

R. [DOE-RL] I have not received direction to look at shipping the capsules to WIPP. DOE-RL is hoping to incorporate flexibility with future activities at WESF.

Q. What aspects of the cask storage system project are funded for Fiscal Year (FY) 2017?

R. [DOE-RL] The project is funded for conceptual design.

Q. What were the costs of demolishing the K3 system and building the K3N system? Were any components of the system capable of being reproduced?

R. [DOE-RL] The Defense Nuclear Facilities Safety Board recommended a new ventilation system be installed, as long as the capsules remained inside WESF. The ventilation system was necessary for operations at WESF in the next four years.

Q. Has there been progress on the deep borehole tests?

R. [DOE-RL] There has been additional interest expressed in deep borehole drilling and DOE is gathering public input on the subject.

Q. Has DOE-RL considered disposal of waste in boreholes on the Hanford Site?

R. [DOE-RL] I have not been engaged in discussions about drilling boreholes on the Site.

R. The geology on the Site does not support deep borehole drilling.

RAP committee members thanked Julie and Stephanie for their presentation and agency perspectives. The RAP committee will continue to track the progress at WESF and request status updates on the Management of the Cesium and Strontium Capsules Project.

Central Plateau Plutonium and Americium Geochemistry

Dale Engstrom and Vince Panesko, issue managers, provided committee members with a brief background on the geochemistry in the Central Plateau. In prior discussions, members of the RAP committee thought there may be other species of plutonium that DOE-RL should consider retrieving from soils and groundwater, like isotopes and daughter products of plutonium. The committee was interested to learn more about the geochemistry of plutonium, americium, and other isotopes that may pose a risk of contamination in the Central Plateau.

Vince shared that prior research performed by Bechtel International in 2010 and 2012 on identifying species and the chemistry of plutonium and americium in soils. Vince stated that Bechtel discovered new chemistry forms and identified further research needs, such as characterization data to manage plutonium and americium in the vadose zone on a long-term basis. Bechtel recommended that further research be conducted on the geochemistry of plutonium and americium to achieve a greater understanding of the potential chemistry in the future. DOE-RL stated that further research will be done on plutonium daughter products and will continue to investigate the chemistry in the vadose zone.

The RAP committee was interested to learn about research that has been done since the Bechtel reports were released in 2010.

Guest Presentation

Dr. Andrew Felmy is a retired laboratory fellow at the Pacific Northwest National Laboratory (PNNL) and research professor at Washington State University. He is a subject matter expert on the geochemistry of plutonium and americium at the Hanford Site. Dr. Felmy shared his research and data of plutonium contamination in soil and groundwater on the Hanford Site with the committee. Key points from his presentation³ include:

Attachment 3: Plutonium and Americium Geochemistry at Hanford (Felmy, PNNL, 1/17/17)

- Americium and plutonium are chemicals that are soluble at low concentrations. They are transportable in the environment during colloid formation.
- An estimated 23 million liters of plutonium bearing waste was disposed between 1945 and 1947. Transuranic wastes are predominately located in the 200 Area, with the 38,000 curies of plutonium-241 and 29,000 curies of americium-241.
- DOE-RL completed a treatability test in 1995 that determined plutonium as “essentially immobile” and discontinued a pilot-scale pump-and-treat system.
- Plutonium was placed into a settling tank and a reverse well (216-B-5). Liquid overflowed from the settling tank and caused groundwater contamination.
- A majority of the plutonium remains in the sediments near the original disposal location. The plutonium has not migrated in the last sixty to seventy years.
- A core sample from a well shows americium-241 that decayed with plutonium-239/42, but did not dissolve when disposed of in neutral conditions. The data suggests that the chemical’s subsurface migration is correlated.
- Plutonium and americium are routinely monitored in groundwater in the 200 Area since 1980. Since then, 1,737 samples of plutonium-239/240 have been retrieved from 316 wells and 691 samples of americium have been retrieved from 170 wells.
 - A majority of the samples have detected waste in the immediate vicinity of the 216-B-5 Reverse well. A handful of samples detected plutonium and americium near the 216-Z-9 Trench and all samples were below the maximum contaminant level (MCL) for drinking water standards.
- The 216-Z-1A Tile Field received liquid waste from several cribs between 1964 and 1969. A majority of the waste was from the Plutonium Reclamation Facility.
 - Most of the plutonium resides at the upper level of the trench about 30 meters into the vadose zone.
 - The americium 241 and plutonium 239/240 ratios decrease as depth increases. Very high concentrations of plutonium and americium are detected in near surface sediments.
 - The data suggest that the chemicals’ subsurface migration is not correlated. A hypothesis is that workers released plutonium into the well and then added acidic waste, which caused the particles to dissolve and transport americium into deeper sediments.
- The 216-Z-12 Crib received large quantities of low-salt, alkaline waste; approximately 271 liters. The waste was neutralized and sent to 241-Z-361 settling tank.
 - High concentrations of plutonium and americium exist in the top layers and silt layers of the sediment, about 100 meters below the surface.

- The data suggest that the volume of waste discharged to the crib is too low for lateral spreading to occur.
- The 216-Z-9 Trench received a high quantity of plutonium and co-contaminants including carbon tetrachloride, tributyl phosphate, dibutyl butylphosphonate, dibutyl phthalate, nitrate and lard oil that penetrated deep into the subsurface. The 216-Z-9 trench is now capped.
 - Core samples from the trench suggest that tributyl phosphate was retained in the silt layer and plutonium was detected in the caliche layer.
 - The data suggests that americium separated from plutonium and migrated deeper into the subsurface. It is unclear if the particles moved laterally.
- DOE's Office of Biological and Environmental Research supported advanced studies of plutonium and americium. Analyses of samples were conducted at the Lawrence Livermore National Lab.

Committee Questions and Responses¹

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

C. There was a conference held in Kennewick, Washington where scientists gathered who work on disposal issues of nuclear fuel products. One third of the scientists were studying colloid formations and were very interested to learn how alkaline or acidic solutions altered the chemistry of the contaminants in the soil at Hanford, which allowed colloid formation of plutonium to become possible.

Q. Is there plutonium in the groundwater?

R. [Ecology] The sediment within the water table is contaminated by plutonium and americium, but the water itself is not contaminated.

Q. What was the proximity of the samples to the 216-B-5 Reverse Well?

R. [PNNL] The samples were extracted within 5 meters of the well and on the peripheral of the well.

Q. The Bechtel report (2012) states that there are several levels above drinking water standards. Are those near the B-5 Reverse Well?

R. [PNNL] Correct.

Attachment 1: Transcribed flipchart notes

Q. What if the caliche layer was a barrier and the waste migrated further? What if the plutonium and americium in the 216-Z-9 Trench moved laterally away from the crib at a depth of 60 feet?

R. [Dr. Felmy] It is possible but we do not know right now and do not have any samples to do further testing at this time.

Q. How could DOE perturb the surface that would change the acidic solution being held in the vadose zone? For example, what if DOE placed water lines in the area? The water lines would dilute the acidic solution. Would plutonium become mobile?

R. [Dr. Felmy] Chemicals will migrate if a significant amount of water is introduced to the system.

Q. Will particles move deeper into the subsurface or move laterally?

R. [Dr. Felmy] I am not a hydrologist but I hypothesize that the particles would move laterally.

Q. How are residual plutonium and americium moved by water with various pH levels?

R. [Dr. Felmy] Scientists discovered that adding water to sediments at certain concentrations can move particles.

Q. How does radiolysis change the solubility of the plutonium and americium species?

R. [Dr. Felmy] There is not a notable difference in solubility between plutonium-239 and plutonium-242. There is a large difference in solubility between americium-241 and americium-243. The difference in solubility doesn't raise many concerns.

Q. How does the decay of plutonium-241 and americium-241 change solubility?

R. [Dr. Felmy] In my experience, the decay of those particles does not change the solubility. I have not done a specific solubility study on plutonium-239.

R. [PNNL] Americium-241 is more mobile than plutonium-241.

Q. Will unacceptable levels of plutonium and americium reach the Columbia River?

R. [EPA] Past calculations have indicated that it would take hundreds of years for those chemicals to reach the Columbia River.

Q. Is it possible for the particles to transport laterally if they reach the caliche level of the soil?

R. [Dr. Felmy] Yes, it is possible.

Q. Is there ongoing work or planned work to conduct additional studies on the mobility of plutonium or characterization data of plutonium in the Z-cribs?

R. [Dr. Felmy] There is not ongoing or planned work to conduct additional studies, to my knowledge. The samples do still exist.

C. There are no plans for future research, yet the Bechtel reports suggest further research. It sounds like the scientific needs Bechtel included in their 2010 study remain valid today.

RAP members thanked Dr. Felmy for taking the time to share his knowledge of research and expertise with the committee. Vince Panesko noted that there remains a need to conduct further studies to answer some of the questions posed by Bechtel and the HAB. The RAP committee may discuss a path forward on this topic at future RAP meetings.

SW-2 Burial Grounds

Shelley Cimon and Dale Engstrom, issue managers, were interested in receiving an update on the 220-SW-2 Burial Grounds. SW-2 is forty miles of trenches located in the northeast and northwest inner area of the Central Plateau. Radioactive waste such as plutonium, uranium and, radioactive materials including caissons and vertical pipe units were disposed in the trenches between 1940 and 2004. Most of the waste came from fuel processing in the 200 Area and from twenty-seven waste generators, located off the Hanford Site.

In 2015, DOE began the process of a Resource Conservation and Recovery Act (RCRA) investigation of the 200-SW-2 Burial Grounds, including a Remedial Investigation/Feasibility Study (RI/FS). The Board responded with concerns about lack of sufficient characterization of the site, which was deemed necessary to inform the closure of the site. The Rev. 1 work plan was released in 2016 and the Board is interested to learn more about the progress made and the path forward.

Agency Presentation

Phil Burke, CH2M Hill, provided an update on the 200-SW-2 Burial Grounds to the RAP committee. Key points from his presentation⁴ include:

- Twenty-four landfills received unsegregated waste, low-level waste, and mixed low-level waste. Landfills contain a total of approximately 500,000 meters³ of waste.
- Seven landfills include RCRA regulations because they received waste that was considered RCRA at the time of disposal.
- TRU waste store post 1970 will be removed under the M-91 milestones.
- There are fourteen co-located waste sites including eleven unplanned releases, Z-Plant Burn Pit, T-Ponds and the 216-C-9 Pond.
- The RI/FS work plan was approved by Ecology on August 15, 2016. DOE and Ecology have worked together through a series of workshops to identify data gaps and needs for each landfill. Data needs include:
 - Aerial radiological surveys

Attachment 4: 200-SW-2 Operable Unit Radioactive Landfills Group (CH2M Hill, 1/17/17)

- Baseline and advance geophysical investigations
- Passive and active soil gas investigations
- 100 geoprobes to evaluate vadose zone
- Horizontal borings
- Test pits
- Multi-detector probes (caisson investigations)
- Evaluation of existing records and knowledge
- The remedial investigation is expected to be conducted in FY 2018.
- Evaluating the test pits would be valuable to investigate the contents of the landfills but they may pose safety and health concerns.
- In 2015, an aerial radiological survey was performed by a helicopter that flew 50 feet above the surface for a total of 30 hours and collected 100,000 data points. The data will be useful for characterization work for other operable units at Hanford.

The Board presented advice (Advice #243) to DOE-RL on data characterization and cleanup efforts of the SW-2 Burial Grounds. DOE's response to the following advice points include:

- Advice point #1: The HAB has consistently encouraged Remove-Treat-Dispose (RTD) alternatives.
 - Response: Options for RTD will be evaluated in the feasibility study along with other alternatives. The evaluation will be based on recent TRU waste retrieval experiences, as part of M-91 milestones and work performed at the Idaho National Lab, and test pits in selected landfills.
 - The recommended key values by the HAB will be considered as the project progresses and are included in the nine Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) evaluation criteria.
 - There will be opportunities for the HAB to participate in the selection of the final alternative.
 - A risk assessment, feasibility study, and the development of alternatives and the final alternative needs to occur before RTD can be implemented.
- Advice point #4: High-risk materials should be prioritized for removal.
 - Response: High-risk materials will be prioritized for removal and will be based on available data and the volume of the landfills. Existing and new data collected during

the remedial investigation will be used to determine the risk to human health and the environment.

- Advice point #7: Both vadose zone and groundwater monitoring require improvement.
 - Response: DOE has recognized that the landfill monitoring required reevaluation and is developing groundwater engineering evaluation reports and revising the RCRA groundwater monitoring plans.
 - DOE will install and sample additional monitoring wells, if recommended by the engineering evaluation and groundwater monitoring plans.
 - DOE has incorporated vadose zone sampling and monitoring in eighteen horizontal borings and ninety-eight direct pushes.
- Advice point #9: HAB is concerned about the current timeline for investigation and remedial action for the burial grounds.
 - Response: The identified schedule that was approved in the 200-SW-2 RI/FS work plan states that field activities related to the TPA milestone will begin in FY 2018.
 - DOE anticipates the completion of field activity within three years.
 - DOE will perform a cumulative impacts evaluation to consider all sources of contamination within the Central Plateau and will track the results closely with the results of the SW-2 investigations.
 - The proposed plan is estimated to be released in 2023, at which time the preferred remedies will be presented to the public for comment.
- Advice point #11: DOE should use descriptive language to accurately communicate the Contaminants of Potential Concern (COPC) and actual condition of the surface.
 - Response: The 200-SW-2 work plan (Appendix D) contains detailed information on landfill history, inventory, previous investigations, COPCs, and subsurface conditions.
 - DOE will provide an overview chart that includes background information, characterization data, and photos for each landfill.

Agency Perspective

Elis Eberlin, Ecology, stated that Ecology supplied comments to DOE on draft versions of the work plan throughout the last decade. Ecology suggested that DOE provide information and the cleanup strategy on each landfill and communicate the information clearly for a public audience. Elis said that the characterization of the vadose zone was necessary to include in the plan and led to exploring additional characterization methods like horizontal boring and test pits.

Committee Questions and Responses¹

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

Q. Is there material in the landfill that requires Q clearance?

R. [CH2M Hill] Yes, that is correct because there are multiple weapon triggers of sensitive design and they will need to be shredded if opened.

Q. What material is underneath the landfills?

R. [CH2M Hill] The landfills were placed on top of previous spills. The content underneath the landfill will be included in the characterization of the contents of the SW-2 operable units.

Q. Will an analogous waste site approach be considered?

R. [CH2M Hill] Performing an analogous waste site approach is a possibility. Ecology has requested that DOE first assess the landfills individually.

C. The advice point about performing characterization data to support Record of Decisions needs more clarification. It does not appear that the HAB's advice was incorporated. Can you relay this request to DOE?

R. [CH2M Hill] We developed a separate characterization plan for each landfill.

C. The documentation does not clearly state what methods DOE will use to characterize data. There is a disconnect between each model and inconsistencies.

R. [CH2M Hill] DOE is committed to performing the actions in the work plan.

Q. At what depth does the aerial survey detect radioactive materials?

R. [CH2M Hill] CH2M Hill is not sure of the depth for detection. DOE-RL can provide a better answer.

Q. How will TRU waste that is pre-1970 be ranked in the priority for removal process?

R. [CH2M Hill] Pre-1970 TRU waste is included in the RAD inventory, which is a key criterion when evaluating risk and prioritizing landfills for removals. The waste will be evaluated with other RAD waste in a particular landfill.

R. [DOE-RL] Pre-1970 TRU waste is considered contaminated waste, not TRU waste. DOE cannot request to move material placed before 1970, unless there is a potential risk. Waste that is eventually excavated must be designated as TRU waste or not and handled accordingly.

C. The agencies need to understand the volume of waste to justify the remedy.

Attachment 1: Transcribed flipchart notes

C. The Yakama Nation is concerned that DOE-RL has not looked at the comments submitted by the Tribe.

R. [EPA] The Yakama Nation's comments were considered. The Yakama Nation should request a consultation with the agencies if there is dissatisfaction and have further discussions in an appropriate venue.

Q. What is the date of release for the cumulative impacts study?

R. [DOE-RL] The evaluation impact is a living document that will be available in multiple stages. Incoming data will feed the cumulative impacts evaluation. The full cumulative impact study for the Central Plateau will be published after the tank farms and performance assessments are approved.

Q. Will the cumulative impacts study be on hold until those other projects make their final decisions?

R. [DOE-RL] No, we will continue to update the cumulative impacts study as new data is reveled throughout the other projects' processes.

C. The HAB sent a letter as a follow-up to HAB advice #243 to request information that is not included in this work plan. Maybe the Board should resend a letter that addresses concerns about items not listed in the work plan. Those items include:

- An intruder and tribal use scenarios
- Groundwater values flowchart
- Fixed compliance post-characterization
- A reconsideration of rooting depths for vegetation
- Some items in the work plan will be evaluated on orders of 1,000 years when they should be evaluated for 10,000 years
- An ecological risk assessment
- Use of an observational approach
- Information about cost, sampling, and cost of RTD contaminants
- Lack of focus of contaminants in the vadose zone

C. The Board's concerns are not limited to one piece of advice. We are concerned about how the Central Plateau principles will be incorporated into this work plan.

R. [EPA] DOE-RL is performing a base approach by doing non-intrusive work first. DOE-RL needs more information before the work plan can be altered. The concerns you shared are addressed in the RI/FS but not in the work plan. The agencies should perform the non-intrusive work first and then share the results with the Board.

C. My concern is that additional characterization work will not be performed if the initial characterization provides little to no data that would result in a required cleanup.

Q. When will the next opportunity be for the Board to share their comments?

R. [CH2M Hill] The next opportunity for public comment will be post-characterization. We will be able to provide updates on the conceptual models and COPC.

R. [DOE-RL] It would be appropriate timing for the Board to share their thoughts post-characterization. Remedial recommendations will not be available anytime soon. We will continue to share information with the Board as the agencies receive it.

The RAP committee thanked Phil, Elis, Jim, and Emy for the presentation and their perspectives. The RAP committee will request a status update on the 200-SW-2 Burial Grounds work plan after the characterization data has been analyzed. Committee members suggested this topic move to a Committee of the Whole so the full Board can learn about the characterization results.

Committee Business

RAP 3-Month Work Plan¹⁵

The RAP committee anticipates a full-day meeting in February to discuss the following topics:

- PFP demolition update
- K-Basin sludge
- WA-1 RI/FS work plan
- 324 Building update

The RAP committee is tentatively planned to hold a committee meeting in April 2017 to discuss critical infrastructure, Ecology's permitting process and receive updates on the Solid Waste Operations Complex, groundwater monitoring, and demolition at PFP.

The RAP committee anticipates meeting in May 2017 to continue discussions on critical infrastructure and the Solid Waste Operations Complex permitting process.

Attachment 1: Transcribed flipchart notes

Attachment 5: RAP 3-Month work plan

Attachments

Attachment 1: Transcribed flipchart notes

Attachment 2: Waste Encapsulation and Storage Facility (WESF) Capsules (DOE-RL, 1/17/17)

Attachment 3: Plutonium and Americium Geochemistry at Hanford (PNNL, 1/17/17)

Attachment 4: 200-SW-2 Operable Unit Radioactive Landfills Group (DOE-RL, 1/17/17)

Attachment 5: RAP 3-Month Work Plan

Attendees

Board members and alternates:

Richard Bloom	Steve Hudson (phone)	Vince Panesko
Jan Catrell	Pam Larsen	Daniel Solitz
Shelley Cimon	Susan Leckband	Bob Suyama
Dale Engstrom (phone)	Casey Mitchell (phone)	Gene Van Liew
Tom Galioto	Alex Nazarali	Jean Vanni
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