

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
RIVER AND PLATEAU COMMITTEE MEETING
May 7, 2008
Richland, WA**

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This is only a summary of issues and actions in 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.

Welcome and Introductions

Maynard Plahuta, River and Plateau Committee (RAP) Chair, welcomed everyone and introductions were made. The committee adopted the March meeting summary.

Bob Suyama was nominated for Vice Chair of the RAP committee, a position recently vacated by Jerri Main. The committee confirmed Bob as the new Vice Chair.

PW 1/3/6 Operable Unit Workshop

Matt McCormick, Department of Energy – Richland Operations Office (DOE-RL), discussed the recent workshop on the PW 1/3/6 operable units. Matt said he thought the workshop was worthwhile and DOE got a lot of good information and feedback on how to modify the feasibility study (FS). Matt said he learned that balancing criteria is important to the committee and DOE is committed to revising the study based on the feedback from the workshop. Matt said DOE will also work with the Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) on any changes to the study. There currently is not an official schedule for the revised FS,

but Fluor Hanford (FH) has already started on some of the changes discussed. Once a new draft of the FS is completed, Matt said he would review it and determine how to proceed forward.

Kim Ballinger, DOE-RL, said the notes distributed from the workshop are a draft so committee members should feel free to submit changes so the notes can be finalized and put on the web.

Maynard asked issue managers to provide their perspective on the workshop.

Shelley Cimon said she thought it was an excellent workshop. Shelley said a lot of information was shared at the workshop and thought it might be useful to draft advice to ensure the comments from Board members are incorporated into the FS. Matt said DOE intends to use the raw notes from the workshop as a map to guide the changes. However, Matt said it is completely up to the Board to determine if advice is warranted on this topic. Matt clarified that DOE held the workshop for the purpose of steering the information in the FS.

Dirk Dunning also thought it would be a good idea to submit comments from the workshop. Dirk agreed that the workshop was interesting and there was good discussion. Dirk noted that there is a different use of caps as is typically considered. In the workshop it became clear the cap was not intended to impede anything and that intent should be included in the FS so the reader can recognize the context. Briant Charboneau, DOE-RL, suggested that DOE-RL could hold another workshop on Revision B and pick up where the last workshop left off. Briant said they would have liked to present more information on the alternatives but had limited time. Briant said as the alternatives are redeveloped it would be useful for the committee to highlight information for a follow up workshop to pick up where the last one left off.

Maynard said if the committee could come to consensus on some of the key points that should be part of the proposed plan it might help DOE to weed through all the comments given in the workshop. The Board could come up with a guideline for what the public is thinking. Briant said the committee could start work on advice to submit as part of the revised document that will go out for official comment. Matt said after DOE sits down with EPA to review the changes, they will be able to share the schedule so the committee will know when the draft of the new FS will come and will be able to gauge when it might be appropriate to issue advice.

Maynard said it sounds like there is consensus that the committee should go forward with advice. Maynard said he liked the concept that Briant introduced that this is an evolving process and workshops can continue to be used to talk through the issues. Maynard suggested that issue managers be identified to work on the draft advice. Maynard said he agreed that it was important to codify the feedback to DOE so there is not a disconnect down the road. Maynard thought this topic is a big issue that will set a precedent on how cleanup proceeds onsite. Shelley agreed and said the committee should draft advice for June so the public knows the Board has weighed in on this issue. Maynard said if the

committee sends advice they should be prepared to follow up on it to keep the collaborative process going.

Briant said many people feel there is a role for caps and barriers but there is not consensus on what that role is. Briant said he is personally interested in finding out where caps fit into the picture in individual's minds. Briant said that Ecology recently announced a cleanup strategy at a nearby grade school. The cleanup approach is to put 6-10 inches of clean soil over arsenic and lead contamination. Briant noted how different that approach is from what is being considered for Hanford which is located just down the road. Briant asked the committee to consider risk as they write the advice and comment on the alternatives.

Matt said he thought any advice from the Board should focus on the foundation of the decision. He asked committee members to be specific about what they want to see in the FS. If the committee is looking for additional alternatives or additional details on cost then the advice should say that. Matt said specific suggestions like this will be useful to DOE-RL as they work to finalize the FS and move to the proposed plan.

Regulator Perspectives

- Dennis Faulk, EPA, suggested that the question of whether to issue advice depends on whether early advice would help DOE as this proposed plan is prepared for public comment. Dennis thought that if advice was submitted by the committee now it would be fresh and could be used to draft the revised FS. Dennis agreed that if the issue managers could articulate the five or six of the most important points from the workshop and get consensus on those points it would be useful for the agencies. Dennis said if the committee continues to record their comments the regulators and agencies will eventually get it, but the advice might be repetitive. Dennis said sometimes the Board is able to take on controversial topics and resolve the issues through committee discussions, issue manager work, and advice. The Environmental Restoration Disposal Facility (ERDF) was a good example this; the issue was worked through with the Board so thoroughly that it did not require public meetings.

Committee Discussion

- Pam Larsen said the Z1A burial ground contains a lot of plutonium (Pu) and therefore is concerning in terms of security. Pam said the reality at Hanford has changed since 911 and the security on a burial ground containing Pu could involve the same amount of security as the Canister Storage Building (CSB) has. Pam said this is not just an issue of capping or not, it is an anomaly and should be considered separately. Briant said DOE has a separate process to address security concerns and said he would hate to drive the environmental cleanup on security. Maynard said the issue does relate to factors of cleanup because the site may need to be cleaned up differently for security versus environmental reasons. Matt suggested it could tie in to the environmental process in terms of institutional controls (ICs) on the Central Plateau. He said security processes will be at Hanford for a long time and that cost would drive the IC. Matt

suggested including a point in the advice to address including security in the ICs and long term stewardship (LTS) costs of the facility.

- Dirk agreed that this decision is not just about these cribs. Dirk thought it would be good to set a series of criteria for decision making. If the burial ground does not contain material that can be dealt with easily then additional characterization should be required especially if there are fission products or other attractable things. Dirk thought the committee could set some go/no-go scenarios to evaluate the risks and the alternatives with buried waste. This could make the work easier for the agencies if they had alternatives to drive the work.

The committee compiled a list of suggestions for inclusion in a Board product.

Specific suggestions:

- Tie all processes together – i.e. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), IC costs, LTS costs. Integrated decision process to evaluate cost.
- Integrate actions with neighboring sites - “Be smart about how you divide up the work.”
- LTS – make sure decisions have permanence. Carry out to at least 1,000 years beyond peak dose.
- Cost/benefit analysis of retrieval versus LTS – i.e. security, cost of taking, etc...
- Ensure assumptions are validated, do not bias on expected outcomes, map radionuclides (and hazardous materials) in three dimensions (add neutron exposure to risk assessment).
- To what extent is retrieval needed should be defined – use HAB’s previous advice. Discuss percentage reduction, volume reduction, risk reduction.
- Need to evaluate risks but need to acknowledge we may not know all of the risks.

Policy level suggestions:

- Criteria for the various sites will help drive decisions.
 - Use the HAB Central Plateau framework.
 - Technology needs – assessment, etc...
 - Appreciated early and collaborative iterative interactive process – committee is committed to continue.
 - Earlier rather than later – sense of urgency.
- Dennis said that typically at Hanford the regulators run the hazard analysis for 1,000 years which is a tiny blip in time. At Hanford the regulators have drawn the line at 1,000 because the uncertainty gets too big after that. Dennis said he heard from individuals at the workshop to be consistent with that process. Dirk thought the analysis should go beyond the peak of hazard.
 - Dirk felt there were issues with the assumptions used in analysis about the mobility of waste. Dirk felt that assumptions were based on the waste not moving in the vadose zone. Dirk argued that the waste has moved so the analysis does not provide the

information needed to make a decision. Maynard suggested that more characterization is needed to make sure the assumptions are correct. Arlene Tortoso, DOE-RL, asked what kinds of suggestions committee members have for validation. Dirk suggested looking at this particular case and set up the analytical processes that will make the waste end up where it is today. Then the team can run the model and see if things happened the way they anticipated, if they did not then something else is happening and it needs further characterization. Dirk said this easily gets to the technical level that is not appropriate for the advice. However, Dirk thought that across the site there is evidence of lateral and vertical transports and the waste is not showing up where it is expected.

- Dennis said he was surprised that committee members did not say they did not like any of the alternatives. Dennis said during the workshop the agencies asked committee members how they would clean up the site if they were in charge and everyone said they would retrieve the waste. However, no one got into the details of how much waste should be retrieved and how deep retrieval should go. Bob felt that this type of detail gets into a decision recommendation which he did not think was appropriate for the committee to comment on. Dennis said the agencies want feedback on whether committee members think the right alternative was selected. Briant said DOE-RL is in the process of re-packaging some of the alternatives but they are not considering anything beyond digging up the waste, leaving it in place, or treating in place. Briant said they are trying to include more combinations of alternatives in the revised FS based on feedback from the workshop. However, all the alternatives include caps.
- Dave Roland said he would like DOE-RL to look at mining technology.
- Harold Heacock said it was important to include risk at various levels for workers and the environment. Briant said in order to determine future risk you have to determine an exposure path and be explicit about how someone will be exposed. The risk is low to someone working in the area unless they intrude into the waste. Dick thought that approach was assuming there is no real risk from the groundwater. Dick Smith said the modeling used to calculate risk is not good at assessing risk. Dirk suggested that DOE evaluate risk but acknowledge that all the risks may not be known.
- Dave said this land will not be useable for hundreds of years and that cost has not been evaluated.
- Dirk said some committee members proposed using T Canyon as the hot transuranic (TRU) processing facility but there were structural issues in U Canyon that could be present at T Canyon as well.
- Maynard thanked the agencies for the open process and the productive workshop. He said the committee appreciates the effort made to include them in this work. Shelley and Dirk volunteered to work on the draft advice and send it out to the committee to seek consensus before the HAB packet deadline of May 19. Maynard said all committee members should respond when the advice is sent out via email and not wait until the Board meeting to bring up any outstanding issues.

Hanford Comprehensive Land Use Plan Environmental Impact Statement

Matt provided an update on the Hanford Comprehensive Land Use Plan Environmental Impact Statement (HCP-EIS). He said the Hanford site falls under CERCLA and includes three existing national priority list (NPL) sites: the 300 Area, 200 Area, and 100 Area. DOE is a lead agency under CERCLA and therefore is responsible for designating future land use. Matt said they chose to do that by using an HCP-EIS back in the 1990s. Matt said this is why there are anticipated future land uses designated for the NPL sites and for Hanford as a whole. The record of decision (ROD) is a living document and is reviewed approximately every five years to determine if anything has changed that will change the previous land use decisions. Matt said the review looks at the processes and makes sure the remedy selected is protective of the designated land use. The Central Plateau designation recognizes there will be long-term waste management issues from ERDF and other facilities. Matt said they use 50 years as a benchmark for the review but realize that the contamination will be there a lot longer than that.

Committee Discussion

- Maynard said he was involved in the Comprehensive Land Use Plan (CLUP) when he worked onsite and remembered discussions about the fact that not a lot was known about the extent of contamination in the 1990s. Maynard said a decision was made that the CLUP had to be based on what was known at the time, even though there was not a great deal of certainty in that information. Maynard asked how the new information will impact the HCP-EIS. Matt said Bryan Foley, DOE-RL, will get into that discussion later during the presentation on the Supplemental Analysis (SA). Matt said they will look at the new information in terms of what cleanup decisions have been made and what has been constructed or deconstructed onsite since the EIS was done. The five year review is a look at what has been learned since the last plan.
- Maynard said he is particularly interested in the 300 Area because at one time it was designated residential but changed to industrial. Dennis said the 300 Area is being cleaned to industrial, but that does not mean other activities cannot happen there. He warned committee members not to get too caught up in the terms. The 300 Area could have residential structures at some point, but there will be limitations.
- Pam said from the Hanford communities' perspective the way DOE is going about cleanup in the 300 Area is encouraging because when they find Pu they are going after it. Pam thought there is incremental decision-making happening that is encouraging for long term use and that should be done in other areas too. Matt said under CERCLA, DOE-RL has to protect the groundwater. So sometimes it does not matter what the land use is, because ultimately DOE is responsible for protecting groundwater. Matt reiterated that the land use does not drive the cleanup.
- Dirk said the state of Oregon is concerned about whether the assumptions in the EIS make sense. Fundamentally, at a national level, there was a decision to designate land industrial or residential. In Portland, there was an industrial site that was cleaned up

and houses were built there. Dirk thought that over time these land use concepts will break down because they cannot be maintained.

Hanford Site Wide Permit

Ron Skinnerland, Ecology, provided an update on the Hanford Site Wide Permit. Ron said Ecology's current schedule is to have the permit out for review in October. Ron said they have talked with DOE's public involvement group about this and will work with the HAB more when the permit goes out for review in the fall. Ecology is also planning to hold public meetings on this topic. Ron said the permit has been in place for ten years and Hanford is currently still operating under the existing permit.

Ron reviewed the project's frequently asked questions (FAQs). Ron said the entire Hanford site falls under the permit including all units labeled under CERCLA and RCRA. The sites were labeled under CERCLA or RCRA depending on whether Ecology or EPA would lead the action and depending on what type of waste they received. Ron said the permit regulates WTP, T Plant, Waste Receiving and Processing Facility (WRAP), low level burial grounds and trenches, and closing burial grounds. Ron said the waste needs to be treated to a certain degree before it is disposed of. The permit also covers spills past or present. The permit attempts to be consistent in using RCRA and CERCLA in an integrated process.

Ron also distributed a handout that outlines some of the differences between the old and new permits in a table. Ron described the process for modifying a permit and explained how the permit relates to the Tri-Party Agreement (TPA). Ron said Ecology has permit authority through the TPA and has inspection requirements to conduct the enforcement.

Committee Discussion

- *Can the permit regulate the import of waste?* Ron said people have different opinions on that, but Ecology does not think it is covered in this permit.
- *Does the permit cover spent fuel?* Ron said that falls under CERCLA.
- Pam asked if the picture included in the FAQ document is of Purex tunnel. Madeleine Brown, Ecology, said the handout includes an old picture of Purex but was not sure the exact date of the picture. Bob thought the picture was 1990s or newer.
- Barbara Harper said the picture on the front page of the FAQs handout is misleading. The tan area labeled the Central Plateau does not match the area designated in the CLUP – it seems to have grown substantially. Barbara asked that documents be consistent in labeling the boundaries. Ron said the picture is supposed to be general but the point is well taken.
- *Are the single shell tanks (SSTs) currently permitted?* Ron said the SSTs are part of the permit under the interim operating status. The SST and Double Shell Tanks (DST), as well as other facilities, do not have final conditions but are under obligation

to be managed facilities. Stan asked whether staff licensing requirements were covered under the permits. Ron said they are not; however, Ecology has requirements in the regulation that documents have to be reviewed by qualified engineers. Stan asked if that was true for groundwater reports. Ron said the state requirements apply for groundwater. Dirk said if an engineer has to sign off on the report then the work has to be under their supervision.

- Dirk said DOE made a presentation to the Oregon Cleanup Board on Purex tunnels that the committee could benefit from. Dirk suggested that RAP request this for a future meeting. Dirk also asked if the waste brought into the 300 Areas in the late 1990s was permitted under RCRA and if the low-level burial ground covers 618-10&11. Ron said the table in the handout lists revisions of the permit including facilities that will be renewed, added, or that are undergoing closure. Dennis clarified that just because something says clean closure in the handout does not mean all the hazards have been removed. Ron added that there are cases where the building might be part of the permit but the area underneath the building is permitted through another process.
- *Does EPA consider applicable or relevant and appropriate requirements (ARARs) under CERCLA such as RCRA?* Dennis said EPA considers RCRA and ARAR under CERCLA.
- Shelley said she was impressed with the FAQs document and thanked Madeleine for her work on it.

Supplemental Analysis to HCP-EIS

Bryan Foley, DOE-RL, provided an update on the SA to the HCP-EIS. Bryan said the purpose of his update is to summarize the comments received during the review period and to discuss the documents reviewed during the SA process. Bryan said DOE-RL sent a fact sheet out to the public and emailed cooperating agencies regarding the SA. DOE-RL met with stakeholders (including the HAB), trustees, the city of Richland, and county planners. The informal review was from March 24 through April 23, 2008. Bryan said they received comments from Ecology, U.S. Department of Fish and Wildlife, Oregon DOE, and the city of Richland. Bryan said he received comments after the comment period ended from several of the tribes and other parties. Bryan informed these groups that any comments received would be considered to the extent practical.

Bryan highlighted some themes in the comments he received. He said opinions on adequacy of the SA evaluation varied. Bryan said he heard many comments about the need for additional analysis on habitat and ecosystems due to the fires that have happened onsite since the last EIS. Bryan said DOE-RL intends to include a response summary at the end of the SA document.

Bryan reviewed the document evaluation process in conducting the SA. Bryan said they identified over 300 documents and had to come up with a process to evaluate them all. He said they started with a key word search and then narrowed it down to identify a

direct link to land use in relation to the CLUP. Bryan provided examples of the documents DOE-RL reviewed: existing Hanford National Environmental Policy Act (NEPA) documents, CERCLA and RCRA documents, resource management and area management plans, DOE orders, policies, and guidelines, executive orders, cultural and historical documents, and documents identified by the tribes and other stakeholders. The next step for the SA is to finalize the document by the end of July. DOE-RL will post the SA in its final form on the Hanford public documents webpage with the old HCP-EIS.

Regulator Perspectives

- Deborah Singleton, Ecology, asked what DOE-RL's timeframe is for responding to comments. Bryan said they will start looking at proposed draft responses today and hope to have the draft responses reviewed by next week. Deborah said Ecology submitted minor comments but were pleased with the overall document itself. Ecology is interested in what other comments came out of this process.

Committee Discussion

- Dirk said the state of Oregon had some general concerns including the fires that have changed the RCRA conditions. Dirk said fires tend to burn sage which greatly reduces bird habitat. The habitat areas become more important when fires have sacrificed areas.
- Charlene Androtti, U.S. Fish and Wildlife, summarized issues from the fires. She said there are places that may be more important to look at now in terms of wildlife values. Fish and Wildlife asked DOE-RL to reexamine that as a missed opportunity. Charlene said the ecological and land use issues should be analyzed in the document. Bryan said DOE-RL heard those concerns from Ecology and Fish and Wildlife.

Committee Discussion on Rattlesnake Mountain

Maynard said during the last Board meeting the topic of Rattlesnake Mountain came up and it was debated whether the HAB should issue advice on the topic. Pam explained that DOE sent a letter regarding decisions about Rattlesnake Mountain without meeting with the community or discussing what facilities will be affected by their plans for the mountain. Pam said recently the city of Richland, Benton/Franklin counties, and local utilities met with DOE to talk about the plans. Pam said Emergency Services was involved as well because they respond to the area. Benton County received \$7 million to upgrade the electrical tower facility located on Rattlesnake Mountain. Pam said Dave Brockman, DOE-RL, was not aware the money was already in the bank to update the emergency systems. Dave was supportive of upgrading the emergency support system and now understands the issues with moving the towers. The height of the mountain is a factor because there is not another place to put the towers. Pam said there will be further dialogue and discussion on this topic.

Regulator Perspectives

- Ginger Wireman, Ecology, asked if anything was decided regarding the observatory. Pam said there is still a concern about access to that facility; there has not been access to the observatory for two and a half years. Pam said this impacts the ability to take tours to the observatory which impacts funding to the site and local organizations. Pam said Dave had a better perspective on all the issues at the end of the meeting. Pam was optimistic there will be opportunities for fixing the problems.

Committee Discussion

- *Who is going to fix the road on Rattlesnake Mountain?* Pam said DOE is concerned because the cost of fixing the road is estimated at \$1 million and they do not want to take money from cleanup. Washington State Emergency Management volunteered to clean up the road this winter but they were told no. Pam said she thought there should be a way the state can partner with DOE to get this done.
- Bob said he did not think this was a cleanup issue that the Board could weigh in on, but he said it is a public notification policy issue. If DOE would have had this discussion before they made a decision it would have made a difference. Bob thought the Board could advise DOE to have open communications and make informed decisions.
- Stan said the Nez Perce tribe has issued a press release in support of DOE's action.
- Rick Jansons said he talked with Dave too and said he did not think this issue was within the HAB's scope except for the issue of cleanup money. Rick said he thinks DOE does try to work with the public and this was just a communication problem. The issue of the towers is also important and it is good that governments are working together to resolve the issue.
- Maynard agreed that DOE recognizes the mistake and the fact that they are talking with the community now is good. Maynard said this is a learning process and DOE is making an effort to work with everyone.
- Dick asked if this was a local decision or a decision made by headquarters (HQ). Pam said it was a local decision.
- Harold agreed with Rick and Maynard that the problem is being addressed and any advice to DOE is not a cleanup issue. Pam agreed that the Board does not have to weigh in on this. DOE recognizes there is a problem and Pam suggested to leave it be. Committee members agreed with this approach.

M-91 Facility

Mike Collins, DOE-RL, provided an update on the M-91 facility. Mike said DOE-RL looked at T Plant for handling the waste from M-91 but as they explored this option they

found it was a huge project and would require a lot of capital and a lot of time to build. Therefore DOE-RL has been evaluating other alternatives including smaller facilities, offsite processing, and a mega-facility like WTP.

Mike reported that so far DOE-RL has been able to get 283 cubic meters of M-91 waste offsite to Perma-fix Environmental Services. This year they have sent 199 cubic meters. Mike said the Waste Isolation Pilot Plant (WIPP) is currently only accepting compacted waste from Idaho and Hanford has been told that they would need another agreement to send compacted waste there so this is currently not an option for M-91.

Mike said if DOE-RL does not receive any additional funding for M-91 the project would be delayed. In the near term, DOE-RL does not expect money for new capital facilities, but they do have money for non-capital projects including onsite and offsite treatment. Some of the M-91 money from this year has been transferred to the Plutonium Finishing Plant (PFP) and other places.

Regulator Perspectives

- Dennis said EPA asked WIPP personnel the question of whether other states can send them compacted waste. WIPP personnel said they had no problem with accepting it, but the system is expensive. Mike said DOE-RL has looked at shipping the waste to Idaho to be compacted but the transportation requirements were also an issue.
- Deborah said Ecology has been working with DOE to look at the milestones. Deborah said Ecology would like DOE and their contractors to communicate the constraints moving forward. Ecology recognizes the milestone does not just include the facility but the capability to treat or ship the waste as well. Deborah said one of the challenges is how to achieve the capabilities for the large packaged waste. Ecology is pleased that a lot of the waste has already been sent for treatment; some of that includes remote and some is large containers. Deborah added that Ecology recognizes that there will be challenges moving forward but the agencies are working on those. The open communications on the new technologies and capability has been good and will continue.
- Dennis said the agencies had a great idea to build a central facility to deal with the waste streams, but it did not happen, so now all the projects are on their own to deal with their waste streams. What happens at 618-10&11 will help determine what is done programmatically. Dennis said the agencies will learn a lot from that effort because it is on a faster track. It appears DOE is trying to be strategic about shipping waste to Idaho because they have a good facility and will have extra capacity. That may be a programmatic decision that DOE makes.

Committee Discussion

- *What is the size of the inventory?* Mike said there is 10,000 cubic meters of waste.
- *Is the issue with sending material to WIPP a policy decision?* Mike said there is an issue of whether Hanford is in the pipeline to send waste to Idaho. The other issue is

meeting the milestones; DOE has the ability to do TRU packaging onsite and is not considering compaction right now.

- *Would the glove boxes be sent offsite?* Mike said those could not be sent offsite. Dick asked if those are dead in the water for the near future. Mike said they are for now but if DOE-RL gained additional capabilities in T Plant they could be dealt with there. Mike said there are other interim things DOE could do to deal with the large packaged waste.
- Dirk asked if one of the alternatives they are considering for M-91 is not having a facility and shipping to Idaho instead. Mike said that is not one of their options. Mike said he thinks they will have to build something eventually. T Plant could treat some part of the waste but not a large part or the hardest part. A new facility would eventually have to be deconstructed and decontaminated (D&D) so DOE-RL is weighing the tradeoffs.
- Dirk said it seems like the lids on the canyons would have to be replaced if they would be used for treatment. Mike said the walls make a lip that the lid sits on and that would need to be upgraded. Dirk said in U Canyon all the sections are not connected together and could move independently in an earthquake. Mike confirmed that is true and said T Plant is like that as well.
- Shelley asked if the 10,000 cubic meters Mike referenced in M-91 is included in the milestone. Mike said it is, but the forecast does include some TRU waste too. Shelley said Idaho has a good compaction system but transportation costs are going up. Shelley wanted some sort of guarantee that everything will be exhumed. She said if it looks like there is a large amount of waste then maybe a facility should be built at Hanford. Maynard said the Idaho compactor is really efficient and is operating at an eleven to one ration. Maynard thought Hanford should take advantage of Idaho's ability to compact waste and ship to WIPP. Deborah said Ecology needs to have conversations with DOE now in order to plan for the milestones.
- *Is the Z9 mine suitable for shipment?* Dennis said it is but would need to be over packed.
- Shelley asked Ecology to come back and update the committee on progress of discussions with DOE and let the committee know if there are opportunities to comment.
- Pam said it seems like it will cost a lot to send waste to Idaho just to get it compacted. Mike said from a worker safety standpoint it also makes sense to compact the waste onsite if workers are going to have to touch it during retrieval. Maynard reiterated that serious thought needs to be given to reducing the volume of the waste and at this point the options should be kept open. Dennis said the current compactor in T Plant is not very robust and DOE would need a new one if they were going to compact waste onsite.
- Susan Leckband noted that expanding WIPP would require an amendment of the Land Withdrawal Act and they do not think that is possible.
- *Have you looked at K Basin sludge in relation to M-91?* Mike said they have looked at whether T Plant could work to treat the sludge. There are concerns about T Plant

and whether it is feasible to have two processes going at one time if M-91 is there too. Mike said he has heard over the last couple weeks that T Plant is still on the table though.

River Corridor Update

Joe Franco, DOE-RL, provided the River Corridor update.

ERDF Update:

Joe said DOE-RL is currently doing some follow up on testing at ERDF. He said they set up test pads to calculate compaction to see if there was an impact from the tractors. Joe said the tests were positive and the tractors are working well. He also said the new global positioning system (GPS) technology has helped the operators determine if they miss a pass and will alert operators when they have compacted an area to the right level. Joe said they have gotten the compaction ratio down to one to one with the box of soil and material. The new GPS system will also minimize the amount of personnel needed in the contaminated areas to take readings. Joe said DOE-RL is working with EPA and an independent technical review team to look at the technologies at ERDF.

Joe briefly summarized the event that happened recently at ERDF when operators encountered a flash. Joe said the actions taken by the people in the field were done well; everyone stopped work and backed out to take the time to do the investigation. The operator encountered soil contaminated with mercury and the mixture caused the flash. Joe said DOE-RL needs to work on an approach to make sure the mixtures are correct so this does not happen again. Joe said they are planning a phased approach to deal with the mixtures.

Bruce Cobert, Washington Closure Hanford (WCH), provided some additional information on the status of ERDF. Bruce explained that DOE-RL has just implemented a new compaction limit of one can soil and one can debris. Bruce said they no longer have to use clean fill for compaction which is a more efficient use of the cell space. They have also upgraded the leachate system and put in new programmatic logic controller and remote alarms. Bruce said this will save WCH money because they will no longer need to pull wire. ERDF has also recently invested in some infrastructure upgrades including a scale, bulldozer, long haul trucks, and 100 new containers. These purchases will help keep activities working efficiently and will prepare them for the increased volumes of soil from the River Corridor project and other Hanford contractors. Bruce said they are continuing to work on construction of cells seven and eight. They have mobilized the subcontractors and plan to finish cell excavation sometime in the next week. The team has achieved “zero” accidents and has excavated 850,000 cubic yards of soil thus far. There are also pipes going in for the vadose monitoring. Bruce said things are going well on this work.

Bruce elaborated on the mercury event on February 20th. He said the cause was most likely pocketed gas from the treatment process. When the waste was brought up there was a short flare. A team was sent in to evaluate what happened and discovered that material was coming to ERDF from the BC Area in large plastic bags and was mixed in the box which generates hydrogen. The large chunks of plastic from the bags caused pockets of gas which reacted with the mercury mixture and created the flare. WCH modified their approach moving forward to ensure a safe process and will take the following steps:

- Prescreening waste to minimize large debris
- Field measurements of soil for mercury contamination
- Adjustment of the reagent according to measured mercury concentration
- Increased mix time to allow gas to dissipate

Committee Discussion

- *What form does the mercury end up in?* Bruce said when they are mixing the material it is soupy so they add bentonite to thicken it. Dirk asked if it is zinc amalgam. Bruce confirmed it was. Dirk asked what keeps that mixture stable so the zinc does not react in the soil. Bruce said sulfuric acid and calcium polysulfide are added and bentonite on the tail end. Bruce said this is a proven technology that has been used at other sites.
- *How much more of the soil that needs to be processed has mercury?* Bruce said 2000 tons.
- *Do you anticipate elements in other waste sites that could cause gas as well?* Bruce said there are other sites where this will be an issue as well. They are looking at all of the technologies and making sure that what is being used takes into consideration all of the materials involved. WCH is working with EPA and DOE to create a generic treatment plan so when a certain type of waste is found, a team can pull the plan off the shelf and use it as an approved technology for some of these issues. Bruce said they put in a tracking system last year and now have the ability to look at every document put in place and report on various activities around the site.
- *Do they monitor the quality of the clay?* Bruce said that is specified by the technology company and did not know that information specifically. Larry Lockrem commented that the exchange capacity can be less efficient depending on where in the mine material is being pulled out and asked the team to keep that in mind.
- Bob asked if it would be worth taking a tour of ERDF. Bruce said if the committee went out to ERDF they would be able to see a beehive of activity. Bruce said they are doing 150-200 cans a day now and you can see excavators working in the cells. Bruce offered to take the committee through the leachate systems if there is interest.
- Larry said he was curious what the allowable limit is for technetium 99 in ERDF. Bruce said it is 111 curies. Dave added that the level has gone up but was not sure how much. Dirk asked if the waste acceptance criteria (WAC) for ERDF was being changed. Dave said it was. Dirk asked when that would go out for public comment. Dave said he was not sure what the schedule was. Dirk said the risk analysis is based

on those limits, so if the limits are being raised the analysis needs to be redone. The limits are based on potential impacts to groundwater that do not exceed the drinking water standards. Dirk said the original WAC for ERDF was not a unanimous decision and it was agreed that RCRA waste would not go in. However, one year after ERDF opened RCRA waste was allowed. Dirk said the size of the facility has also been expanded and is still based on a minimal risk analysis.

- Pam asked if WCH is seeing technetium 99 in the leachate system. Dave said they have not seen it in the leachate. Pam asked if what is captured gets grouted and put back in. Dave said grouting will happen at the effluent treatment facility (ETF). Dirk said grouting technetium 99 essentially turns it into a time capsule to be released to groundwater later.
- Penny asked if the committee thought it would be necessary to designate an issue manager on ERDF. Barbara Harper suggested looking at ERDF in combination with U.S. Ecology and look at the risks together. Maynard said the Board has no authority over U.S. Ecology. Dennis suggested looking at how the Integrated Disposal Facility (IDF) and ERDF compare. Maynard thought that having DOE and EPA continue to provide updates as appropriate would be adequate. Susan supported Dennis's idea of looking at IDF and ERDF. Penny asked if this was a time sensitive topic. Susan thought it was more for the committee's general education and was not time sensitive.
- *Is clean fill still being used?* Only at the 35 foot level to put trucks in.

618-7 Burial Ground Update:

Joe said the work at the 618 – 7 burial ground is going well. The crew is already thirty percent complete in the big trenches. They have not hit any major drums but have found a lot of aluminum. Joe said they found a few drums that had oil on the ground and those were put in containers. DOE-RL is working on arranging for the contractor to add a second shift because as they get to the beryllium (Be) drums the work will need to move more slowly. Joe said when the reports on this burial ground are finalized DOE-RL will share them with the HAB.

John Darby, WCH, provided additional information on the 618-7 burial ground work. John reviewed the estimates for waste sorted to date at the burial grounds. He reviewed an aerial photograph of the site and highlighted that the work has mainly occurred in the large trenches. The Be is thought to be in the smaller trench. So far the radiological dose rate (RAD) levels are low and will allow for accelerated work in the main trenches. John said when WCH started the work they were not sure how many drums there were, now that they know they can ramp up staffing. John said the construction of a new queue will shorten the load out time and increase the load out rate to 90 cans per day. John shared some photos of the types of material they are finding in the main trench. John said they are finding a lot of metal and building materials. John said they were also surprised by the amount of lead they are finding. John said the lead quantities are thought to be from the fuel rods which were dipped in a molten lead bath and scraped off and the lead was dumped here. John said because the lead was molten it ends up sticking to other things so

it is not something you can extract out. John reported on some of the radiological survey results. He said on average the levels are just above background and air monitoring has confirmed that no material has moved offsite.

- *Is each can 20 tons?* John said yes, and they go into a standard ERDF box.
- *Have you experienced any flashes?* John said they have not because they have not found the Be yet.
- *Are there other layers of material below 15 feet?* John said there are but the survey equipment will not show how deep. The excavators can dig 12-15 feet and they can tell when there is a change of material, or when they get to the bottom of the trench, but they have not gotten there yet. John said he thinks there is probably two or three more feet of material but he is just guessing.
- Dennis commented that EPA is pleased that the work is going well.
- *How will the funding shortfalls impact this work?* Joe said work on this burial ground is expected to be done by the end of this fiscal year, so the work will not be affected. However, overall numbers for River Corridor are grim. Joe said the original vision for DOE-RL was to cleanup the river first and then Central Plateau so they are looking at reconfiguring work to put more emphasis on River Corridor funding.

K Basin Sludge

Tom Teynor, DOE-RL, provided an update on K Basin sludge. Tom brought simulated sludge samples to demonstrate to the committee some of the issues with retrieving the sludge in K Basin. Tom showed how the samples congeal in a way that makes the sludge difficult to pump. Tom said \$20 million from the K Basin project was given to River Corridor in 2008 because it was not needed.

Tom discussed the original vision for the sludge treatment project, he reviewed the project history and outlined the Technology Readiness Assessment (TRA). He said transport, mobilization of sludge, and burial issues were identified. The characterization of the data was disjointed and did not make sense. Tom said his team has made an effort to pull all of the information together so they will know up front what they are dealing with. There has not been any characterization on the pots, so labs and testing will be required before moving forward. On 3/28/2008 DOE provided the following direction to FH:

- Provide a CD-1 package that includes an alternative analysis for removal of all sludge and containers at K West Basin
- Remove the sludge with or without treatment to the Central Plateau
- Evaluate treatment alternatives that meet WIPP criteria (no moisture is allowed for material that contains PCBs)
- Provide contingency planning for sludge contained in knock-out pots (KOP)
- Advance the design of the current in-basin and out-basin grouting system

FH will complete the alternatives analysis by late FY 2008, the CD-1 submittal by late FY 2009, sludge sampling will occur as soon as possible, contingency planning is underway now, and KOP sampling/retrieval is being evaluated for integration into overall K West Basin schedule. Tom said he has been asked to take more fuel in the barrier grounds and the CSB. Tom said DOE-RL will try to sequence the fuel movement during the operational readiness review to make sure things run well. Tom said they will still have the ability to receive the waste and will put it into the basin to be processed.

Tom provided some additional information regarding the alternatives analysis, reviewed the characterization efforts that have been done thus far, and described the additional characterization planned.

Regulator Perspectives

- Deborah asked what DOE-RL's timeframe is for meeting the cleanup milestones. Tom said it will depend on the technology development work. Tom said he does not want to get in a position where they move the sludge away from the river but then do not have the ability to deal with it which could lead to exposure. Tom said this is part of the reason they stepped back to deal with the technical problems up front. Tom said if the technology does not work out fast enough then they will need to arrange a way to get it away from the river safely. Deborah said she was pleased to hear this but said she is still skeptical because of the history of this project.

Committee Discussion

- Dirk asked if Tom had found any Pu in the backwash. Dirk said there had previously been issues with Pu oxidizing and separating and moving around the basin. Dirk said he has raised this question in the past and never received an answer. He said when you looked at the fuel you could actually see the corrosion that indicated the separate oxidation happening. Tom said he would get Dirk an answer regarding this issue and report back to the committee.
- *How will you ship the material?* Tom said they are still evaluating that; the multi-canister overpacks have not been evaluated for this material.
- *What is the volume for the KOP?* Tom said they are 0.5 cubic meters. Tom said there are 29-30 cubic meters of material total.
- *What were the KOP used for?* Tom said they were used to transfer material.
- *If you do move the sludge away from river, where would you move it to?* Tom said somewhere on the Central Plateau but not T Plant. Tom said they are looking for a multi canister overpack to move the sludge. Shelley asked if moving the sludge to the Central Plateau would require a new facility. Tom said they are looking to put the KOP at CSB in an overpack but they need to first resolve the issues of gassing that Dirk brought up.

- Dirk asked if the estimates for the total waste include the waste that was already moved. Tom said the estimates he cited is just for the north load out pit. Dirk said prior to that there was other material that was pumped out and put in canisters to go to T Plant.
- Shelley asked what technologies FH is looking at. She said she recently learned about a wax that will penetrate any material and could be used for curing and drying sludge. Tom said a wax-like material is one they are considering. There is another material called Nochar that is being considered as well. Nochar will suck up a tremendous amount of liquid, eight times its volume, and turns into a rubber like substance. The wax can also be used after the Nochar to seal a container and make it impenetrable to water or other liquids.
- *Are there other chemical processes being considered?* Tom said that will be part of the alternative analysis. DOE-RL has asked the contractor to go back and do a thorough analysis of what has been done previously.
- Susan said the Board has been following this project for 10-14 years. Susan asked how the knowledge regarding new technologies will be passed on when the contracts are transitioned. Tom said that is a valid concern and DOE-RL is addressing that in the plans for K Basin. Tom said because these are the first of its kind technologies DOE-RL is asking the contractors to look hard at their teams and try to keep the talent together. Tom said he worked onsite previously and understands the threat from loss of productivity. Tom said he is hoping to show that there is rigor and discipline and that work can get done on this project as it moves forward.
- *Are you involved in Mark Gilbertson's group?* Tom said they are tied into Mark's work and are using the concepts that have already been developed.
- Larry asked if the tests will be scaled up from five gallon drums to 55 gallons? Tom said they would scale up the tests. Larry also asked if the composition being tested is slag or just cement. Tom said he was not sure but the person working on it has extensive experience with cement.
- Bob said it has been years since retrieval work has been done in the K Basins and wondered if the staff is prepared. Tom said they are doing an operational readiness review to evaluate that. Tom said the operators DOE-RL was using in K East will be the same ones used for the fuel movement. FH is working on training their staff now in preparation to start work in mid June. They have a \$200,000 incentive to get the fuel moved by June.
- Larry asked how much uranium is in the basin and whether hydrogen gas will be an issue. Tom said that is a concern and the sampling and characterization work will help provide more information on what the conditions are today. The Data Quality Objective (DQO) process has been finalized and will follow analyses done previously. The chemical constituency may have changed so they need to go in to see what they will be dealing with.

Treatment Capabilities for Mixed Low-Level Wastes

Greg Senton, DOE-RL, provided an update on the treatment capabilities for mixed low-level waste. Greg said they have made good progress and have treated 600-700 cubic meters of mixed low-level waste so far and have approximately 740 cubic meters in storage. Greg said they are up to 213 containers of treated waste from the large containers. Most treatment is done through offsite treatment facilities. However, ERDF, T Plant, and WRAP are permitted too. Greg said Perma-fix Northwest does macro encapsulation and is working on resolving some permitting issues with EPA so they can also get the capability for thermal treatment. Greg thought that they should be pretty close to getting permitted. Greg said Perma-fix also performs sampling and analysis, and size reduction and compaction of low level waste for DOE-RL. Greg said DOE-RL also uses Energy Solutions Clive for Class A waste. Perma-fix East does some specialized things like mercury and bearing waste treatment as well.

Regulator Perspectives

- Rick Bond said EPA is working on the temporary authorization for Perma-fix right now. Over the next two weeks EPA will prepare the authorization and the permit will move forward.
- Deborah said Ecology is working closely with Greg and contractors to support the treatment of the low-level waste. Deborah said meeting the treatment demands with the capabilities DOE-RL currently has is challenging.

Committee Discussion

- *Where does waste go after treatment at Perma-fix or Energy Solutions?* Greg said the residues come back to Hanford except at Clive which keeps all waste residues.
- Shelley said years ago the Board was informed that the mixed waste treatment at Perma-fix was really expensive. Shelley asked if DOE will continue to use the same facilities even if the cost is high. Greg said DOE will go with the most economical path. Clive requires some extra steps because when the waste is not disposed of onsite DOE-RL has to get HQ approval. Greg said they have done this for two waste streams already but would have to permit others as well for additional waste. Greg said in theory if there is more than one facility that can handle a particular waste stream then the cost should go down. Also, Greg said DOE recognizes the risk of relying on one facility in case the facility goes down for some reason, so they are working on diversifying waste treatment.

EPA Sampling Program

Laura Beulow, EPA, provided an update on EPA's sampling program. She said last time she presented to the committee she discussed EPA's plans to do small scale sampling

onsite. Laura said since then she has received comments from various stakeholders regarding what type of sampling has been missing over the years. She said the feedback varied in scope and approach. EPA is working within a limited budget so Laura had to narrow the list to ones that were not already being done by other people/organizations, did not cost a lot, and could be tested internally at EPA. Laura said she narrowed the list to three sampling suggestions.

The first is to do riparian plant sampling for chromium, strontium, and uranium plumes. Laura said this would require EPA to pick groundwater plumes based on information in the annual reports and then take samples of plants to see if the roots uptake contamination. There are differing ideas on when the right time to sample is, so a seasonal sampling plan is being proposed. Laura said they are limited with sample numbers (10 samples to start with), so the idea is to start with reed canary grass because it is ubiquitous. The second option for this sampling method is to walk through the 300 Area and select some of the common samples to see if any species have measurable amounts of uranium. Laura said she would be meeting with a staff member from Pacific Northwest National Laboratories (PNNL) to talk about what might be possible and feasible using this approach. EPA could begin this work as soon as this coming fall. Laura is working on a quality assurance plan for this work now.

The second sampling suggestion is to sample aquatic invertebrates, benthic organisms, biofilm, and mollusks. Laura said they would start with periphyton (algae from the river) but said there are issues with collecting enough mass to be able to test it. She said PNNL recommended laying out brick lines in order to collect enough mass. Laura said the purpose of this strategy is to use the plant samples to locate the sampling area.

The third suggestion was to sample vegetation from remediated waste sites to determine if roots are pulling waste up from below fifteen feet. Laura said tumble weed can put down roots below fifteen feet so EPA could use a closeout verification package that shows the level of any contamination left in place below fifteen feet. The BC and F Areas are possibilities for this work. Laura said they could easily sample vegetation but may have a hard time finding tumble weed in particular. She clarified that if they do find tumble weed they will not be digging it up but just collecting clip samples.

The last suggestion was to do sampling on Gable Mountain to determine if airborne contamination from fallout left anything on the mountain. Laura said the Yakama Nation is talking about doing some testing and was interested in whether EPA could sample there and see if they find anything. Yakama Nation was hoping to do their work this fall, so EPA could follow up afterwards. However, Yakama Nation does not have approval to do this work yet. Laura said she would come back and follow up with the committee after EPA begins this work and has some information from their reports to share.

Committee Discussion

- *Will the first sampling work be limited to the 300 Area?* Laura said previous work was done in the 200 Area, and the uranium plume in the 300 Area was of particular interest to some of the stakeholders.
- *What types of animals eat reed canary grass?* Laura said birds eat it and it can be grazed before it goes to seed. She said the grass is not a preferred species to sample because it is an invasive but it is convenient and pervasive.
- *Will the first sampling work look at total chromium, chromium 6 or both?* Laura said it would look at total chromium. Laura said she has been looking at chromium 6 in plants but was told it does not uptake. Dirk asked how Laura plans to gather samples without collecting the mud and dirt associated with the plants. Laura said that is something she is researching now. She said the idea is to look at what the plants are uptaking so she is considering whether they will need to rinse the roots of the plants.
- Dirk suggested also sampling fungi because they are good at picking up uranium and processing it.

Action Items / Commitments

The committee discussed potential tour ideas for the full Board to attend prior to the June Board meeting. The tour would be for all Board members, and it would be useful to create a prioritized list to bring to the TWC committee for input. Maynard thought the tour should be focused on relevant topics instead of an introduction tour for new members. Suggested tours included:

- | | |
|--|----------------------------|
| ○ Purex tunnel | ○ WTP |
| ○ ERDF | ○ BC Area. |
| ○ 618-7 | ○ PW 1 and PFP |
| ○ 184 N - demolition at the 100 D Area | ○ C Tank farms |
| ○ 200 North or PFTF | ○ 200 BC Crib |
| ○ ERDF/IDF | ○ K Basins (cannot see it) |
| ○ B Reactor (cannot go to right now, under construction) | ○ cold test facility |
| | ○ WTP |

Future RAP agenda items include:

- Sludge processing
- Purex presentation
- PW 1/3/6
- Follow up on recent responses to advice
- Steve Wiegman offered to provide an update on the EIS
- Reviewing HAB values should be a working item for RAP
- D Area update on chromium and treatability tests

- Shelley will follow up on the Science and Technology Roadmap for future agenda items. Pam suggested asking for the same presentation that was made to the Site Specific Advisory Board (SSAB) Chair's meeting. Pam said the SSAB Chairs discussed the recent HAB advice regarding the Site Technology Coordination Group and thought Hanford should test out a model for the group. Shelley said she suggested holding a committee of the whole meeting on this topic and everyone supported that. Maynard said he would bring this item to the EIC as a suggested topic for the leadership retreat.

RAP will not have a June meeting, but will have a committee call on June 17th. RAP will be sending advice to the Board on PW 1/3/6.

Pam commented that she would like the advice responses to be given to committee members at committee meetings if they are not going to be mailed in the Board packet anymore.

Handouts

NOTE: Copies of meeting handouts can be obtained through the Hanford Advisory Board Administrator at (509) 942-1906, or tholm@enviroissues.com

- Environmental Restoration Disposal Facility, Owen Robertson, DOE-RL, May 7, 2008.
- 618-7 Burial Ground Remediation Project Overview, Chris Smith, DOE-RL, May 7, 2008.
- Hanford Site-Wide Permit: Permit Status Table, Ecology, May 2008.
- Frequently Asked Questions: Hanford Site-Wide Permit, Ecology, May 2008.
- Supplemental Analysis: Hanford Comprehensive Land-Use Plan Environmental Impact Statement, Bryan Foley, DOE-RL, May 7, 2008.
- EPA Hanford Project Office Sample Plan Update to HAB RAP Committee, Laura Buelow, EPA, May 7, 2008.
- Sludge Treatment Project, DOE-RL, May 7, 2008.

Attendees

HAB Members and Alternates

Shelley Cimon	Debra McBaugh	Bob Suyama
Dirk Dunning	Bob Parazin	
Barbara Harper	Maynard Plahuta	
Harold Heacock	Mike Priddy	
Pam Larsen	Dick Smith	
Susan Leckband	Stan Sobczyk	

Others

Kim Ballinger, DOE-RL	Rick Bond, Ecology	Julie Longenecken, CTUIR
Braint Charboneau, DOE-RL	Sharon Braswell, Ecology	Emily Neff, EnviroIssues

Mike Collins, DOE-RL	Madeleine Brown, Ecology (phone)	Penny Mabie, EnviroIssues
Bryan Foley, DOE-RL	Deborah Singleton, Ecology	Barb Wise, FH
Joe Franco, DOE-RL	Ron Skinnarland, Ecology	Jeannette Hyatt, FH
Matt McCormick, DOE-RL	Jennifer Ollero, Ecology	Michael Jemsby, FH
Owen Robertson, DOE-RL	Ginger Wireman, Ecology	Annette Cary, Tri-City Herald
Woody Russell, DOE-RL	Laura Buelow, EPA	Charlene Androtti, U.S. Fish & Wildlife (phone)
Greg Stenton, DOE-RL	Dennis Faulk, EPA	Peter Bengtson, WCH
Tom Teynor, DOE-RL	Dave Finan, EPA	John Darby, WCH
Arlene Tortoso, DOE-RL		Todd Nelson, WCH
		Dave Rowland, Yakama Nation