

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
RIVER AND PLATEAU COMMITTEE MEETING
Aug 10, 2010
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

Dale Engstrom, River and Plateau (RAP) Committee vice-chair, welcomed everyone and introductions were made. The RAP committee approved the June meeting summary.

Remediation efforts in 100-N Reactor Area

Dale said that Shelley Cimon has been working with him on the 100-N Area draft advice. He said the discussion concerns the 100-N reactor and what is being done for groundwater and remediation efforts.

Mike Thompson, Department of Energy-Richland Operations Office (DOE-RL), gave an update on the 100-N Area. He said draft B of the work plan is still being reviewed and negotiated. He said there is a lot of work underway in the 100-N Area. There is a treatability test plan on hot testing for phyto-extraction and the report will be out within the next week. He said the installation of the aquifer tubes has begun as a result of Strontium-90 (Sr-90) upwelling in the river. He said after decommission and demolition (D&D) work is done, there will be another groundwater well installed. He said the Sr-90 levels have declined and more wells are being installed near the fuel storage basin to

monitor contamination levels. Many of the buildings are gone, and there has been a lot of progress in the 100-N Area. DOE is extending the upwelling work and doing additional transects and upwelling samples. He said these studies will include Sr-90 and chromium.

Joann Chance, DOE-RL, said the liquid waste facilities in the 100-Area were remediated and are in interim closure. These facilities are being reviewed under the work plan. She said the demolition of the buildings is ongoing, and DOE is now doing field remediation. The field remediation waste sites result from drains, unplanned releases and soils under the buildings. She said the field remediation contractor received notice to proceed on the 2nd of August and that remediation efforts are starting on four waste sites away from the actual facility due to concurrent demolition activities. She said the work will begin at burn pit N28-N1 and it will take about 21 days to excavate and stockpile the waste. She said the waste should go to the Environmental Restoration Disposal Facility (ERDF) in October. She said DOE is ensuring the waste sites are properly sampled and closed out with approved documentation. She said many of these sites are from unplanned releases. Some of the waste sites are in the Mooli Mooli area and are in cultural review. The remove, treat, and dispose (RTD) work is underway and will continue for another year and a half or more, and DOE is on target to meet the M-65 milestone by December 31, 2012.

Joan said there are forty-six orphan sites of which DOE was not aware. These sites are now being analyzed, and DOE is looking to add them to the Record of Decision (ROD) so the sites can be sampled. DOE is considering bio-remediation of petroleum contaminated sites near the surface and exploring the possibility of using micro-organisms to help remediate the petroleum. The roof of the D-4 Area is about half completed and the fuel basin has been stabilized to allow for cranes to take out the fuel storage basin. She said there are about 12 facilities left that need removal, and DOE is currently working on the west side of the reactor.

Mike said there is proposal in the work plan to conduct 3 rounds of groundwater sampling. In the past, groundwater wells were not sampled at the same time; instead, there was a sampling schedule. There is a proposal to conduct congruent sampling while the water table is at varying levels, and two of these rounds of sampling will be done soon. He said there is a proposed plan in the ROD to test the sequestration barrier. He said there will be a treatability test plan for the expansion of the barrier three-hundred feet upstream and downstream. He said in the past they have drilled as many as 171 wells. Most of these wells have been sampled and the data will be out shortly. He said he did not bring before and after photographs of the area, but he will send these to the committee.

Agency Perspective

- Nina Menard, Washington State Department of Ecology (Ecology), said Ecology is still in the Remedial Investigation/Feasibility Study (RI/FS) process.
- Dib Goswami, Ecology, said Ecology is expanding the apatite barrier and the groundwater wells have been installed. He said DOE and the contractors have given many presentations on this work, and Ecology has followed the apatite testing very closely. Ecology concluded that the testing is working and needs more observation. He said in the last two years the Sr-90 is behaving well, and the data is promising as the amount of Sr-90 in the river is decreasing. The immediate goal is to stop Sr-90 from going to the river by 2016. More than 36 technologies have been considered by expert panels to meet this goal and from this process the apatite and phyto-extraction technologies were chosen. He said Coyote willows are being used for phyto-extraction. He said DOE is still unsure as to what to do with the plume inside the barrier, but DOE hopes to have this information by 2011. He said the implementation of the apatite barrier is still on schedule.

Committee Discussion

- Jean Vanni, Yakama Nation, asked if the buildings along the river's shore have been removed. Joan said these buildings will still be demolished and will follow the same processes as the past waste remediation.
- Jean asked about the level of Sr-90 contamination. Dib said by 2016 the Sr-90 levels should be at the drinking water standard.
- Mike said the impact contaminants have on the environment is measured by the biotic community affected. He said there are no ambient water quality standards for Sr-90, so DOE uses the drinking water standard to ensure the restoration of the aquifer and protection of the environment.
- Jean asked if Ecology is going to send letters stating that DOE is meeting the interim ROD standards. Nina said the standard process will be followed in the 100-N Area.
- Jerry Peltier asked if groundwater work had the funding needed to complete these tasks. Mike said the funding has been approved for this work. He said the money is allocated to well drilling and higher capacity pump and treat systems. The money came from stimulus funding and the base budget. He added that once the capital costs are paid the amount to run the systems is much less. The budgets for Fiscal Year (FY) 2011 and FY 2012 are less, but this is being accounted for.

- Liz Mattson asked if there could be a picture of the **hyporheic** zone to make it clearer. Mike drew a cross-section of the Columbia River. He described the fluctuation based on the flow of the dam and how it affects the groundwater and the Sr-90. He said when the reactor was in operation the water table was much higher so there is Sr-90 in the soil where the water table used to be. He said the concentrations of Sr-90 decreases as samples are taken deeper in the soil. DOE has done sampling at 3 areas to get information on Sr-90.
- Dale said the Mooli Mooli sites are culturally sensitive, and asked if work in this area is being carefully watched, and if there has been enough cultural attention given. Joan said there are archeological experts evaluating the work every step of the way. Wade Riggsbee said the tribes are highly involved and have negotiated the location of wells successfully. He said there are representatives on the ground as the work is done.
- Dale said the construction of the first treatability test was to treat the Sr-90 at the top of the barrier. As a result of the contamination being concentrated near the surface, the bottom of the aquifer was virtually untreated. He asked if this will be the same process moving forward. Mike said the Sr-90 levels lessen as depth increases, down even a few meters into the soil, and DOE has met the goal of lowering the amount of Sr-90 in the first 300 meters. DOE had a goal to reduce the amount of Sr-90 by 90% and will meet that goal. He reminded everyone there will be continued monitoring, and DOE will continue to meet there goals.
- Dale asked if the upwelling data from the river has been released. Mike said this data will be released sometime later this month, and the information looks promising. He said there were some surprises, but for the most part the upwelling data is promising.
- Liz asked what it takes to meet the drinking water standards and what the follow up efforts are after those standards are met. Mike said there is a statistical ambient water quality standard on how often the required amount of contamination can be exceeded. Dennis Faulk, Environmental Protection Agency (EPA), said following up on contamination levels is a part of the 5-year review. Mike said DOE has not proposed how they will monitor the amounts of contaminants in the river for any of the operable units for the final ROD, which will be a negotiation. Dennis said the Technetium (TC) in the 1100-Area is a similar situation and the groundwater is continually evaluated.
- Liz said the process of monitoring groundwater would be helpful to communicate to the public. She flagged it as a topic that the Public Involvement and Communications (PIC) committee should discuss.
- Dale said 100-N Area is impressive and the apatite barrier is working well.

100-N Remedial Investigation/Feasibility Study Work Plan Draft Advice

Dale said the issue managers have been working on draft advice regarding draft B of the RI/FS work plan. There have been many modifications since the first draft of the RI/FS work plan. He feels there is a long history that needs to remain in the document as background information. He said the committee can discuss this further, if necessary.

Agency Perspective

- Mike said in regards to the statement about DOE doing characterization at the same time as remediation, DOE is required to excavate and treat the plume as work is done. He said this statement might be contrary to the interim ROD requirements. He said Draft A of the work plan was inadequate and Draft B is more complete. In the final version DOE will adequately describe the work done in the past. He said DOE decided to remediate the two liquid waste facilities and did characterization to support the interim ROD. He said there were boreholes drilled back in the 1990s and not all of the hazardous chemicals were addressed, which is now being negotiated. The presentation of this information will be better in the final draft of the work plan. He said there is no ambiguity regarding the section on the current chromium plume (page 3 of the advice). He said there is adequate well data on the current chromium plume. He said there are about 85 wells with data collected and one well shows signs of contamination so DOE might need to look to see if it is an issue with the well and drill a new well. He said there was only chromium used in the first few years of operation and what was mobile seems to have left and should not pose a problem. He said for nitrate, he has talked with the geochemists who do not think the nitrate will affect the levels of other contaminants. He said DOE is trying to put their finger on a source of the nitrate, but it seems to be behaving as expected.

Agency Perspective

- Nina said she agrees with Mike Thompson's comments. She thinks the advice is good and should go forward. Ecology thinks DOE has not done enough to address all the contaminants that could be there. She said there should be better characterization in the vadose zone for chemicals.
- Dib said DOE did not do adequate characterization when installing the initial wells, but historically there is a good number of wells and the monitoring has been intensive over the past 10 years. He said any contaminants of concern that

have a history of being transported would have already gone to the river. He suggested expanding the list of analytes and monitoring for behavior.

- Dennis said the advice could be tightened up, and that there is enough ambiguity to make the advice a little confusing. He said remediation and characterization go hand in hand and the wording should be examined.

Committee Discussion

- Susan Leckband asked Mike Thompson if he agrees with the advice once his comments are considered. Mike said characterization versus remediation, K-Area ambiguity and the position on nitrate are the three things he does not completely agree with. Susan asked if he agrees with the rest of the advice. Mike said that he does agree with the advice aside from those three points.
- Jerry said the Hanford Advisory Board (HAB or Board) has struggled with advice for years, with regards to the background section. He said the advice is for DOE not the public. Therefore, the committee should consider how important the detail is to the people who know this information already. He also said the expectations should be clear, so the reader knows what action is wanted from this advice.
- Harold Heacock said the introduction in the second paragraph needs to be worked over to clearly define what groups are being discussed and what the time period is.
- Jean said the comment about hydrazine is important to point out. Mike said he used to work for a nuclear power plant company and hydrazine was used to flush out the pipes. Based on the literature, it breaks down quickly and turns into nitrate. Jean said this should be considered with drinking water standards.
- Jean said there is a French drain that needs to be remediated that may contain chromium, and that the K-Area might not be the only source of chromium. She said she agrees with the need for more characterization and analytes, such as thallium.
- Jean said there is nothing in the advice about the petroleum hydrocarbons, which are Resource Conservation and Recovery Act (RCRA) constituents and should be included in the work plan.
- Susan said the larger list of contaminants should be an advice bullet if the committee agrees. Mike asked if it would be helpful to have the list of analytes provided. Dale asked if the list of analytes is in draft B of the work plan. Mike said no. Dale said he would like to see the list of analytes and Mike agreed to send this information to Dale.

- Susan said the committee should consider these comments on the document in the advice. She said there could be two documents, one specifically for background information.
- Mike said the analyte list process has steps with an option of identifying additional analytes. He said DOE has agreed to all the analytes Ecology has requested.
- Susan asked if the list of analytes will be in the final work plan in a list form. Mike affirmed this.

100-D Area Lessons Learned

Susan Hayman, EnviroIssues, said that there needed to be a change in the agenda. She said the agencies were not in a position yet to discuss 100-D Area lessons learned or a related discussion on infrastructure.

John Neath, DOE-RL, said the Mission Support Alliance (MSA) contract included an infrastructure plan delivered to DOE. In the site infrastructure plan is the water and sewer system improvements to support cleanup actions. This report is coming to DOE for review soon and will affect the 100 Areas. He said the plan and responsibility for infrastructure will be in this document.

Paula Call, DOE-RL, said there was a presentation and discussion for an hour or so with the Health Safety and Environmental Protection (HSEP) committee on infrastructure. She said the RAP committee can have copies of this presentation. She said MSA is still working on the plan, and it should be completed in the coming months.

Regulator Perspective

- Nina said DOE has 90 days for review, but she is not sure when the regulators will see the infrastructure plan. She is not sure how long it will take Ecology to review the infrastructure plan.

Committee Discussion

- Dale asked if this discussion was originally going to be on the water leak at the 100-D Area. He said there is a possibility that the leak has been driving the contamination plume in that area. Nina said Ecology is waiting for well data and is concerned about the contamination plume, but the data is not available yet. She said the valve that was supposed to cut off the water to the line failed. The infrastructure is very old and the potential for failures is high. Ecology is

interested in this plan to see how the issue of deteriorating infrastructure is going to be addressed.

- Jean said she was under the impression that lessons learned from the leak would be provided, along with the next steps. She said maybe a well was expected to characterize this area. John said he does not know what the infrastructure plan has in it, and these types of questions may be answered in the document. He said he is not surprised the water was in the line. He said the water line was not hot tapped, but the leak was dealt with well. He said there are commitments to drill additional wells in the area to determine why there was a separation in the plume.
- Ted Repasky, CTUIR (Confederated Tribes of the Umatilla Indian Reservation), asked if there has been a proposal to sample pipes to ensure they are empty.
- Karen Flynn, DOE-RL, said DOE is working with the MSA contractor on an infrastructure master plan. DOE is also doing an export water option study, which is coming in September. She suggested that MSA come in and walk the HAB through the infrastructure plan at that time. She suggested a September timeframe for the sewer and water master plan, which can include pieces of the water export options plan.
- Wade said the discussion on the 100-D leak would be a timing issue with looking at the chemistry and having an appropriate assessment. He said it will take time to accumulate data, and talking about leaks and plumes in 100-D should be discussed in the future.

Energy Park Initiative

Gary Peterson, Tri-City Development Council (TRIDEC), gave an introduction on the Energy Park Initiative and said that the concept started with a discussion on footprint reduction on the Hanford site. He said Inés Triay, DOE Assistant Secretary for Environmental Management (EM) presented the idea of an energy park. He said the energy park idea became a new subject at many sites and groups were formed to discuss this topic. There is a lot of enthusiasm surrounding the topic of making land available for energy. He said there has been collaborative work with Hanford communities and other sites, and there was legislation drafted to describe what an energy park would look like. He said this process would not be appropriation and is authorized. He said the discussions on energy parks have been underway since 2008.

Karen said the purpose of energy parks is to make land available for energy development in the future. She said these thoughts go back to 1999 when the land use plan was put in place. She said there was about 50 square miles of land set aside for industrial use and in FY 2009 there was talk about energy initiatives across the country. She said in February

2010 there was a request from Energy Northwest to lease land for a proposed use of an energy park which is supported by the Mid-Columbia Energy Initiative. She said in July 2010, Appendix B of the Hanford Site cleanup completion framework was passed and discussed energy conservation and long term economic development and global competitiveness. In April and August 2010, the Hanford Site Manager met with tribes to discuss energy parks.

Karen said there was direction for DOE to be consistent in moving forward with research and development. She said leasing of this land has to be consistent and regulations have to be met. She said there has to be an open dialogue with all parties during this process. She said there are interfaces and constraints of the energy park concept. She said the Laser Interferometer Gravitational Wave Observatory has concerns over land use, Energy Northwest may have concerns on the effect to their facilities, and U.S. fish and Wildlife is also involved with these land use issues. She said some of the constraints of a potential energy park include keeping waste sites in mind, safety zones and where utilities are.

Karen discussed what DOE is doing to attain use of property for potential energy park uses. She said there is potential for moving some sites, and there is a plan that will be coming out to attempt to free up use of public land. She said actions such as pointing firing ranges in a different direction are being considered. She said a raw land lease is also being looked into which is essentially putting a placeholder on land where the biological activities have not been done yet, so the land cannot be used.

Karen said DOE will be soliciting public input on the the energy park concept on October 28th. She said DOE needs information from stakeholders to see how to move forward. DOE is working with Energy Northwest on potential properties.

Gary said TRIDEC has been trying to get information about energy parks out into the communities. He said there are some 60 square miles set aside for federal land that is available for such uses. He said the Waste Treatment Plant (WTP) was designed to use approximately 45,000 gallons of diesel per day and this energy could come from renewable energy sources. He said 40% of the energy at Hanford comes from within 100 miles, and there is a mixture of types of energy. He said when talking to the Bonneville Power Administration (BPA), they are already 97.5 percent run by green energy, with the exception of the Boardman coal plant, which will be shutting down. He said it is important to invest in an energy park emphasizing renewable energy that can be used in cleanup.

Gary said there are many opportunities for energy at Hanford; with Pacific Northwest National Laboratories (PNNL) who are leaders in smart grid technology, and Washington State University - Tri Cities as leaders in bio-products. He said BPA, PNNL and many others make it possible for Hanford to be a leader in green technologies. He said Hanford has unique research and development facilities. He said energy parks are a great way to transform Hanford from a waste site to a green energy location, which will change the

way people perceive Hanford and could be a benefit to the region. He then referenced a map of the site and showed what will be preserved as natural habitat and where the energy park would potentially be located. He said he would like to see Hanford be a leader in green energy production and in demonstrating smart grid appliances. He said EM's mission is not focused on new smart projects, so there has to be dialogue at a higher level because EM money is used for cleanup. He said Energy Northwest has expressed interest in modular nuclear plants. He then listed the energy companies in the area and the organizations involved with the energy park concept that have had congressional involvement. He said as the public meetings approach, there should be consideration for the best uses of land at Hanford.

Regulator Perspective

- Dennis said he personally supports these ideas and that there are productive land uses compatible with the cleanup.

Committee Discussion

- Dale reminded the RAP committee that the mission of HAB is to support cleanup at Hanford. He said the HAB has nothing to do with Energy parks. The Comprehensive Land Use Plan (CLUP) is similar to the energy park concept in that it is informative, but it may not be something that should be discussed. Susan said from a cleanup perspective it can be discussed.
- Dale, representing Oregon, said the CLUP is an interesting tool, but there has yet to be determination on how Hanford will be handled in the future. He said to put voice behind these concepts is premature. He said Oregon thinks talking about future land use should be secondary to cleanup efforts. He said cleanup should not be rushed in order to ensure mistakes are not made.
- Dennis said he is intrigued to see green energy used instead of diesel for cleanup projects. Gary said the Mid-Columbia Energy Initiative looked at reducing diesel use by at least 40%. He said there are 3 proposals in hand for reducing the carbon footprint by 40% and saving potentially 1 million dollars each month. There has not been a request for proposal as of yet, but DOE is waiting for interest in this. He said Cascade Natural Gas moved to the area and are enthusiastic for the possibility of green energy. Karen said DOE-Headquarters (HQ) subcontracted a group called Exeter, and there is a final report coming out with more information on this.
- Susan said she is excited about the idea of green energy being used for cleanup. She said she has participated in Long Term Stewardship (LTS) and has learned

that if the people go away the attention goes away. The human presence is important and the public forum will be a great help.

- Dan Serres, Columbia Riverkeeper, said the greener the concept, the more support there will be. He said the energy park is a great potential alternative.
- Gary said if there can be energy savings shown for WTP, the cost savings could be used for other green technologies.
- Bob Suyama said he thinks there are direct impacts to the HAB and suggested that Gary come and present at a Board meeting to give a background on energy parks even if it is not directly funded by EM. Gary said he would be happy to give a presentation to the HAB. He said TRIDEC has five proposals for alternative energy sources waiting to be presented to DOE and MSA and thinks this would be of interest to the HAB.
- Dan asked about the raw lease concept. Karen said it was not controversial. It is the process that was proposed and DOE thought would work. The process is not customary, but is within all the rules and regulations. Boyd Hathaway, DOE-RL, said DOE wanted to address how the land was going to be leased. When a project comes forward the requirements will be followed, and using a raw lease essentially holds that land for future use.
- Jerry said maybe Gary could focus his presentation on how energy parks affect LTS.
- Susan said green energy concepts applied toward cleanup opens a huge window of conversation, and it would be appropriate to bring it to the Board.

Blue Ribbon Panel

Susan said information from the Blue Ribbon Panel is available at www.BRC.gov. She said the comments she provided for the record are on pages 86-95 in the legal testimony. She gave an overview of the HAB, and many people on the Blue-Ribbon Panel were surprised to learn that the Board operates on consensus. She said there are some very extraordinary minds on this panel. She said the panel principally deals with the commercial side of waste, and is charged with bringing ideas on the nuclear process to the president. She said the panel will be discussing the disposition of high level waste (HLW), and she made it known that there is a concern over this at Hanford. During her presentation she talked about the experience on the Board and the distress over the amount of waste on the Hanford site. She said other Board members who provided comments to the panel include Ken Niles (State of Oregon) tribal representatives, Heart of America Northwest (HOANW), and the Governor.. She said there are ongoing opportunities to provide comments through the Web site. She also observed that this is the most transparent national commission she has seen.

Committee Discussion

- Harold said the Blue Ribbon Panel is a high powered panel that is carefully chosen and is very open minded. He said the state of Oregon testimony may have missed the mark on spent fuel being shipped by rail when it is Yucca Mountain that is designed for rail shipment. He said aside from that, the testimonies were quite balanced. He said there are some outspoken members and this results in balanced discussion. He said the focus is on alternatives to Yucca Mountain and the panel is getting input from areas with waste.
- Dick Smith said his general impression is that the commissioners listened very well and asked good questions. They were insistent that the speakers stay on topic. He said he did not get any feel from the meeting on viewpoints, but thinks they will come out.
- Jerry said the commission is looking for alternatives to Yucca Mountain and asked if there was discussion surrounding the Global Nuclear Energy Partnership (GNEP) process as an alternative. Harold said there was a discussion about reprocessing, but there was not extensive discussion by the committee on alternatives. He said even with reprocessing there will still be HLW that has to go somewhere. Jerry said if reprocessing is not done, Yucca Mountain would be filled much faster. Harold said the panel did not address capacity extensively.
- Gary pointed out that the Governor discussed concentrating first on HLW and then separating the commercial and nuclear waste from Hanford.
- Steve White asked if there was any mention of green remediation. Gary said this was talked about briefly, but not in detail.
- Harold said there was some talk on reprocessing, but the focus was on waste disposal.
- Gary said there are also sub-committees that are more focused and targeted.
- Susan reminded everyone that the panel is still accepting comments.
- Harold said it would be good to have a list of the people on the Panel. Susan said it is on the Web page. Susan Hayman said she would send the information on the Blue Ribbon Panel out to the committee.

Committee Business

Board priorities identified at the spring Leadership Retreat.

Dale said to add being protective of groundwater, especially on the river corridor. He said there is a lot of pump and treat systems on the plateau, and there will be a lot of action with groundwater. He said DOE is asking for support to start calling things complete, but it is not complete without groundwater.

Shelley Cimon said to add the deep vadose zone to the list.

Dennis said there are some big projects that are coming to construction that should be watched for groundwater issues.

Dale said the treatment processes are growing and should have attention.

Wade said there should be attention focused on the river.

Dennis said for the deep vadose zone there will be a treatability test for BC cribs, which the HAB should follow. He asked at what stage the HAB is looking to get involved. Susan clarified that the overarching themes the HAB discussed refer to the review of ROD, RI/FS and work plans.

Dennis said engagement techniques for post-decision interactions should be discussed in the PIC committee. Craig Cameron, EPA, said there can be significant impacts if people have feedback.

Liz asked about previous to 1970 (Pre-70) Transuranic (TRU) waste. Dennis said it would be good to follow because Pre-70 TRU is treated differently.

Susan said it is time for an update on U-plant. Craig said input on the design features of the U-plant should be considered. Dirk Dunning said to look at the cesium in the footprint of the U-Plant.

Dennis said to add the CERCLA 5-year review to the list of items for FY 2011.

Dale suggested having a point to remind the RAP committee to look at engaging ongoing work on the plateau.

September meeting topics.

Shelley suggested discussing the deep vadose zone in September. Dennis said to include the treatability test plan for BC cribs and technologies, but he is not sure if this is ready for September. Dib said it might be better to wait for more information.

Dale said U-Canyon demolition should be discussed with the plan to explode the walls.

The committee agreed to discuss 618-10 in September along with setting time aside for the water plan; export options study and sewer master plan.

It was discussed to have a briefing on chromium cleanup for the river corridor in September.

Dennis suggested looking at the plans to take down the K-reactor in September.

Deep Vadose Zone Workshop – Joint topic with the Tank Waste Committee

Dale said he would like to receive perspectives from the people who went to the deep vadose zone workshop. This started out as an open workshop and ended up being more of an invitation only event with a list of people that were invited. He said the workshop was interesting and people from the national laboratories were there. He said there were several presentations on the deep vadose zone and then groups were formed to discuss the different aspects of the deep vadose zone and prioritize actions. He felt that the laboratory representatives facilitating the discussions seemed to want to get a particular outcome from the discussion groups. He said there were “vadose zone bucks” handed out for participants to place in boxes; it was interesting to see where people would spend their money. He said modeling and characterization is where most of the money was allocated.

Agency Perspective

- John Morse, DOE-RL, said the deep vadose zone workshop was a good meeting. He said the meeting was open and people were expected to participate. As part of the milestone packages, there will be an overall plan developed. He said for the near term DOE wants to have viable alternatives for remediation. Some problems can be addressed now and some might have to be long term issues. He said DOE is trying to get practical work done, and they are doing tests to address the TC. He said there is a lot going on, but once the contaminants are out, DOE will decide what can be done with the waste.

Regulator Perspective

- Dennis said it is a different dynamic to have project people meet together with research scientists. He hopes that the workshop produced some good dialogue.
- Craig said there needs to be some structure or a plan. This workshop was a kickoff of what ideas DOE is thinking of doing. There are treatability efforts and milestones, and how do they all fit together is complicated. EPA is wrestling with this as well.
- Dib said there was a presentation on deadlines. He said keeping time in mind is a big issue. He said there is no one size fits all concepts and there is the potential that the cost of cleanup will decrease with the development of technology.

Committee Discussion

- Dirk said EPA did a good job of pointing out their needs. He said overall it was a good process, but it did not get at actual remediation.

- Shelley said it was a good meeting. She said it seemed as if the high priority issues are in the right order, but the structure is still unclear. She said the question is what the decision points are and who will be driving them. It is not clear how the public is going to be involved and if the public does not understand it, they cannot support it.
- Dick said he got the impression that the organizers and the attendees were looking for future jobs. He said there was not a lot of discussion about the actual ideas for remediation. He said he is interested in the gravity approach, using the same methods that got the contamination in the ground originally. He said he was disappointed in what he did not learn.
- Floyd Hodges said most of the discussion was on uncertainty within the modeling. He said there is not a big point of spending money on modeling without characterization.
- Susan said how to spend money was a good takeaway activity for her, which is an exercise that the HAB should consider for public meetings. Dennis added that the money was coded to see where the money came from.
- Jerry asked if the deep vadose zone is a problem that testing will address. Dennis said testing is in the early stages and the BC Cribs will be a good model for what to do in the future.
- Mike Korenko said it is interesting that there are numerous wells constructed to find data when the goal is to stop the groundwater flow. He said the wells might actually cause more of a problem.
- Shelley said she wants to be sure that there are broad views behind making these decisions.
- Dale asked what the next steps are for the deep vadose zone. John said if DOE plans to move forward, they need an overall plan so that funding can be directed. A presentation on this can be given in November. Mike suggested having the master plans to help shape goals.

K-East Reactor Removal

Dick said the HAB was made aware of the K-East reactor removal project a few months ago. He said that Tom Teynor, DOE-RL, provided information and answered questions at a recent issue managers meeting. Dick said decisions are being made at the field office level. He said the data from the Brookhaven facility has not been released yet, but there was some discussion between contractors. He said the Brookhaven reactor was different in many ways, yet similar in some respects. He said some of the work is in preliminary

stages and has been funded under the stimulus program. He said his concern was how the money was going to be found for this project. He said there is merit to doing this work so people know how to deal with reactors in the future or whenever funding is made available.

Harold said the only concern is that the feasibility of an approach is not yet complete. He said the K-East reactor is more complex than Brookhaven and there needs to be a lot more development and demonstration.

Tom Teynor, DOE-RL, provided an update of the 105 K-East Reactor Core Removal. He said DOE did get the National Environmental Policy Act (NEPA) documentation, which included two preferred options: cocooning and dismantlement. He said there is work that needs to be done before seeking Inés Triay's approval, but DOE has started removing hazardous materials. He said DOE has not been clear that the contamination goes down 15 feet. He said there is not firm data on how deep the contamination actually goes, and the extent of the chromium plume. The overall goal is to get to the soil, but there are limitations due to seismic considerations. He said the obvious path is to remediate the soil, and the core has to be taken out first. He said DOE is working with EPA throughout this process. He said this core removal would set a precedent for other reactors in the future. He said the use of remote robotics was an important lesson learned from Brookhaven. He said DOE plans to move forward, and would like input, but it might be needed later once more is planned.

Tom said the stimulus funding has been very useful and money was pulled forward for this project based on risk. He said demolition has started on the K-East stack, and money has been made available to start on the core removal at K-East. He said senior management has to be careful when weighing options since there might be higher priority issues. He said DOE is utilizing studies on graphite done in the past at Hanford. He said DOE plans to go forward with the money in the five year profile, barring any changes.

Tom said there is a lot of information that needs to be gathered, and Dick and Harold have brought some of these concerns forward. He said DOE has cocooned reactors and demonstrated success five separate times. He said the concerns can be given in the comment period. He added that Critical Decision (CD)-2 is where the budget will be secured.

Regulator Perspective

- Dennis said EPA is supportive of this project; taking the reactors down and getting them off the river is the best thing to do. He said it is a difficult project and proceeding slowly makes sense. He said there is the CD process, and EPA is

watching this process and has read the Environmental Evaluation/Cost Analyses (EECA) document. He said the removal design report will be critical.

- Rick Bond, Ecology, said Ecology supports the K-East reactor removal project and the risk needs to be assessed in order to prioritize actions.

Committee Discussion

- Shelley asked if contamination has reduced with depth under K-Basin. Tom said DOE has gone 15 feet and the degree of contamination has remained the same. He said there is a lot of information not yet collected, and DOE will be doing push samples to better identify the plume. He said the contamination was caused by fuels. He said more wells are being installed in the K-Area, which will help with the closure plans. There are many differences that DOE is trying to work through in the conceptual design. He said the funding has been identified and the contractors at Brookhaven will have a lessons learned presentation in the near future.
- Harold said the current path of leaving the reactors where they are and letting them decay is not the best option. He said K-East is a high risk undertaking, and there are many arguments for different alternatives. He said not many are happy with the current approach, which is to leave the reactors by the river and get them at a later date. He said no matter what is done it will cost money.
- Mike asked if there are core samples being taken at K-East. Tom said for the RI/FS wells, DOE is taking core samples every 5 feet. DOE thought drilling new wells into the base might let more contamination into the groundwater.
- Mike asked if there could be boreholes applied in K-East. Dennis said it depends on the situation, but other applications can be explored. Tom said K-East has to be in interim safe storage by 2014. Jerry asked if the graphite core will need interim safe storage. Tom said the graphite can go to the Environmental Restoration Disposal Facility (ERDF).
- Dirk said the reactors have a seam in the middle of the buildings that would leak water with very high contamination out of the bottom. He said as a result, the contamination will be uniform down to the groundwater. Tom said the information on the amount of contamination will be available once it is analyzed. DOE only has examples from Brookhaven, but K-East had more use. He added that so far the graphite seems fairly benign.
- Harold said the early reactors had a lot of distortion, and there were provisions made in the graphite to manage the temperature in the core.

- Dale asked if there would be advice on the K-East reactor removal. Harold said that the next step would be for the issue managers to watch and study this process more.
- Harold asked when the EECA will be out. Tom said it depends on the EPA review.
- Dick said there needs to be better determination of soil contamination under all the reactors.

Action Items / Commitments

- Joann to get same before/after photos on reactor (100-N) to Susan H. H to get committee
- Mike T. to provide statistical std for ambient water quality (Federal regulations that it can be exceeded-8pcu) > To Susan H.
- Follow up with PIC:
 - How to monitor water
 - How to meet qualifications for interim final ROD
 - How do you know you're done?
- Mike T. to provide expanded 100-N analyte list to Dale > To Susan
- Discussion on how to address potential water line breaks in future/water master plan/options export study, sewer master plan. (for September)
- Discuss relationship between leaks and plumes in 100-D (Future topic)
- Oct 28-Energy Parks Community/Stakeholders Forum
- Bring Gary's/Karen's presentation to HAB
 - November?-(including proposals to use "green energy" instead of carbon-based)- LTS connection for remediation
- Send note to HAB with BRC link and suggestion to check out members and bios.

Handouts

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

- RL Energy Park Briefing for River and Plateau Committee, DOE-RL, August 10, 2010.
- Critical Decision 0 – Approve Mission Need: 105K East Reactor Core Removal, Tom Teynor, August 2010.
- Hanford Site Energy Park Initiative, DOE-RL.
- Draft HAB Advice on the integrated 100 Area RI/FS work plan, Dale and Shelley.

Attendees

HAB Members and Alternates

Shelley Cimon	Floyd Hodges	Wade Riggsbee
Dirk Dunning	Susan Leckband	Dick Smith
Dale Engstrom	Liz Mattson	Bob Suyama
Harold Heacock	Jerry Peltier	Steve White
		Gene Van Liew

Others

Paula Call, DOE-RL	Rick Bond, Ecology	Janice Williams, CHPRC
Joanne Chance, DOE-RL	Dib Goswami, Ecology	Sonya Johnson, CHPRC
Karen Flynn, DOE-RL	Nina Menard, Ecology	Daniel Serres, Columbia Riverkeeper
Boyd Hathaway, DOE-RL	Robin Varijen, Ecology	Ted Reparsky, CTUIR
John Morse, DOE-RL	Ginger Wiremen, Ecology	Susan Hayman, EnviroIssues
John Neath, DOE-RL	Craig Cameron, EPA	Blair Scott, EnviroIssues
Alex Teimouri, DOE-RL	Dennis Faulk, EPA	Jean Vanni, Yakama Nation
Tom Teynor, DOR-RL	Emy Laija, EPA	
Mike Thompson, DOE-RL		
Margo Voogd, DOE-RL		
Pamela McCann, DOE-ORP		