

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
RIVER AND PLATEAU COMMITTEE MEETING
May 6, 2009
Richland, WA**

Topics in this Meeting Summary

Welcome and Introductions 1
Purgewater Management Alternatives Update 1
Draft ERDF Advice 6
Overall Central Plateau (CP) Cleanup Completion Strategy 10
DOE Land Management Planning and Long-Term Stewardship 17
Draft River Corridor CERCLA Decision Document Schedule 20
Action Items / Commitments 23
Handouts 23
Attendees 23

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 the committee, introductions were made and the committee adopted the April meeting summary.

Purgewater Management Alternatives Update

Wade Riggsbee reviewed the purgewater management alternatives. The committee has previously been briefed on the study and alternatives, and Wade and Dale Engstrom reviewed the recently released draft engineering evaluation/cost analysis (EE/CA). He said purgewater became a problem because the amount of water that had to be evacuated to provide a representative sample created large volumes. Wade said potential solutions could include pumping water into old stock tanks next to the wells and letting evaporation occur there or looking at a maintenance rehabilitation program to see if there is a way to modify wells to reduce siltation. He said these solutions could reduce hauling fees. Dale drafted potential advice and Wade said he could add to this and circulate it to RAP members for feedback.

Briant Charbonneau, Department of Energy – Richland Operations Office (DOE-RL), provided an update on the alternatives being considered for purgewater management. He said the current preferred alternative is to use the current system, which has been used for

the past 19* years, and change the regulatory process. When the original system was originally put in place in the 1970s a great deal of Resource Conservation and Recovery Act of 1976 (RCRA) monitoring wells were being drilled; Briant said most of these actions now fall under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The current regulatory process* calls for the ModuTank in use to be closed due to a discrepancy about whether the tank should be classified as a tank, miscellaneous unit or surface impoundment. Briant said the use of the existing and future modu tanks for purgewater containment needs to be updated and regulated under CERCLA. This would result in a faster approval process, but would otherwise be equivalent in its requirements.

The draft EE/CA that was released looks at a variety of alternatives, including modifying the effluent treatment facility (ETF) for settling and enhanced pretreatment. Briant said the preferred alternative DOE thinks is the fastest, best approach is to continue using the current ModuTank system. A concrete strip for the construction of four additional ModuTanks was installed when the first ModuTank was built. Briant said the ModuTank that has been used is substantially full of particulates from 19 years of operation. This material will be allowed to dry out and then be disposed of in the Environmental Restoration Disposal Facility (ERDF). The frame of this ModuTank will be restructured and DOE will make a decision about whether to re-line it. The preferred alternative would allow for the operation of three tanks simultaneously. Briant said once the regulatory process is in place DOE will be able to contract to have a liner in 30 days.

Briant said one ModuTank will be re-lined and put into operation while a concurrent set of purgewater minimization activities takes place. He said minimization techniques have appeared to be detrimental to well production, but testing the flow of wells using the typical method will determine how these techniques affect the flow of the well. The unused tank is being re-lined and the full tank is being decommissioned. Briant said purgewater management activities will be evaluated to see whether there is enough time for the old tank to be decommissioned or if there is a need to construct a new tank. ModuTanks are a commercial item, and deploying them involves having crews to set them up. Briant said DOE is also installing large settling and filtration tanks in some of the wells, and is working with the regulatory agencies on activities to explore further before going to the ModuTank. One potential technique is to run purgewater through a pump-and-treat facility then put it in the ground to use for well development. Briant said the water would be filtered to remove sediment. This alternative does not meet maximum contamination levels (MCLs), as a few thousand gallons of purgewater being released in the middle of a plume is insignificant.

(* This is a correction of the statement made during the presentation)

Regulator Perspectives

- Craig Cameron, Environmental Protection Agency (EPA), said EPA would like to see the process begin, although it is a temporary solution. He said a long-term solution still needs to be determined, but EPA would like to see the modu-tank built.

Committee Discussion

- Maynard asked how much volume re-using the stock tanks would gain. Wade said for outlying tanks it would be substantial and would reduce the overall cost impact. He said another option is to look at re-injection at some locations, but there are regulatory considerations for this approach.
- Susan Leckband asked if there are processing costs associated with hauling costs. Wade said the purgewater is hauled to modu-tanks and is then allowed to evaporate, so there are no processing costs.
- Pam Larsen asked whether an evaporator could be used for treating purgewater. Wade said sediment and solids would impinge on the evaporator's processing capabilities.
- Shelley Cimon asked how long it would take to install a third modu-tank. Briant said framing the modu-tank is simple and a concrete pad is already in place. It would take two weeks to manufacture the liner and one to two weeks to frame. He said the actual operational construction would most likely be done by the vendor.
- Shelley said one criticism of well development is that not enough water is being used, and she is not sure how minimizing the amount of water can be approached given this criticism. Wade said DOE is completing a series of tests, including minimizing the infiltration of sediment in well construction, looking at using an additional liner inside wells to reduce the impact of siltation and stress testing versus slug testing to define the well's hydraulic properties. This evaluation is to examine problems and the best alternatives. Wade said he is suggesting looking at the issues of volume impact, the impact on the redesign of wells and the siltation problem that has plagued the process for a long time.
- Shelley said predictions of purgewater volumes are needed, so if minimizing these volumes does not work a solution needs to be formulated. Briant said the EE/CA includes a conservative estimate, which was used to determine the need for three modu-tanks.
- Maynard asked the timeframe for implementing the solution. Briant said the EE/CA comment period closes May 29 and DOE expects to implement an alternative shortly after that.

- Susan asked about the RAP's opportunity to weigh in on this issue. Briant said the most controversial issue is not what the solution is but how it is documented, and if there is a concern then advice should be issued. He said dealing with the need for monitoring wells is an outstanding issue, as DOE would need to install these if the modu-tanks are determined to be surface impoundments.
- Dick Smith asked whether there is a plan of action if a leak is found. Briant said modu-tanks have a leak-detection system that consists of two liners. Dick asked whether monitoring wells would be below the tank or to the sides. Briant said DOE would say the liners provide an adequate level of protection, but DOE would comply with regulations by installing monitoring wells if necessary. Craig said it is possible that, depending on the duration the modu-tanks would be used, monitoring wells may not be necessary. Briant said monitoring wells may only be needed if the modu-tanks are determined to be the long-term solution.
- Maynard suggested the Hanford Advisory Board (HAB or Board) may want to provide suggestions on future actions on purgewater management. Briant said DOE has looked at draft recommendations. DOE is concerned about building a large filtration unit prior to a pump-and-treat, and a more permanent filtration system may be needed. He said purgewater is a generic term that refers to any water that needs to be disposed of, including well-development water that has sediment in it as well as clean water that can be discharged to the soil.
- Pam asked what happens to the particulate once it is dried. Briant said the particulate will go to ERDF, although this has not previously been done. He said the current system has been successful at monitoring and containing the heart of the plume. The ZP-1 pump-and-treat facility will treat the most concentrated part of the plume, and the new record of decision (ROD) will require restoring it to drinking-water standards. Last year sampling of wells that had been developed created approximately one million gallons of purgewater, 300,000 of which was sent to modu-tanks. Briant said once the surge of additional well development is complete it will return to a normal routine.
- Shelley expressed concern that ERDF is close to reaching the limits on its radionuclide loads, and asked whether there is an expectation that a radionuclide load will be created by well development. Briant said the sediment will be characterized, but most of it is ground up rocks and dirt, rather than radionuclides. He does not anticipate the sediments coming from purgewater to be a significant source of radionuclides.
- Dick asked whether the contaminants would remain in the sediment basins since they are in the solution and are not particulates. Briant said most radionuclides will not evaporate and will turn into a particulate in the sludge. Dick suggested this may create a need for limited depth removal treatment of that material. He said ERDF's

radionuclide limits may necessitate serious pretreatment of the sediment before it goes to ERDF, and asked how this material can be skimmed for pretreatment. Briant said he is not sure the contaminants form exclusively at the top. As evaporation occurs, the concentrations throughout the remaining liquid normalize since evaporation is relatively slow.

- Dick commented that the analysis of the third alternative in the EE/CA was not adequately supported or described.
- Shelley said the EE/CA is not clear about the iterative steps; when decisions must be made or the comprehensiveness of decisions. She said the purgewater volumes are unclear and there does not seem to be a limit on modu-tanks, so the process seems open-ended. Briant said a conservative bounding case was used to allow for implementing modu-tanks as needed.
- Maynard said if the Board issues advice on this topic at its June meeting this would occur three to four days after the comment period ends. Briant said the concerns expressed by RAP members would not alter the path forward, and advice on process or concerns raised by the issue of purgewater would not need to be as timely.
- Harold Heacock asked how far the water is above drinking-water standards. Briant said purgewater has a large range of contamination levels, as there are wells in clean areas, wells on the fringe of plumes and wells that target high-concentration areas, such as those in the ZP-1 Area. Some wells results in purgewater that is hundreds of times above drinking-water standards, while some purgewater has low contamination levels and can be discharged at the well head. He said DOE has historically taken a conservative approach and considered the modu-tanks as treatment.
- Dick asked whether the EE/CA will be revised based on the comments received. Briant said DOE's response to EE/CA comments will be addressed in the Action Memo.
- Wade said long-term purgewater and well management, as well as issues with ERDF and ETF are items that deserve advice, but this advice would not relate to the short-term solution outlined in EE/CA. He suggested that since this is an over-arching management issue it could be further developed and presented at the September Board meeting.
- Wade, Dale and Shelley will frame advice regarding purgewater issues and bring it back to committee for discussion in the summer.

Potential ERDF Advice - Key Points (As captured in flip chart notes)

This advice may not affect the short-term path forward.

1. Volume in question
2. Description of Alternative 3 effects in EE/CA
3. Radionuclide load and distribution
 - a. ERDF impact
 - b. ETF
4. Timing of advice with EE/CA
5. Long-term solution vs. short-term
6. Long-term well management
7. "Piecemeal"

Draft ERDF Advice

Shelley reviewed the committee's draft advice on the proposed amendment to the ROD for the expansion of ERDF. Dirk Dunning drafted the advice and Shelley provided her edits. The advice covers the history of ERDF and past Board advice, including Advice #2 from 1994, which dealt with the initial construction of ERDF, and Advice #75, which addressed the construction of new cells and the Board's request that DOE report the full cost of this expansion. Meeting attendees had the opportunity to read the advice and provide suggestions.

Mark French, DOE-RL, said the public comment period on the proposed plan ROD amendment to authorize expansion of cells nine and 10 began on Monday, May 4.

Regulator Perspectives

- Craig commented on the second paragraph of the Advice section, which addresses DOE completing the performance assessment (PA). He said EPA hopes DOE will begin the assessment now and not wait for the release of the Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS).
- Craig said the advice does recommend consultation with EPA and the Washington State Department of Ecology (Ecology), but he would also like to see a sentence that says the PA should use CERCLA criteria where appropriate, such as MCLs. He said DOE is aware of this from previous joint presentations and it was discussed at the last RAP meeting.
- Craig said the last sentence in the second paragraph of the Advice section, which states, "As part of this analysis, the Tri-Parties should establish, in advance, actions to be taken if the liner or cap is found to have failed prematurely," sounds like it is trying to be specific about an issue that is difficult to define.
- Craig commented on the last sentence in the fourth paragraph of the Advice section, which states, "However, the Tri-Parties should use the formal ROD amendment and

comment process for any expansion of ERDF that involves substantive changes to the facility design, such as changes in cell design or alignment, or modification of the waste acceptance criteria.” He said the agencies are planning to continue to use the remedial design/remedial action (RD/RA) process to modify waste acceptance criteria (WAC) if necessary.

- Rick Bond, Ecology, said he agrees with Craig’s comments. The line in the second paragraph that says actions should be taken if the liner or cap is found to have failed prematurely should be revised, as the closure of facility liners are not necessarily supposed to stay intact.
- Rick said Ecology generally supports the more expedient process and going forward without a ROD amendment each time the facility expands.

Committee Discussion

- Mark said the letter supports the ROD amendment and the proposed plan, and the advice would be more meaningful if it focused more on this and did not address broader issues. He said action planning dilutes the advice and support the Board is trying to give. The expansion of super cell 10 will last until 2010 and beyond, and Mark said that portion of ERDF will be serviced for quite a while.
- Pam suggested that adding the word “update” to the section about DOE completing the PA would be constructive.
- Pam said the eighth paragraph of the History section should be deleted. This paragraph says the concentrations of uranium are high and increasing, which elevates the Board’s concern. She said the reason levels are increasing is that soil that has uranium in it has been moved to ERDF. Since ERDF is watered down, the uranium is moving, and when the leachate goes to ETF it is within the facility’s acceptance criteria.
- Pam said paragraph two of the Advice section references uranium and talks about “higher solubility.” She suggested removing the word “higher” since solubility is a physical property. This occurs because water is being added, causing the material to move. She also suggested removing the word “preferential” from this paragraph’s reference to “preferential transport.” Mark said due to the addition of water, uranium is more mobile in ERDF. He said if water stopped being added those concentrations would decrease and would result in less leachate over time. He said this process has nothing to do with having uranium in the ground and where it would go.
- Maynard suggested using the newer understanding of transport of materials through the vadose zone in the PA.

- Shelley said the advice should say that the PA cannot wait until the EIS is released.
- Maynard said information that will be released publicly in the TC&WM EIS that relates to ERDF may be helpful in completing the PA. He asked whether this information would still be considered in the PA. Mark said DOE is trying to have a consistent approach and assumptions between the TC&WM EIS and PA.
- Pam said the last sentence of the third paragraph of the Advice section could be re-worked. This sentence suggests that actions should be taken if the liner or cap is found to have failed prematurely. She said the liner does not count in terms of environmental analysis and if the cap is failing DOE will go back and try something in addition to capping the facility anyway. Owen Robertson, DOE-RL, said the cap is not regulated by RCRA. The original ROD amendment says the cap should be RCRA compliant, but DOE does not yet have a design. When the cap is designed this will be submitted to EPA for approval. Pam said this is an issue that could be addressed in the future since it has not yet been designed, and suggested removing that entire sentence from the advice.
- Dick said having monitoring wells implies there is a plan for what would happen if contamination was found. He asked the purpose of monitoring wells when monitoring is done above the trench and beneath the cap. Owen said a leak-detection system is in place below the trench and monitoring wells are in place above and below ERDF. He said this is a long-term monitoring system. If a problem is detected DOE would go back and address how water is being put into ERDF and cut down on the flow rate until the root of the problem is determined. He said there are not monitoring wells below the liner, just a detection system, and DOE would go back and look at the cap design. Craig said the action that would be taken would feed into the operations and maintenance (O&M) plan.
- Pam said one reason this process is being completed is that DOE could not change the design in what they put under the cells even though the technology had advanced because it required a ROD amendment. Owen said a ROD amendment was done in 2003 prior to this technology becoming available and the ROD amendment could not be changed.
- Pam commented that she is not sure the advice should state that this applies to any expansion that “involves substantive changes to the facility design.” Shelley said this was to include the idea that a public process should take place that allows the public to weigh in on substantive changes. Pam said conducting a public process is fine, but requiring a formal ROD amendment is expensive and takes time.
- Mike Peloquin, Washington Closure Hanford (WCH), said the language in the ROD says the ERDF design is a single trench with a pair of cells and DOE is proposing a single trench with a single cell. He said since this is different from the exact language

in the ROD it constitutes a significant change. Another part of the ROD says the design will meet all of the RCRA technical change requirements, and DOE felt it needed to state this as a significant change.

- Dick said adding new material under the liner is a design, rather than structural, change.
- Mike said the EPA legal counsel said this part of the proposed plan was not RCRA compliant. He said the minimum technical requirements allow for the use of either gravel or fabric that helps with leachate drainage.
- Susan said the Board should advise that the Tri-Parties implement a public process for future decisions that involve substantial changes to facility design or modification of WAC. This way, these changes would not require the ROD process but the public is still engaged. Pam suggested the Board also encourage DOE to look at new technologies and approaches and when they are found to implement a public process.
- Gerry Pollet expressed concern that an informal public process does not give any right for public comments to be considered and implemented. He said this issue involves a landfill that has a serious, evolving problem, and he thinks the public concern is if the same risk-based language that was used for the integrated disposal facility (IDF) needs to be in this ROD. If DOE reaches 75 percent of its criteria the issue needs to be revisited and new technology should be applied, and Gerry said the only way to ensure this happens is by using a formal ROD process.
- Pam asked how the issue of evolving technology should be dealt with. Gerry said he thinks the ROD could have been amended to allow for new technology. He said this was not a technical or legal problem in the past, but there was discussion that new technology would not be needed, as DOE thought it was below what the limits were going to be. Owen said this was a scheduling issue when authorizing cells seven and eight and DOE did not want to take the time to go back for a ROD amendment.
- Harold said he thinks the advice is too long and the bottom line, that the Board supports the amendment, is in the first paragraph. He expressed concern that the last paragraph in the History section and the last paragraph of the Advice section tie the Board's suggestions to the Natural Resource Trustee Council (NRTC). He suggested these paragraphs be removed since the Board is a separate organization and he does not think this adds anything to the advice. Gerry said the ROD required mitigations. These mitigations failed, which was a serious breach of the ROD and had a significant impact on natural resources. He said the trustee council is a legally established body that provides an avenue for addressing damages and mitigation through negotiation. He said there has been a failure of mitigation for serious habitat destruction and dealing with it has been delayed.

Shelley agreed with Gerry, and said in an ideal world DOE would have a line item for a natural resource damage assessment (NRDA) at the front end so the cleanup is comprehensive and there is not a need to mitigate. She said these discussions are ongoing at DOE Headquarters (DOE-HQ), but she is not sure the Board can legally weigh in on this issue. Shelley suggested monitoring this issue, but said she is not sure it can be included in this advice. Gerry said the NRTC was established under CERCLA and is a legal body, rather than an advisory body, that is supposed to be working with the agencies on this issue. He said one avenue for addressing this issue is court action and another is to include mitigation measures in the ROD. He said it makes sense for the Board to encourage that this work be completed rather than saying they have failed and it is time for comments to be considered for the ROD to be amended.

- The committee agreed that additional discussion on the advice is needed before it goes out to the whole committee. Susan Hayman will set up a call for Gerry, Harold, Shelley, Maynard and Dirk to discuss the paragraphs related to the Natural Resource Trustee Council and mitigation before the next draft of the advice is circulated to the full RAP Committee.

ERDF Advice - Additional Concepts and Concerns (As captured in flip chart notes)

1. Board Advice #2 (1994) and #75 (1997) - roll into history section
2. Performance assessment update should not wait for EIS
3. Way too long. Gist is..."support amendment and update the PA"
4. Concern with references to Trustees. Don't think this adds to advice. (Not agreement by all at RAP committee meeting.) Others feel that mitigation is not being adequately addressed.

Overall Central Plateau (CP) Cleanup Completion Strategy

Matt McCormick, DOE-RL, provided an update on the progress on the central plateau (CP) completion strategy. He said the agreement in principle (AIP) calls for DOE to develop a strategy to complete CP cleanup and address certain areas and attributes in its strategy. He said he has previously discussed the seventh ROD on groundwater operable units (OUs) with the committee, and hoped to focus more on what DOE is considering in coming to a decision on the outer area of the CP.

Matt said the 2015 vision focused on reducing the size of the active cleanup of the site, and he reviewed how DOE is proposing to do this. The river corridor, which covers approximately 210 square miles, is the main focus in terms of completing cleanup by 2015. Matt said the area will be divided into six decision units to be addressed under six

CERCLA RODs to complete the remedial investigation/feasibility study (RI/FS) and come to final decisions on groundwater and soil cleanup.

Matt reviewed the CP cleanup strategy, which has the goal of shrinking the active cleanup footprint to 75 square miles. The outer area of the CP is 55 square miles, and the plan is to remediate this to unrestricted surface use, or cleanup standards comparable to the river corridor. The inner area will include Hanford's final footprint, and will require long-term waste-management activities to maintain institutional controls (ICs) to protect human health and the environment. Matt said DOE believes the final footprint could be 10 square miles or less, and a shared strategy and principles are needed to be successful. The key cleanup factor for the inner area is to contain and remediate key groundwater contaminants in the CP, including uranium, technetium-99 and carbon tetrachloride. The cleanup strategy will also utilize a defense-in-depth approach to deep vadose zone contamination and groundwater protection. Matt said DOE is currently going through a treatability test to see if there are ways to mitigate technetium and uranium, and there is a need to continue to have a robust monitoring program for groundwater, to ensure the ability to quickly react to an emerging plume so it could be contained in the CP.

The three agencies have been meeting during the past couple of months, and the teams have focused on the outer area ROD to come to a decision for the approximately 180 waste sites in the outer area. Matt said the agencies are also working on completing the decision process for the CP OUs and agree that there is a need to go forward with an outer area decision document. Matt said in the interim clean up will continue where decisions have already been completed, such as BC Controlled Area remediation. For groundwater, the agencies have agreed to use the ROD in ZP-1 for the large carbon tetrachloride plume and amend that ROD to include contaminants associated with UP-1 groundwater. The agencies will then determine whether the RODs for the west area of the CP can be amended for the two groundwater OUs in BP-5 and PO-1. Matt said this has not yet been decided, but the agencies are moving forward with the amendment of the ZP-1 ROD. The agencies have also come to an understanding in terms of using American Reinvestment & Recovery Act funds to accelerate cleanup. Matt said the agencies recognize that a portion of the CP will be required for permanent waste disposal and containment of residual contamination. He said this final footprint needs to be as small as practical, and consistent principles need to be applied in the decision-making process for that area.

Matt reviewed the nine principles DOE, Ecology and EPA have agreed on for defining inner area cleanup principles. Discussions between the agencies were meant to ensure consistency in the following areas: exposure scenarios, ecological protection parameters, decision logic and rules for alternative development, key elements of the IC plan, soil

cleanup levels to protect groundwater, dose standards, a set of contaminants of concern and characterization data requirements, comprehensive risk assessments (RAs) to support decision-making, and applicable, relevant, and appropriate requirements (ARARs).

Matt reviewed areas of ongoing discussion between the agencies, where there is still discussion about how to apply the nine principles to complete decision-making of inner area waste sites and burial grounds. The agencies have not come to agreement in terms of how to complete the decision-making approach for inner area clean up, how to balance and modify criteria applied in developing inner area remedies, or how deep vadose zone contamination will be addressed. Matt said these areas are part of AIP and CP completion strategy that DOE owes the regulators in a proposal by the end of July. DOE is still gathering information and looking at concepts and conducting discussions with regulators, HAB, the public and tribes.

DOE is considering a single, comprehensive inner area decision document to address soil waste sites, facilities and the deep vadose zone. Matt said DOE has an interest in adhering to the CERCLA and RCRA processes by assessing the extent of inner area contamination and conducting a comprehensive evaluation in feasibility study/proposed plan (FS/PP) for the inner area. Matt said the decisions would be implemented in a geographic manner and a decision-logic approach would be used to develop alternatives that cover the range of possible remedies for waste sites and facilities.

Matt provided an overview of the decision approach for the inner area. In order to implement a decision, DOE would follow the CERCLA and RCRA processes for documentation and to create a proposed plan. This would involve public input and tribal consultation, and would result in an inner area decision that would require a RD/RA work plan to describe the inner area approach and prioritize a logical way to treat cleanup. Matt said this work plan would be the basis for Tri-Party Agreement (TPA) milestones for completion of inner area zones. DOE would discuss this schedule with regulators in order to determine milestones and a compliance schedule. Each area, or zone, would have its own RD/RA work plan, which would require public input on zones, cleanup levels, barrier design and details in terms of implementation and schedule.

Matt said for the CERCLA process, there are many opportunities for data input when designing and implementing a decision. DOE has characterization data and is doing supplemental characterization as part of the foundation. Data will also be collected as part of the design of a remedy in terms of how to implement a remedy and gather further environmental data for field samples. Matt said the range of alternatives for the 180 CP waste sites will include a no-action alternative as well as minimum and maximum ICs that go through the CERCLA threshold criteria of ensuring human health and the

environment and the five balancing criteria to look at long-and short-term effectiveness. A proposed plan would be formulated, and this would go through public comment then modified based on these comments. Matt said there would be two extremes for inner area clean up – one would be minimum ICs, including maximum remove, treat and dispose (RTD) according to current waste-management criteria, and the second would be maximum ICs, which would leave contamination in place through capping and containment. The alternatives between these bookends are threshold-case alternatives, where DOE would take burial grounds and waste sites through threshold criteria using the established principles. Matt said this process would take place for each waste site or burial ground, and DOE has not yet decided how to show this. The threshold case will be run through CERCLA’s five balancing criteria and some modifying criteria to come up with a balancing case, and Matt said DOE thinks this balancing case alternative will end up as the proposed plan.

Matt said this process will result in a single comprehensive decision for the inner area, which DOE believes will address tribal and stakeholder expectations for a comprehensive cleanup approach. Matt said while DOE is working on a RI/FS for each individual site they could also answer what would take place in adjacent waste sites. In the current process these are not completed at the same time, and this would avoid the unknown in terms of what the whole area would look like. Matt said this approach would also promote the selection of holistic remedies and show comprehensively how it will protect human health and the environment. This would also avoid piecemeal, repetitive decision-making and give the public and tribes information on how to ensure protectiveness. Matt said this approach would also provide a good basis for requesting funds in the future and to have the decisions made in the CP to demonstrate that DOE is in a mode of tactical implementation of its decisions. The comprehensive approach would apply a consistent set of principles that satisfy RCRA and CERCLA requirements. Matt said planned work on the CP will proceed, including outer area waste-site remediation, Plutonium Finishing Plant (PFP) demolition, transuranic (TRU) waste retrieval, groundwater remediation, U-Plant Canyon demolition and excess facility decontamination and decommissioning (D&D).

Matt said DOE ultimately has a responsibility to provide a vision and strategy for decision-making in accordance with the AIP. He said the DOE is considering past advice and wants input from the HAB.

Regulator Perspectives

- Craig said he agrees that a comprehensive look at the CP is needed. EPA has concerns about timing that still need to be addressed regarding the comprehensive

ROD for the inner area. He said EPA is interested in three specific decisions: PW-1, 3 and 6, CW-5 and UW-1 as well as, to a lesser degree, the BC cribs and trenches. Craig said the agency thinks a decision can be reached on these much sooner than a year from now and, regardless of geographic decisions, is interested in going forward with these decisions.

- John Price, Ecology, said Matt's focus on achieving a comprehensive decision could be problematic since M-15 was scheduled to be completed by 2008 and M-145, as covered in the change package, has an unachievable date of 2011. He said HAB Advice #173 included a flowchart that recommended that waste sites are adequately characterized, which ties to M-15 and M-45 work. This chart also includes a technology component, which John said requires four to five years to implement. John said he thinks the recent technology development at Hanford has been a failure and clean up will struggle on the CP because there has not been a comprehensive technology-development effort. He said the site does not have a mechanism to set up a comprehensive regulatory program. He agreed with Craig that 200-UW-1, BC cribs and 200-PW-1 need to be addressed, and he would include the ditch that comes out of C Plant in this list. He said making these decisions will make it easier to come to a comprehensive decision.

Committee Discussion

- Shelley asked the timeline for the decision document for the outer area. Matt said DOE is thinking it will take approximately one year to complete the process. Interim actions will be taken through various means, but he said DOE will eventually have an outer area ROD that defines decisions under CERCLA for those.
- Shelley asked whether the agencies are considering staging clean up and grouping similar sites, rather than zone closure. Matt said this process would be helpful in coming to the decisions. There has already been grouping of waste sites, and he said he thinks there will be a quick agreement in terms of the remedy.
- Gerry expressed concern about the timeline, and said the TPA currently certifies remedy completion by 2024. He asked when the inner area decision will be completed. Matt said DOE thinks it could complete this process and come to a decision in approximately two years. DOE is not looking to extend the current 2011 milestone by a large margin to complete the decision-making process.
- Shelley asked whether there is any discussion from DOE-HQ on completing a natural resource damage assessment (NRDA) at the beginning of the process to look at a more comprehensive clean up to avoid having to spend money on mitigation. Matt said DOE is committed to going forward with cleanup assessments without complicating the cleanup process and hindering its path forward.

- Gerry asked whether DOE is proposing using CERCLA, rather than RCRA, for tank farm closure. Matt said DOE is considering using CERCLA for addressing radioactive contamination that is under the tanks in the environmental media, but not for closing tanks. Gerry said this is controversial since using CERCLA with balancing criteria is not the same as RCRA. Nick Ceto, DOE-RL, said the single document will be a CERCLA document as well as a corrective action decision under RCRA. Nick said DOE does not think there is a compromise in trying to make sure clean up is addressed in a comprehensive way. Matt said the decision would result in one remedy to protect human health and the environment, and he does not think the difference between the requirements would be evident. Gerry said unless DOE exhausts practicality, which would require an investigation that is going to take several years, the timeline is an issue. He said he does not believe the state can delegate its authority and avoid that process.
- Maynard said the Board previously advised investing in technology if it is appropriate. John said he thinks the time it would take to invest in technology would conflict with finishing cleanup by 2024. Shelley said this may be an opportunity for the Board to weigh in on the Science and Technology Roadmap coming out of DOE-HQ.
- Shelley said the Board needs to understand the document DOE is providing to regulators in July and the opportunity and timeline for the HAB to weigh in on this. Matt said DOE will release a proposal in July that will be implemented in the change packages due at the end of 2009, which is another opportunity for public comment. Matt said the Board will receive a copy of the proposal when it is released. Shelley asked whether this would require a half-day workshop. Matt said given the final footprint of the inner area and that the three agencies agree on a consistent decision-making process and set of principles, it would be helpful to have input on how to best address a comprehensive approach for inner-area decision-making.
- Gerry asked whether the intention of the agencies is to submit one set of change packages for everything proposed in the negotiation or do it in a piecemeal fashion. Matt said the tentative agreement includes two sets of change packages for the M-91 and M-15 scope to submit at the end of December to complete the scope of work under the two series of milestones. He said the agencies have not talked about timing in terms of staggering. Gerry suggested that the Board advise that the agencies do this all at once, since public comment one time on a set of changes would be most effective.
- Maynard asked how much time DOE would need to release a comprehensive document. Matt said the M-91 changes will be in the M-91 change package, which is a straightforward scope of work. The other change package that would be released at the same time is completion of the M-15 series work, which is the set of remedial

decisions for non-tank farm waste sites and burial grounds in the CP. He said DOE will release both proposals by the end of this calendar year. Nick said DOE now has a series of M-15 milestones that would potentially be consolidated, and will release its proposal at the end of July. Maynard asked whether the process will go beyond M-15 and M-91. Matt said it will not.

- Harold said he thinks it would be easiest to examine the proposal as a series of packages, rather than one large change package, which could be difficult to get through. Nick said DOE is starting with the nine issues defined in Matt's presentation and assembling these based on past input from the HAB, Oregon and Washington. He said DOE would not expect the Board to comment on all parts of it at the same time. Once DOE has consensus from regulators and HAB advice they can propose an overall remedy and create an overall plan for all areas of the CP.
- Dick asked whether the master plan would define principles in a general sense, so the Board could understand the basis by which all future analyses would be performed. Nick said the plan would include principles, a set of decision logic and the list of sites that would be run through the decision logic. These elements would be modified based on factors such as balancing criteria and community values to consolidate the waste and create a smaller footprint. Nick said once the decision tree is agreed on a holistic cleanup proposal will be released. Dick asked how long this process will take. Nick said DOE thinks it will take a couple of years. Dick asked whether any of this work falls under recovery act funding. Matt said the work does not qualify for recovery act funding, and most of the work will be done using base dollars.
- Vince Panesko said PAs are needed to determine how much cleanup is needed in C Farm, and asked whether there is a PA for the river corridor and CP. Matt said DOE is not doing a PA for waste sites and burial grounds under DOE Order 435.1 and is using the CERCLA risk process. Vince asked why 435.1 does not have to be followed. Matt said 435.1 is most appropriate for treatment and disposal of waste and is not applicable in terms of remediation of waste sites. Instead, DOE will go through a process like a PA, where the risk of contaminants in soil and future groundwater is evaluated. Vince said DOE cannot leave materials in tanks but can leave contaminants in burial grounds. Matt said DOE is following the CERCLA process. Vince said he does not think these are comparable.
- Gerry said he was surprised by the emphasis on the inner area but not the outer area, and there are a lot of decisions to make for the outer area. Nick said they do not think there are many decisions for the outer area. The vast majority will be RTD with less than a dozen contaminated sites that the agencies need to collectively determine how to deal with. Gerry said the inner area has characterization questions and DOE cannot issue a model ROD without that characterization. Nick said the timing needs to be discussed and a timeline and milestone schedule for characterization will be issued

with the ROD itself, even if it is a hypothetical model ROD. He said it takes time to follow the process to get input on exposure scenarios.

- Gerry expressed concerns about the map, specifically the barrier between the east and west areas, and he questioned the notion of pushing ahead with the inner area ROD in two years as opposed to saying it is an effective approach. Matt said M-15 includes characterization and a remedy proposal.
- The June Board meeting will include a presentation about the CP strategy and the RAP will identify issues of concern and next steps for the June meeting.

Key Issues on CP Cleanup (As captured in flip chart notes)

1. Combine changes into one package (avoid “piecemeal”)
 - a. But what are the effects on the timeline for this?
 - b. Maybe separation would make an easier “bite”
 - c. Group by issues
2. Principles/decision logic
 - a. Good place to comment and provide input
3. Emphasis on Inner/Outer Area cleanup
4. Concern about degree of characterization and timing of cleanup decisions
5. Map concerns (perceived division between East and West Areas)

DOE Land Management Planning and Long-Term Stewardship

Bob Suyama introduced the long-term stewardship (LTS) program plan, which was issued in August 2003. The plan includes a series of action items, very few of which have been accomplished, and calls for a five-year update. Bob said Matt’s presentation showed that ICs will be applied in the CP cleanup strategy. Boyd Hathaway, DOE-RL, has indicated that DOE is in the middle of trying to decide what to do with the LTS plan, which needs to be updated. He said since this is a long-term plan, the Board has time to address this issue.

Doug Shoop, DOE-RL, provided an update on the LTS plan. He said with the 2015 vision for the outer area and the seventh ROD, DOE could have 275 square miles of the Hanford site cleaned up. He said it must be determined how the 275 square miles will be cleaned up before they go into legacy management. Doug said DOE or another federal agency will be in charge of long-term care. Boyd provided a list of the previous documents on LTS, which include resource management plans (RMPs), area management plans (AMPs) and other implementation control documents. Doug said the current plan needs to be updated, especially the high-level vision, and he has suggested this be updated so it is more applicable to the Hanford site. He said the

document has some aspects that are ambiguous, and DOE's intent is that the land area be under federal ownership for a long period of time. Doug said this needs to be clearly stated. Other issues that need to be addressed are implementing a long-term biological monitoring program to ensure there are no negative environmental impacts taking place. Doug said the document needs a substantial upgrade to make it applicable to the site.

Regulator Perspectives

- Madeleine Brown, Ecology, said Ecology supports updating the LTS plan.

Committee Discussion

- Bob asked whether DOE is planning to consolidate these documents into a usable document, or whether it would include multiple plans. Doug said DOE has not determined this, but he thinks the number of documents should be minimized. He said a concise statement of contractual requirements is needed, using the minimum number of documents to effectively manage this.
- Maynard said he thinks the RAP and Board would like to work with DOE as the LTS plan progresses so the committee can periodically give input. He said he also thinks in the past plans or projects have not always addressed LTS. He suggested that it would be helpful to require that documents address this in future planning, and that it would be helpful for the RAP and public to be updated on what is happening. Doug agreed and said LTS should be a focus area for HAB advice in the coming year.
- Dick said all areas of the river corridor and exterior to the inner plateau region will eventually be cleaned up to these levels, and the intent would be that DOE would control all of this area until the inner area is completed. He said this is 25 to 40 years away, but a plan for how these properties will be managed needs to be in place. He asked how these properties will be passed on between managers in the future, and said it is important to be consistent in how this is done. Doug said often when DOE sites are cleaned up they are turned over to legacy management, which is then the caretaker of the land. It is a prerequisite before it is turned over to legacy management that an extensive checklist is completed. He said DOE is envisioning a similar system for completing the river corridor and CP to ensure it could complete the checklist and go to legacy management. Nick said the stewardship plan will be a living document, and the directions and instructions will eventually be handed over to legacy management, which is a different division of DOE.
- Dick asked whether the maintenance control area of DOE will have the option of allowing development or other activities on the rest of the clean site, or whether legacy management would have control. Doug said DOE could do this, but will have

a comprehensive land-use plan and, since most of the area along the river is conservation or preservation, DOE would continue to manage those areas.

- Pam said since legacy management reviews any sites it will take control of, DOE should be communicating with legacy management as clean up is undertaken. Doug agreed, and said DOE should obtain their checklist and procedures as a plan is developed. Boyd said Hanford developed the checklist and used it as a model, so the final criteria should be close.
- Vince said the LTS document DOE wrote in August 2003 discussed these actions, and the first two actions were establishing an interface between cleanup and LTS and wanting LTS to provide input on cleanup decisions. Vince said he thinks DOE has ignored these and he has not seen a single example of DOE doing any of these actions in five years. Boyd said the LTS Web site will show actions DOE has completed, such as benchmarking, a checklist, Web site development and a CERCLA review. He said because there are follow-on activities for the LTS program, DOE is going back and evaluating how it wants to manage the land. Vince said he does not see how the updated plan will be different than what went into the 2003 plan. He said he hopes to see integration of the LTS with current cleanup actions. Vince said the Board issued advice on LTS and it has been ignored.
- Doug Mercer said he is trying to determine what DOE has done to meet transition and core priorities and he does not see documentation of the actions. He said he would like to work with DOE to learn what has been completed from a compliance perspective. He said he has identified key themes among what DOE said it would do and HAB advice and needs help from DOE, Ecology and EPA to get an idea of what has been done and whether DOE will make decisions differently based on the LTS plan. Doug Shoop said CERCLA and RCRA determine how cleanup is completed and the LTS program determines how the site is managed after it is cleaned up. He said he does not think the LTS plan will affect cleanup. Nick said he thinks DOE has been working to minimize the LTS needs and he thinks this affects remedy selection.
- Shelley said she thinks LTS has not been paid attention to and should be an open and transparent process that occurs in tandem with cleanup decisions. She said there is a need for dialogue about how DOE will meet LTS criteria.
- Pam said the RAP has had presentations on lessons learned at CERCLA cleanup sites and one of the major lessons learned is that LTS needs to be identified in the ROD, with a commitment made to funding, at the time RODs are adopted. She said she appreciates that there is more focus on RTD than in the past, but LTS needs to be in place or it will not happen. She said RAP had intended to have a workshop for the HAB on this issue and that this idea should be brought forward again.

- Maynard expressed concern that the cost elements for LTS included in RODs do not seem to be practical and he does not think the LTS costs have been adequately addressed. He cited the example that capping costs were less than long-term monitoring, and he said he hopes DOE looks at the true cost of LTS.
- Doug Mercer said DOE spends a great deal of time and money evaluating the effectiveness and performance of physical barriers but does not spend time evaluating the effectiveness of ICs over time.
- Bob asked whether HAB advice would be helpful to the scope the work DOE is currently doing. Doug Mercer said he needs to talk to DOE about what has been completed and could then communicate this with the Board at a full HAB meeting. Boyd said he would use Board advice for what DOE is currently doing to address the LTS plan.
- Doug Mercer will complete his work on LTS and bring it back to the committee to get help putting together a gap analysis. The RAP will revisit the issue in three to six months.

Draft River Corridor CERCLA Decision Document Schedule

Nick Ceto, DOE-RL, reviewed the draft river corridor CERCLA decision document schedule for the 100 and 300 areas, which includes dates from the TPA change package and completing remedial investigation on feasibility along the river corridor. He said the decision document schedule provides a sense of the magnitude of the work.

Nick provided background on the schedule. The river corridor had reactor areas, and DOE decided to consolidate based on these six reactor areas, including the 300 Area. Nick said DOE will formulate a series of proposed plans to determine the reactor areas. All the past work done on interim RODs, information from the site investigations and information from routine monitoring over the years will be incorporated into a data evaluation. Nick said the monitoring information will include work the Department of Health (DOH) has completed. This work has been completed in two decades and DOE will determine whether there are data gaps that would prevent a decision from being made. Nick said RI/FS work plans would then be developed and a final RI/FS report and proposed plan will be released. DOE will first submit its draft RI/FS work plan to EPA and Ecology on May 31 to review. The work plan will complete investigations along the river corridor to complete final cleanup decisions.

Nick said once DOE has gathered feedback from Ecology and EPA the plan will provide a roadmap for completing the work. He said the documents are coming up quickly and

will most likely be fairly similar since some issues are the same within these areas. After the RI/FS work plan and RI/FS proposed plan are released, DOE will come up with a ROD and RD/RA work plan. Nick said DOE hopes the ROD will be released six months after the proposed plan. Additionally, DOE is working to put together a final river corridor baseline RA and a RA on the river itself to determine whether DOE will be doing cleanup in the Columbia River. The projected date for a report on the river portion of cleanup is 2011 and will finalize the RA in the river. Nick said DOE is hoping to have all of this done by 2015 while planning for work along the river corridor. The river corridor contractor is spending between \$250 and \$400 million a year to do the work and DOE needs to be poised to make decisions and get the work done before the contract expires. Nick said once the river corridor is completed work needs to be completed on the CP.

Nick said the main principles of the CERCLA decision document schedule is that many issues on the river corridor are arising to support these decisions. He said DOE hopes there will not need to be many additional actions beyond what is already underway, and the purpose behind the final check is to ensure this is covered.

Committee Discussion

- Maynard said he supports this approach but it appears the time schedule is making the assumption that there are not many data gaps in the schedule. Nick said DOE has spent a great deal of time trying to fix the RI/FS work plan, and there is a great deal of data as a consequence. He said he thinks the information is available and DOE is trying to pull together all of the work that has been completed, which has included aerial surveys and a three-dimensional flying model to do a virtual tour of the site and look at places where there has been land disturbance. He said Hanford is moving forward with cleaning up the CP and can be proud of what it is doing on the vast majority of the site.
- Maynard asked whether there is a ROD for each of the six reactor areas. Nick said there is one for each area.
- Dick asked when the Board will see the RI/FS report and proposed plan and will be allowed to comment. Nick said the RI/FS reports and proposed plan have a formal public comment period. The work plans do not have a formal comment period but DOE could present them at committee meetings and the RAP could provide suggestions about how to do this. Dick said he has experienced cases in which scenarios evaluated in feasibility studies were not always rational, and he thinks it is worthwhile to make sure the bases are covered.

- Pam asked whether DOE-HQ will review the work plan for the RI/FS. Nick said there is an RI/FS work plan that covers 100 Area sites at a high level that includes an addendum for each one. These will be completed by the dates on the document schedule and submitted to the agencies. DOE-HQ will not review them.
- Pam asked how the NRDA analysis is fitting in with these RI/FS. Nick said if DOE cleans up a waste site and gets it back to ecological protection levels they do not think there is an NRDA issue going forward. DOE is trying to restore groundwater to prevent releases to the river that would exceed aquatic life protection criteria. Nick said DOE is cognizant of what is important to the trustees and is trying to address those issues.
- Harold asked how DOE is managing the amount of data that has been gathered. Nick said he is working with Lockheed Martin to pull together a tool that could query the database. He said the goal is to have a map of the site that would allow users to click on a certain area and pull up information on operating history, waste sites and groundwater wells. This would include buildings, displaying all of the data history for a specific site. He said this information is available but DOE is trying to coordinate a program to make it more accessible. Nick said DOE is hoping to have a public version of the database as well as a version for regulators and tribes.
- The RAP will work with DOE to get a briefing on the new data-management system at its September meeting. Additional discussion on the RI/FS schedule and RODs and appropriate timeline for Board input will take place at the June RAP Committee meeting.

Committee Business

Items for Follow-Up (As captured in flip chart notes)

1. RCRA site-wide permit
2. Integration of CTS with cleanup
 - a. Workshop?
 - b. Gap analysis and effects on plan and actions forward
3. ELI and EPA LTS workshop for RAP committee and Board
4. Habitat fire rehab and restoration (June)
5. CP cleanup strategy
 - a. June Board presentation with Maynard to identify areas of concern from RAP
6. River Corridor RODs
 - a. IM work - Paula/Peter
7. TC&WM EIS (June 3 COTW)
8. ERDF Advice (By June Board meeting)
 - a. Conduct conference call to resolve issues

- 9. Groundwater alternatives workshop
- 10. Contract integration

Action Items / Commitments

- Wade, Dale and Shelley will frame advice regarding purgewater issues.
- Gerry, Harold, Shelley, Maynard and Dirk will plan to discuss the paragraphs related to the Natural Resource Trustee Council and mitigation.
- The June Board meeting will include a presentation about the CP strategy and the RAP will write up issues of concern for the June meeting.
- Doug Mercer will complete his work on LTS and bring it back to the committee to get help putting together a gap analysis. The RAP will revisit the issue in three to six months.
- The RAP will work with DOE to get a briefing on the new data-management system at its September meeting.

Handouts

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

- Draft ERDF Advice – v. 2, Dirk Dunning, May 4, 2009.
- Completing the Hanford Cleanup: Review & Update, Matt McCormick, May 2009.
- Tri-Party Agreement: Agreement in Principle, May 6, 2009.
- List of past Board advice on cleanup, John Price, May 6, 2009.
- Hanford Land Management, Doug Shoop, May 6, 2009.
- DRAFT CERCLA Decision Document Schedule, Nick Ceto, May 6, 2009.

Attendees

HAB Members and Alternates

Shelley Cimon	Doug Mercer (On phone)	Wade Riggsbee
Harold Heacock	Vince Panesko	Dick Smith
Pam Larsen	Maynard Plahuta	Bob Suyama
Susan Leckband	Gerry Pollet	

Others

Paula Call, DOE-RL	Rick Bond, Ecology	Janice Williams, CHPRC
Nick Ceto, DOE-RL	Madeleine Brown, Ecology	Barb Wise, CHPRC
Mark French, DOE-RL	John Price, Ecology	Susan Hayman, EnviroIssues
Boyd Hathaway, DOE-RL	Craig Cameron, EPA	Molly Jensen, EnviroIssues

RD Holdelerack, DOE-RL		Dave Swanberg, SAIC
Matt McCormick, DOE-RL		Peter Bengtson, WCH
Owen Robertson, DOE-RL		Dale Bignell, WCH
Cameron Salony, DOE-RL		Jack Donnelly, WCH
Doug Shoop, DOE-RL		Mike Peloquin, WCH
Margo Voogel, DOE-RL		Mike Priddy, WDOH
Jamie Zelson, DOE-RL		