

FINAL MEETING SUMMARY

HANFORD ADVISORY BOARD RIVER AND PLATEAU COMMITTEE MEETING February 12, 2008 Richland, WA

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

Welcome and Introductions

Maynard Plahuta, River and Plateau (RAP) Committee chair, welcomed everyone and introductions were made. The committee approved the January committee meeting summary.

200-ZP-1

Mark Byrnes, Fluor Hanford (FH), provided a presentation on the ZP1 waste site. Mark reviewed the location of ZP1 and said there are one hundred active wells monitored through the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA) and the Atomic Energy Act (AEA) programs. There are twelve groundwater wells online, ten of which are pumping now. Mark said four new groundwater wells will be put online by the end of Fiscal Year (FY) 2008 raising the total pumping rate to > 400 gallons per minute (gpm).

Mark said the draft Feasibility Study (FS) is currently with the Environmental Protection Agency (EPA) for review. The FS will be issued around April of this year for public comment. The record of decision (ROD) is estimated to be released by August 2008. Mark said carbon tetrachloride is the identified contaminant of concern (COC) for this waste site. Other COC's include technetium 99, chromium, nitrate, tritium, and iodine. Mark said the FS remedial action options were reviewed and a full screening of approaches was done. Of those technologies, a preferred alternative of a robust

groundwater pump and treat system was identified. This system will pump a minimum of 800 gpm and a maximum of 1,600 gpm which is the maximum amount the aquifer can produce. A groundwater injection well will allow the exterior of the waste site to naturally attenuate; institutional controls (ICs) will be used to protect against exposure. The timeframe for attenuation is ~100 years for the 200 Area, but will meet the industrial standards much sooner. The plan ensures that contamination will not make it off the Central Plateau through movement in the vadose zone.

Mark said there are studies being done to look at abiotic degradation rates in the aquifer. Adding electric resistance heating and anaerobic bioremediation is another option to treat any volatiles in case the pump and treat is not as effective as the agencies are hoping it will be. Currently there is not an identified source for these compounds and it is possible that a persistent source could be encountered. Mark said they will apply these technologies in places that are recalcitrant as a cost effective solution to a persistent source as a local treatment.

Regulator Perspectives

- Dennis Faulk, EPA, is pleased that the Department of Energy (DOE) is proposing this remedy. He said the timeframe for restoration of 100 years is a worthy goal. This is approximately a \$100 million dollar remedy and will result in a capture system for the 200 West Area. The National Remedy Review Board will be at Hanford the first week of March to review this proposal. Dennis said he would be happy to brief the committee on the Review Board's feedback afterwards. If the committee thinks this topic is advice worthy it should go to the full Hanford Advisory Board (HAB or Board) in April to meet the comment period deadline. Dennis said he thought it would be appropriate for the Board to issue advice supporting DOE on the chosen remedy to treat groundwater to drinking water standards. Dennis said a second item to consider is if the 100 years for natural attenuation is palatable to the public.

Committee Discussion

- Dirk Dunning felt the maximum contaminant levels (MCLs) are inadequate to use for a solvent because the actual dose does not come from consumptive use but from other exposure routes that result in a higher exposure. Dave Miller, FH, said the issue of risk was evaluated in the remedy which will use ICs to limit exposure pathways. Dennis said once the water returns to drinking water standards it can be used for anything. Dirk thought the examples from the Bay Area should be considered where use of bottled water replaced household tap water because the water in the aquifer was still perceived as contaminated.
- *People cannot drink the water now, but could it be used for cooling?* Dave said the water is not used onsite now, but could be used under an industrial use scenario in the future once it meets the standards. Dave said in order to evaluate risk they had to look at a range of scenarios, industrial use was one of them. Dave explained they have to meet or waive the MCLs, and this remedy attempts to meet the MCLs.

- *Does the risk analysis look at the demand for water to evaluate if in the future this groundwater may be needed as an alternate water source?* Dennis said they did not look at that option. Dave said the remedy should address this issue because it will pump and treat the contamination out of the aquifer.
- *How will this remedy affect the work planned for the deep vadose zone cleanup including the flushing methods that are being considered?* Dave said the remedy would enhance their capacity to test a flushing method because they could effectively catch the contamination that is flushed out of the vadose zone.
- *ZP1 is near the Plutonium Finishing Plant (PFP) and there was a lot of plutonium (Pu) waste pumped into the ground here, why is Pu not a COC?* Dave said they have not seen Pu in the groundwater near ZP1 to date.
- *Will achieving the pump and treat rates be challenging?* Dave said it will be difficult to meet drinking water standards and to pump at the rates they want to, but the FS shows it is possible. Dave said this is why Fluor is going into great detail with the design and an optimization strategy will be applied throughout this work to target areas that remain problematic.
- *What do you do with the captured contaminants?* Dennis explained that currently the carbon tetrachloride canisters are going offsite, technetium is going to the Effluent Treatment Facility (ETF), and some canisters are grouted and sent to the Environmental Restoration Disposal Facility (ERDF). Dirk said he thought the grout vault program showed that technetium does not stay in concrete. Dick Smith said the amount of technetium is relatively small in this area.
- *When is the next significant milestone for this project?* The public comment period will begin in mid-April. The remedial design will happen in early 2009. EPA will work with DOE to develop a ROD and then implement a schedule. The ROD is expected by September 30th.
- *Is this approach captured in the Tank Closure & Waste Management Environmental Impact Statement (TC&WM EIS)?* Matt McCormick, DOE-RL, explained that this remedy is not under the TC&WM EIS but the cumulative analysis for the Central Plateau will evaluate this work. Arlene Tortoso, DOE-RL, said she routinely met with the TC&WM EIS team to share data and information to ensure both teams were on the same page in terms of input and outputs.

200-PW-1/3/6

Dennis provided a brief overview of the PW 1/3/6 waste sites. He said these sites are Pu and organic rich waste sites and the agencies are struggling with the decision of the best remedy for the waste sites. Ken Moser, Vista Engineers, is the technical lead for PW 1/3/6. Ken provided some orientation slides for the waste sites and showed how they are broken into operable units. PW1 has carbon tetrachloride and Pu contamination and includes small to large waste sites. PW3 received cesium waste and includes large waste sites located around Purex. PW6 received Pu waste without organics and is located north

and east of PFP. Z1A is a large waste site that is being used as an example to evaluate alternatives.

Dave said there are three basic remedies in the FS deemed protective: barrier and soil vapor extraction, in situ vitrification, and partial removal treat and dispose (RTD). Dave said the cost estimates for the three remedies are \$6 million, \$357 million, and \$419 million respectively. He asked the committee to remember that the cost estimates are draft and only for the purposes of discussion. Dave explained these figures do not include long-term stewardship costs due to a thirty year limit on costs. How to quantify these larger waste sites relative to all the other waste sites is an issue that will propagate through these decisions.

Ken said Z1A has a good data set from soil borings. Ken reviewed a depth plot that showed where the Pu mass is located. In general at 10 feet there is little Pu mass present and 20 feet is where more of the mass is located. Mark reviewed the cost estimates to dig up soil volume to these depths: 20 feet would cost \$581 million, 30 feet \$1,000 million, 40 feet \$1,429 million, 60 feet \$2.5 billion.

Regulator Perspectives

- Dennis said from his perspective these costs are good to use for comparison. He pointed out a large delta between capping and digging it up. These charts illustrate a cost benefit by the depth of excavation. The agencies would like HAB input on these issues and suggested a Committee of the Whole (COTW) for further discussion. Dennis added a public policy question the Board should consider is how to account for long term stewardship and IC costs across the Central Plateau.

Committee Discussion

- *The draft and final RI pushed work for the FS out because of time constraints. Has that work been done and can the committee review it?* Matt said this information is in the draft FS and the HAB should have received a copy when it came out in September 2007. Dirk asked if the FS from September was the same one that came out with the RI. Dennis said the RI came out a year before and DOE revised it and released the final last September. Dave explained that the public policy processes of having a draft A and draft B was to get public comments on both drafts to build on the issues. Dennis said this process will include dialogue with HAB and other stakeholders, and then DOE will revise the FS and proposed plan.
- Arlene said the draft FS is a large document and asked how DOE could facilitate getting the information to stakeholders in a way that will be useful. Greg deBruler said what was presented during the meeting today was useful; present the information by site and show what is proposed for each one. Greg recommended the agencies inform the committee if they do not think money will be available to cleanup the site to a certain level. Dennis said the information regarding costs is important but must be discussed in the context of schedule implications. Dave said FH would provide the slides to the committee but asked that the committee treat them as draft; there is a lot

of information in the FS and these slides are only a small part. Dennis asked that FH add the visualization slide to the presentation.

- *Does the FS have an executive summary that is readable by the general public?* Dave said they have a good executive summary but needs additional work to tie the information together.
- Greg said it would be useful to review all the alternatives the agencies are considering prior to the workshop. Dennis said they have a matrix of the alternatives available and asked that some issue managers review the information prior to the COTW meeting. Barb Wise, FH, reminded the committee that these policy issues were identified at the February Board meeting as part of the Tri Party Agency public involvement strategy at the February Board meeting. Dennis said the agencies have identified five issues as part of that strategy.
- Barb Harper, Confederated Tribes of the Umatilla Reservation (CTUIR), asked that the committee coordinate with trustee council on the workshop. She volunteered the trustee council to follow up issues in later phases if they do not get fully covered during the workshop.
- Susan Leckband suggested the committee bring this topic to the Executive Issues Committee (EIC) call next week as an issue for the COTW. Susan felt this is a major policy issue and will be the first test of whether a site is dug up or capped.
- Maynard asked if there were individuals willing to serve as issue managers on this topic. Shelley Cimon, Greg deBruler, and Dirk Dunning were identified.

EPA & Ecology White Paper on 200 Area National Priorities List Site

John Price, Washington State Department of Ecology (Ecology), reviewed the objective of the 200 Area white paper. He said this effort was started by Nick Ceto, EPA, in 2003 who wanted to provide insight to EPA's and Ecology's thinking regarding cleanup. The regulators also want to have a dialogue with DOE and other stakeholders about the cleanup principles outlined in the paper. John said they have already talked to stakeholders in Oregon who felt this paper put too much emphasis on capping instead of RTD; Ecology felt the paper did the opposite.

Dennis said the committee's discussion on PW 1/3/6 will touch on many issues raised in the paper. Dennis said he would like to review the white paper with the committee once everyone has had a chance to read it on their own. He asked committee members to forward questions to the PW 1/3/6 issue managers since issues in this white paper will most likely be raised in the workshop.

Committee Discussion

- Maynard said he thought the focus of the white paper depends on the reader's perspective. Maynard asked committee members to read through the white paper and

highlight points where the white paper leans one way or the other for a treatment option for further discussion with the regulators.

- Paul Schaffer said his initial reaction to the paper was that it was more enthusiastic for capping. Paul reviewed some concerns he and the Oregon Hanford Cleanup Board had about the white paper. He said the 100 year timeframe for remediation on many waste sites was not adequate compared to lifetime of government institutions. Also, he felt there was much less enthusiasm for RTD below fifteen feet in the white paper. Paul said the paper yielded to the challenge that going below fifteen feet is too complex. Paul said the Oregon Hanford Cleanup Board encouraged regulators to go back and revise the document.
- Wade Riggsbee said the committee should review past HAB advice related to these topics in the white paper and then evaluate the issues that are raised. Dennis agreed, he said he thought this paper was in line with the values the HAB has issued in their advice. Wade said HAB advice has always said RTD, and the paper references capping a lot.
- Greg said there has been agreement between stakeholders that 150 years is not acceptable. He asked if the agencies have examples of where ICs have worked so HAB members can consider if it could be palatable. John said that is a discussion he has been urging Susan to bring up with HAB for some time. Dennis suggested holding the PW1 workshop first to see which issues are vetted through that process, and then discuss the issues that are still important in the white paper during a later committee meeting discussion.
- Matt said DOE has read the white paper and is drafting a response. He asked committee members to keep in mind there will be contamination on the Central Plateau for a long time and the decision to cap was made through the regulatory process. Given that the contamination will last over 150 years, what is the configuration of the contamination that is best for the public and will give them confidence it will stay on the Central Plateau? Is it worth moving the contamination to ERDF if the contamination is still present for that time period? The protection factor and threat to groundwater is the same, you need ICs, barriers, and protection from groundwater intrusion.
- Dick Smith said Matt left out treatment in the scenarios he presented. Moving the contamination does not make sense on its own but treating it does make sense if you are going to move it. Matt said you have to look at ERDF criteria too, for long periods of analysis those treatments are focused on short term.
- Maynard said there seems to be consensus that a workshop is needed. He will bring the topic to the EIC and request a workshop. Dennis suggested keeping the workshop to one day and see where the discussion ends up. Matt agreed with Dennis; focus on PW waste sites and then have a follow up discussion on key issues.
- Maynard asked if the previous issue managers identified could cover both the white paper and PW waste sites. The issue managers agreed to cover both topics.

- Susan thought April would be a better time than March for the workshop because of budget meetings. Maynard suggested April would be better for the agencies too to develop the information they need to be ready.

Columbia River Component Remedial Investigation

Jamie Zeisloft, DOE-RL, summarized what is currently happening with the Columbia River Component. He said the scope for the workshop was to look at remedial investigations for releases in the river. Jamie said DOE-RL is looking for stakeholder input on what they have suggested. The next steps on this project are to meet with tribes to discuss tribal scenarios on human health, and then prepare a draft sampling design. The next workshop is tentatively scheduled for March 18 & 19 and will be confirmed via email. DOE-RL will put together a draft agenda for the workshop, the focus will be sampling as part of the RI and to further discuss outstanding issues.

Jamie said he had hoped to get through first four steps of the data quality objective (DQO) process during the workshop. Some of the workshop participants thought that too much time had been spent on the DQO already. Jamie said he will decide if during the next workshop they should spend more time filling in the information gaps that were skipped over. One outstanding issue is the list of analytes that will make up the contaminants of concern. Jamie said they plan to resolve these issues prior to submittal of the draft work plan.

Jamie said this process is still early in the scoping phase and the input they have received thus far has been helpful in shaping the work. All of the input DOE-RL receives will be factored into a work plan that will become a TPA document. Most of these issues raised by stakeholders have been previously heard by DOE-RL, and they will continue to address them. This is a new situation because it is the first time the agencies are going off the Hanford site and the contaminants present in the environment might not only be from Hanford.

Regulator Perspectives

- John Price said DOE asked Ecology and EPA to review past data from the river due to gaps in the process that happened a few years ago. John said he is encouraged DOE-RL is planning to do physical sampling. They will be able to look at existing data and compare it to the data they collect this year. DOE will have more discussions about where and how they will sample, but Ecology's perspective is that it is good they are doing this.
- Dennis asked if there is a list of the data gaps. Jamie said they have the data gaps documented in a report. They are planning to sample sediment downstream of the discharge including McNary Dam, the recreational areas, and behind the dam and in the lake water.

Committee Discussion

- Maynard felt the audience at the workshop was familiar with CERCLA so the first could have been shortened. Maynard suggested identifying where the gaps are and making the introduction shorter.
- Greg said some of the tribes he talked with were not confident in the process. Greg emphasized the importance of getting buy-in from stakeholders to defer so disagreement about how complete the work was. Also, he thought many were concerned about water quality and sampling. Greg said he met a biologist working on the site years ago who suggested sampling duck weed every 14 days to show what contaminants are coming up and down the river. Greg said he is hoping that this will be included in this sampling plan since it has never been done.
- Barb Harper said CTUIR asked if DOE-RL was willing to change their approach on the COCs; they were told no. Barb wanted to know how this will get resolved and how DOE-RL will get buy-in. Dennis commented this project has different customers that have different needs. DOE needs to figure out how to bend the issues to address different customer's needs because they are not going to line up.
- Paul said a broad concern he had from the workshop was how DOE-RL would address the groundwater upwellings at the edge of river. He said currently no one knows what is going into the river and there is nothing in the sampling plan to address that. The sampling will be limited to water and soil sediment and will not include a biological analysis because it is part of CERCLA. There is a lot of concern that this is not going to catch all the contaminants. PCB concentrations are low enough they might not get picked up in sediment samples but they are at levels that could get picked up by biota.
- Wade said there was a lot of data from Vernita Bridge down to the pump house in the 300 Area and it was good to see the information regarding where the samples were taken during the workshop. Wade said from this section down river to McNary Dam there are data gaps and the detail will be necessary to help in sample selection. Wade said DOE-RL needs to know where transport carried the sediment to balance the detail of the study.
- Pam Larsen commented that this work is part of a required document and it will not be possible to include every bit of information that everyone has ever wanted. There has to be a decision process for what gets eliminated because there is only a certain amount of money and a certain timeframe. Greg said the document falls under CERCLA and therefore should include input from the Trustees.
- *Will DOE include contaminants that may be in the river as a result of upstream contamination?* Jamie said they need information on contaminants that have been released at Hanford, upstream and downstream.
- *How will samples be taken in river?* Jamie said those decisions have not been made yet. Shallow sediments, deep core samples and something in between will likely be included.

- *Will sampling be done on vegetation?* Jamie said the current focus is just on the river and will not include vegetation.

DOE-RL Update on Central Plateau Activities

Maynard debriefed the issue manager discussion with Wade, Shelley Cimon, Maynard and Jerri Main and Mark Triplet, Pacific Northwest National Laboratories (PNNL). They discussed and provided Mark feedback on the groundwater performance metrics that Mark presented at an earlier committee meeting. Maynard said the committee members identified a few potential concerns, but overall felt very comfortable with the process. Mark will come to the committee later to talk more about this effort. Janice Williams, FH, said they met with Ecology and received more input and are now ready to revise and send out a new draft. She said Shelley had a great suggestion to include an arrow to indicate which way the river was flowing and they worked on incorporating that.

Deep Vadose Zone Treatability Test Plan

Dick said the Deep Vadose Zone Treatability Test Plan was intended to meet milestone M-15-50 for testing technologies to remediate the deep vadose zone to treat radioactive contaminants. This document addressed uranium and Technetium 99. DOE selected six technologies and developed a schedule that runs through 2015 to test these technologies. Dick thought the document was organized well and the presentation of the material was good. Dick said the six technologies were explored at length and included a basis for their selection. Dick said the plan excluded any details on other possible technologies that had been eliminated previously. The plan did include extensive references for previous investigations into technologies but it would have required a lot of research to figure out why they were not included in the plan.

Dick said of the technologies selected, most were fixative type to hold contamination in place so it will not get to groundwater. The plan did not include a discussion about how long these treatments will be effective at holding the contamination in the vadose zone. Dick said the only technology that seemed to be true remediation was soil washing which would move the contamination into the groundwater where it could be pumped out. Soil washing has the virtue of removing the contamination so it could be treated in a satisfactory matter. Dick said the plan included no mention of the iodine component of this issue. He said there was also no mention of in situ vitrification because the contamination is too deep and the cost would be prohibitive. Dick said this is one example of a technology that had been previously eliminated and should have been explained. The plan also excluded electro-kinetics which Dick felt may be good to do in addition to soil flushing.

Regulator Perspective

- Dennis said EPA was disappointed in the first delivery of the plan because EPA wanted a field test not just a paper study. The treatability test is a first step into a bigger program; the agencies are talking about setting up milestones for deep vadose zone treatability. DOE has agreed to add a field test for desiccation. Dennis said whether or not desiccation works, the important thing is that the agencies are looking at the big problem and are taking steps to deal with it. Dennis said this is similar to the groundwater program which took fifteen years before some of these innovative technologies were employed.

Committee Discussion

- *Did the technology vary by contaminant?* Dick said the technologies selected were specifically addressing technetium and uranium.
- Wade said he also read the document and had bigger concerns about targets in the deep vadose. The plan did not look at characteristics of sediments. One technology selected is air desiccation which pumps hot air in the soil and might not work if the soil is not the right type.
- Dick commented that most the work discussed in the plan was lab work as opposed to field work. Dennis agreed and said the milestone clearly stated a field plan and EPA challenged DOE on that issue.
- Cathy asked if the committee would like to be debriefed about the upcoming workshop at the next committee meeting. Committee members agreed they would like to continue to follow this topic.

Action Items / Commitments

- RAP proposed topics for the Baseline Workshop: ZP1 and PW 1/3/6 and the deep vadose zone. Dennis suggested including SW1&2 to address the liquid disposal sites with TRU waste and 618-10&11.
- Laura Buelow will provide an update on EPA's sampling program in March/April
- Debrief from the Deep Vadose Zone Treatability Test Plan workshop
- Issue manager update on PW 1/3/6 – framing questions and draft outline for workshop
- Letter to support work on ZP1 – Pam Larsen will serve as the issue manager to identify information the committee needs to write this letter
- ICs and long term stewardship – Bob, Jerri, and Susan will be the issue managers for this topic as well as records management. Wade said DOE-HQ did not fund an IC staff person so looking at how the program is set up would be helpful.
- Public comment on the cleanup plan for the BC Controlled Area in March
- The Park Service study group will be at Hanford to talk about B Reactor and the committee will need an update in the coming months

- Follow up with Pam and Shelley about drafting a letter for a site-wide technology group

Handouts

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

- HAB RAP Final Meeting Summary – Excerpt (200-ZP-1 and 200-PW-1 Feasibility Study), January 9, 2007.

Attendees

HAB Members and Alternates

Greg deBruler	Todd Martin	
Ken Gasper	Maynard Plahuta	
Harold Heacock	Mike Priddy	
Julie Jones	Wade Riggsbee	
Pam Larsen	Dick Smith	
Susan Leckband	Bob Suyama	

Others

Kim Ballinger, DOE-RL	Rick Bond, Ecology	Rico Cruz, CTUIR
Matt McCormick, DOE-RL	John Price, Ecology	Ted Repasky, CTUIR
Arlene Tortoso, DOE-RL	Dennis Faulk, EPA	Cathy McCague, EnviroIssues
Jamie Zeisloft, DOE-RL		Emily Neff, EnviroIssues
		Mark Byrnes, FH
		Dave Miller, FH
		Janice Williams, FH
		Barb Wise, FH
		Annette Cary, Tri-City Herald
		Ken Moser, Vista Engineers
		Dave Rowland, Yakama Nation
		Peter Bengston, WCH
		Larry Hulstrom, WCH
		Jeff Lerch, WCH