

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
TANK WASTE COMMITTEE MEETING
March 11, 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

Ken Gasper, Tank Waste Committee (TWC) chair, welcomed everyone and introductions were made. The committee approved the February meeting summary.

Tank Waste System Plan

Delmar Noyes, Department of Energy – Office of River Protection (DOE-ORP), said in developing the system plan DOE-ORP assumed 2016 for the startup date of the Waste Treatment Plant (WTP). Since then DOE-ORP has had to readjust the plan based on the new WTP schedule of a 2019 startup. The new System Plan Revision 3 (SP3) is consistent with the changed assumptions used in the current tank farm baseline. Delmar said the presentation includes a second case developed with the Washington State Department of Ecology (Ecology) that uses alternate retrieval strategies.

Paul Certa, CH2M Hill Hanford Group (CHG), reviewed the details of SP3 and the associated sensitivity studies. Paul highlighted the key features of the SP3 case including the corresponding project schedules and assumed quantitative results. Paul first discussed the double shell tank (DST) space utilization strategies by analyzing single shell tank (SST) waste volume and the projected schedule forward. Paul also went through the treatment timelines for Immobilized High Level Waste (IHLW) and Immobilized Low-Activity Waste (ILAW) production through WTP and east/west ILAW production under the SP3 assumptions. Paul then presented the results of the sensitivity studies that manipulated variables including enhanced retrieval rates, blending, transuranic (TRU)

disposition, degree of pretreatment, retrieval constraints, leach caustic, supplemental LAW treatment, and HLW glass model. These variables were used to determine how they could impact retrieval timelines and the total mass of the HLW glass.

Mark Knight, CHG, presented the results from the Ecology case on the SST Retrieval Selection and Sequence Document as required under the Tri-Party Agreement. This case analyzes DST space utilization, HLW, and ILAW production compared to the SP3 assumptions and results. He reviewed the Ecology sensitivity cases that looked at increased melter capacity, enhanced retrieval dates for SST that have leaked, and six concurrent retrievals in the southwest quadrant which includes S, SX, and U farm. Mark discussed the conclusions and observations of these case studies and highlighted the point that supplemental LAW treatment capacity is needed to complete treatment within forty years. Based on CHG's findings, they could predict the differences in years of outages amongst the different cases which assist in predicting mission completion. Mark also said a key finding was that single shell tank (SST) retrieval is driving the mission duration.

Mark reviewed the full list of conclusions and observations:

- Mission has evolved significantly since System Plan Revision 2 and SST Retrieval Sequence Revision 2
- Supplemental LAW treatment capacity is needed to complete waste treatment within the 40-year WTP design life
- SST Retrieval now drives the mission duration, given demonstrated retrieval performance
- Additional sodium hydroxide added in WTP will increase the mission duration unless mitigated
- Further evaluation required if farm-by-farm retrieval approach is pursued
- If TRU waste is treated by the WTP rather than sent to WIPP, the HLW glass will increase by about 15%

Delmar said the release of SP3 is essential in assisting DOE-ORP in their decision making processes. Delmar thought the results that showed the limiting factor is SST retrievals will motivate people onsite to find smarter ways to retrieve waste and will not require additional treatment facilities. If DOE-ORP can find ways to balance factors and improve efficiencies they will improve the mission duration. Delmar said the system plan does not answer every question and it is not perfect, but he hoped it will serve as a reference for the agencies and stakeholders to hold further discussions.

Regulator Perspectives

- Ed Fredenburg, Ecology, said the Ecology case uses the treatment assumption that packaged transuranic (TRU) waste would not be shipped to Waste Isolation Pilot Plant (WIPP) because of the regulations on TRU. Ed said a baseline difference between the ORP case and the Ecology case is ORP uses bulk vitrification for supplemental treatment and the Ecology case evaluates a second LAW facility with three melters. The permit is currently for HLW melters and Ecology's analysis aimed to be consistent with Bechtel National's information for HLW processing. Ed said Ecology

is concerned about the impact of 34 metric tons of sodium on the treatment system and is hoping to get some results by the end of fiscal year (FY) 2009 from the engineering platform tests. The additional test will confirm assumptions about how much sodium will be in the treatment processes. Ed said Ecology needs to have a debate internally about farm-by-farm versus simultaneous retrieval techniques and the potential impacts of keeping WTP fed with waste.

- Jeff Lyons, Ecology, said tank closure is a high priority but managing risk and uncertainty are important to consider in these discussions. Jeff said he is pleased that DOE-ORP worked with Ecology on this scenario and said Ecology gained valuable information about limitations and opportunities for improvement. Jeff said he hopes to see the DST system modeling looked at further. The modeling from the Ecology case shows there is plenty of space in DSTs but Jeff felt Ecology needs to better understand the assumptions and impacts to support this modeling. Jeff noted the date for emptying SST it is not much farther out from when treatment of all waste is completed.

Committee Discussion

- *What factors limit the waste retrieval?* Paul said a Mobile Retrieval System (MRS) will be used for the tanks assumed to have leaked in the past. This system uses a large amount of water to dissolve sludge and increases the duration significantly compared to other retrieval methods. Paul said another factor that limits the retrieval is the number of tanks that can be managed simultaneously. Paul said DOE-ORP can manage a maximum of seven SST retrievals at one time.
- *If you are not limited by the water and retrieval methods, could you get out of SST sooner than you finish processing?* Paul said the total retrieved volume is 196 million gallons; the DST holds thirty million gallons. They could fill the DSTs all the way but that would only take a few years off the SST retrieval date of 2047.
- *What is the cause of the twenty four percent change in the mass of glass between SP2 and SP3 on page 20?* Paul said the inventory washing and leach factors from SP2 were loaded into the current model for the reference case. Paul said the older inventories accounted for the difference here; SP2 had 9,500 canisters, whereas SP3 has 12,000 canisters.
- Al Boldt said the engineering pilot plant will not help determine the sodium issue because the issue is a sodium to aluminum issue. Paul said there is work going on to see if the sodium can be recycled in WTP. Delmar reminded the committee the caustic evaluation represents a worst case scenario to show what would happen if all of the methods to deal with the sodium fail.
- *Have you looked at fractional crystallization?* Delmar said that is one of the possibilities. Dirk Dunning suggested the caustic recycle could cause a phase problem with the crystallization. Delmar offered to bring the WTP staff to a committee meeting to describe the crystallization efforts if there is an interest.

- *Does the SST retrieval include sluicing?* Mark said the leaking tanks assume MRS system, the others assume sluicing.
- Pam Larsen asked that DOE-ORP consider technetium separation in WTP as they continue to consider alternatives.
- Dick Smith asked if the alternative of early LAW was underway. Mark said that alternative is on the agenda, but not underway yet because the system configuration will take some time. Dick said iron phosphate and a third melter are additional topics that TWC would like DOE-ORP to look at as well.

Business Case Evaluation Report Committee Discussion

Dick explained that the draft advice is an attempt to ask DOE to assert some formal control over the baseline assumptions used in their reports. Dick provided an example where two reports used different assumptions and therefore derived two different answers. Dick said some time ago DOE established a senior management integration team to oversee some of these issues, but since then that function has disappeared. Dick said the advice also asks DOE to reinstate that oversight function so the studies are evaluated using the same assumptions and are consistent with the baseline. Dick said if a DOE report does not use the baseline assumptions then it should clearly say so and explain why.

Ken felt the advice would be well received if it focused on the need to have the baseline assumptions either used or referenced and an explanation provided when a study has used different assumptions. Ken thought the advice should not, however, question DOE about the assumptions used in a particular document. Ken said TWC has heard explanations from agency representative and contractors about assumptions used in a report, but those are never included in the final document.

Harold Heacock agreed the advice's policy issue is the need for control and consistency. Dick explained that there is a more current version of the draft advice that is less inflammatory, but he did not have time to get it out to the committee prior to the meeting. Dick agreed that the advice could exclude any mention of the business case. Dick said the advice would be similar to the readability of executive summaries advice that was recently passed by the Board (HAB Advice #202).

Cathy McCague asked if the committee would like the advice to go forward for the April Board meeting. Dirk said it is not time critical but could help DOE in drafting reports and materials such as what was presented to the committee today. Committee members agreed with the advice should go forward in April. Ken asked that Dick and Jerri Main work on incorporating edits to the advice from the committee and circulate another version of the advice electronically for committee consensus prior to the Board meeting.

Committee Discussion on Fiscal Year (FY) 09 Budget Advice and Baseline Priorities Workshop

Ken said the Budgets and Contracts Committee (BCC) recapped the BCC committee discussion on the FY09 budget request draft advice. He noted that the advice would be reformatted to be consistent with previous HAB budget advice. Ken said the footnotes in the draft would be turned into endnotes. Ken asked the TWC to focus prioritizing and editing the list on page eight of the draft advice as it pertains to DOE-ORP. Harold has volunteered to facilitate the process for submitting TWC suggestions to BCC for the final advice. Ken said two items the TWC needs to address are the option of new DSTs and bulk vitrification. The advice attempts to prioritize additional work that should be completed in the case that Congress provides additional funds for Hanford.

Pam Larsen summarized what she learned about the congressional budget during her recent visit to Washington, D.C. Pam said the process for requesting more money is different than it has been in the past; it is more detailed and has to be documented and signed by a member of Congress. The Tri-City Industrial Development Council (TRIDEC) issued a request and the City of Richland participated. In the request, TRIDEC asked for \$100 million increase for DOE-RL, it did not specifically identify projects but mentioned the River Corridor, waste stabilization and HAMMER. Pam said \$35 million was requested for the WTP, \$25 million was requested for retrieval, and \$10 million was requested for cold testing and supplemental treatment. DOE-HQ was adamant they did not want more money for retrieval because of staffing and capacity issues. Pam said the local community feels that DOE could retrieve more than one tank per year. The Senate has asked for \$500 million for more appropriations to EM; Hanford is forty percent of the total EM budget and could expect forty percent of the \$500 million allocation if it is issued.

Committee Discussion

- Dirk said if bulk vitrification receives additional money it could cause future problems. Pam agreed the funding for bulk vitrification should be limited. Pam asked if there are any tanks that could provide feed for bulk vitrification without pretreatment. Al thought there was only one tank that could be a direct candidate for bulk vitrification; all the others have too much sulfate. Al felt the \$60-80 million dollars that would go to additional bulk vitrification testing could be used better for something else. Dirk advocated for leaving bulk vitrification out of the advice as did Al. Harold agreed that bulk vitrification does not fit with the system at Hanford.
- Harold thought the advice was a good opportunity to advocate for starting design on new DSTs. Al said the committee needs to be able to articulate what the benefit is for new DSTs if the advice is going to advocate for them. Harold thought the benefit of new DSTs is the insurance of being prepared if something delays processing. Al asked if the impetus is also to accelerate the schedule for getting out of SST. Dirk said right now DOE-ORP is looking at sluicing Bob Suyama felt that SST need to continue to be emptied or DOE needs to provide supporting information that indicates the tanks will last.

- Ken said he likes the idea of expressing support and identifying a need for early LAW in the advice, but would prefer not say funds should be shifted away from WTP. Ken thought this will create a downhill slide by shifting support away from a project; Congress consequently could take the money away because the shift implied the money was not necessary. Dirk agreed the first sentence under the Early LAW topic in the advice on page eight should be taken out. Maynard suggested taking out the last sentence that paragraph as well. Ken said the statement regarding Early LAW should also be rewritten to be positive in tone.
- Bob asked if the same changes could be made to the paragraph on the melter for early LAW. Harold suggested rewording to say develop plans for a third melter or to include the third melter in the scoping phases. Dirk said he thought the cooling issues limited the facilities ability to run a third melter. Dick said DOE could design an engineering solution to accomplish the cooling. Ed said Ecology has heard that a third melter would not work in combination with early LAW, but felt further study could be done.
- Dirk asked if there is competition between early LAW and a third melter, which one committee member would prefer. Ken thought it would be useful to request a study that answered that question. Al said DOE did not define why both could not be used and someone needs to research it. Dirk suggested rewriting the section to say that HAB wants both early LAW and a third melter and if DOE cannot do both, HAB would like DOE to do the best they can do. Ken said the third melter procurement discussion could specifically call out the evaluation and trade offs of doing early LAW, a third melter, or both. Dirk suggested that DOE needs to make those connections now before the facility goes hot. Ed said Ecology has heard DOE headquarters has already asked for the study to put in the third melter. Ken thought this would further support HAB's case.

The committee prioritized the order for the list of topics in the advice:

1. Early law/3rd melter
2. SST retrieval
3. SST integrity
4. Upgrade to Tank Farm System (safety and infrastructure)
5. IPS
6. Soil characterization (C Tank Farm and Data Quality Objective process)

*The \$90 million allocated should be spread out among these.

Action Items / Commitments

Ken announced that a budget workshop would be held on March 26th, 2008 and would cover FY 2010 budget and an introduction to baselines. The committee decided to focus on the topic of early law/third melter for the March 26th workshop.

- Review/revise draft TWC advice on the Business Case Evaluation Report for April Board meeting
- Review/revise draft budget advice for April Board meeting. Harold will compile TWC comments and submit them to BCC.

The committee determined an April meeting is not necessary. The committee will have a call in April to plan for a May meeting (tentative date Monday, April 14 at 3:00 pm).

Tentative list of committee topics for May includes:

- Introduction to sodium issue (ORP presentation)
- Update on pretreatment facility (why the delay in progress?)
- Update on fractional crystallization plant at Savannah River
- WMDQ process
- NRC update

Handouts

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

- Draft Advice – DOE-ORP has not exercised control over system baseline assumptions in critical studies that inform decision-makers, TWC, March 2008.
- Tank Waste Committee FY 2008 Work Planning Table, updated 2/20/08.
- RPP System Plan & SST Retrieval Sequence Document, Mark Knight and Paul Certa CH2M Hill Hanford Group for the Office of River Protection, March 11, 2008.

Attendees

HAB Members and Alternates

Al Boldt	Jerri Main	
Shelley Cimon	Maynard Plahuta	
Dirk Dunning	Dick Smith	
Harold Heacock	Bob Suyama	
Ken Gasper		
Pam Larsen		

Others

Corbun Babel, DOE-ORP	Robbie Biyani, Ecology	Joe Cruz, B&W
Delmar Noyes, DOE-ORP	Madeleine Brown, Ecology	Paul Certa, CH2M Hill
	Ed Fredenburg, Ecology	Randy Kirkbride, CH2M Hill
	Jeff Lyon, Ecology	Mark Knight, CH2M Hill
		Jeff Voogd, CH2M Hill
		Cathy McCague, EnviroIssues
		Emily Neff, EnviroIssues

		David Rowland, Yakama Nation
		Gail Laws, WDOH