

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
TANK WASTE COMMITTEE MEETING & JOINT RIVER AND PLATEAU AND HEALTH
SAFETY AND ENVIRONMENTAL PROTECTION MEETING**

*October 17, 2007
Richland, WA*

Topics in this Meeting Summary

Welcome and Introductions 1
Demo Bulk Vitrification System (DBVS) 1
Black Rock Reservoir Site Seepage Study 4
Tank Closure & Waste Management EIS 6
Begin Joint Committee Meeting with HSEP 8
S-102 Tank Spill 8
End Joint HSEP meeting 10
Technology Readiness Assessment (TRA) Options Study 10
Technology Roadmap 13
TPA Negotiations Workshop 14
Committee Work Plan 16
Handouts 16
Attendees 16

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

Jerry Peltier, River and Plateau Committee (RAP) Chair, welcomed the committee and reviewed some topics from the RAP meeting the previous day. Ken Gasper, Tank Waste Committee (TWC) Chair, reviewed the agenda.

Begin Joint Committee Meeting with RAP

Demo Bulk Vitrification System (DBVS)

Ben Harp, Department of Energy - Office of River Protection (DOE-ORP), provided an update on what DBVS accomplished this year and what they hope to accomplish next year. Ben said the testing will be done in December after they close out the cost and schedule they will be ready for design. He said they think they are ready for Critical Decision 2 (CD-2) approval, but Jim Rispoli, DOE - Environmental Management (DOE-EM), wants to wait for the qualitative reports from the test. Ben said they are still on schedule for construction in 2009.

Ben provided updates on the safety basis, full scale dryer testing results, integrated dryer melt qualitative test results, design modifications, and the external independent review status. Four confirmatory tests were performed for the preliminary safety analysis. Ben said he would provide the results of these tests to the TWC for review when complete in November.

Ben said when the Hanford Advisory Board (HAB or Board) took a tour of DBVS they were preparing to run the full scale dryer test. Ben reported it was good they did this dryer test because it would have failed as an integrated system. Ben reviewed how they identified and resolved issues. He also said in fiscal year 2008 (FY08) they will need to do more run time tests for pellet formation to ensure the flow is running smoothly through the system. These results will not be available until December.

Ben explained the photos in the handout that compares the two integrated test run results. He said the qualitative results show the clumping that occurred during the previous test did not occur in this recent test. Ben said they saw less than 15% migratory through the material during this test. Ben reviewed the technical risks identified and their plan to resolve them. Ben said this test demonstrated that they could run the integrated system.

Ben next outlined the design modifications they are working on which will add ten weeks to the schedule. Ben said the corrective actions identified in the External Independent Review final report are complete and have sent them to the review team who concur with the actions. He said they will wait for EM approval of CD-2 in December, which will be followed shortly by CD-3 temporarily in May which gives them construction authority in 2009. The system will be built across from S Farm. Ben said once they finalize design they will invite an expert review advisory panel to look at closed actions, assemble lead from the panel and ensure they meet the expectations. Ben said they would like to get the dryer tests going right now since they already have the trained people onsite.

Regulator Perspectives

- Suzanne Dahl, Washington State Department of Ecology (Ecology), confirmed that a second low activity waste (LAW) system of some kind is needed to finish the cleanup in a reasonable timeframe. She said Ecology has been embarking on this effort cooperatively with DOE to see if bulk vitrification will work. If bulk vitrification does not work they would like to go with a second melter system similar to what is out there now. Suzanne said at this point, they think bulk vitrification could be a good technology. They would like to see the hot testing proceed with waste from S-109. Their concerns are probably the same as what Ben outlined. They do not know if the dryer system will work adequately to be productive, or if the off gas system works to get a good recycle of technetium and iodine, but Ecology is interested in watching DBVS prove itself.

Committee Discussion

- *What is the process for enveloping the rest of the waste?* Ben said their plan was to do 50 boxes right before construction, but instead they would like to do it now. Ben said there is a six tank composite and a series of tests they would do. They have come up with a formulation to bound the rest of the tanks.
- *Are there any expectations that weather could affect the test or results?* Ben said the facility will be in a closure so it will not be affected by weather.
- *Are you expecting budget for 2008 and if you have more money can you get more done?* Ben said their baseline never had budget and they have incentivized the contractors to do these tests without budget. There is risk reduction they would like to do for environmental and dryer testing which they would need to keep personnel for. They asked EM for the money to conduct these tests and they have committed to looking for money, but under continuing resolution they are uncertain this will happen.
- *Was this building a secondary containment?* Ben said it is tertiary containment cascaded from least to most contaminated. There are two confinement areas on the equipment located down wind from the fans and everything has double confinement. It uses a HEPA filter ventilated system in case there is a leak somewhere.
- *Can you clarify what procedure you are adjusting on the safety basis test?* Ben said it is the procedure on the flammable gas test. They were using an expert for argon leaks and were worried if a leak would be detectable so they went to an inert gas to make sure they could do the test right.
- *You said you wanted to maximize pellet formation to increase through put. Is this because it is below what you planned, or just to increase capacity?* Ben said it does not mean they were not producing what they were expecting. It just means they are trying to increase the transport through the machines.
- *Is there any missing material?* Ben said if there is more than 3.7% missing then they could not go further. Ben said they are still doing those tests and will have preliminary results on how much is in the refractory in December.
- *What was the largest scale used for lab tests on hot waste?* Ben said the scale was one-six or 1foot x 1foot x 4feet. He said that test was done before he was on the project, but would assume the waste used was similar to the S-109 tank waste but did not know the formulation. Ben said the engineering scale test was done with hot waste.
- *There have been issues with synthetic versus real waste for years. Have those blocks been cut up and compared?* Ben said at the engineering scale they have, but not at the full scale yet. Suzanne confirmed there has been hot testing done for radioactive and engineering scale tests and they did chop up the blocks to compare.
- *What is your best guess for what the issue is with the off gas problem?* Ben said the pipes were small for the large velocity of outlet materials and the bends in the system were up to 45 degrees so it would not let the waste through.
- *Sintered metal filters have been around for a long time, why are they still not working?* Ben explained that it was working but they were getting moisture in the

system because the heater failed. When they first started the test it was cold and the heater was not prototypic so it failed. The heater will be different in the full scale, but they did not want to stop the test to fix it so they kept going without it.

- *Do you have reliable information on staffing requirements and costs? The question about bulk vitrification being economically viable compared to LAW should be answered before moving to the full scale system.* Ben said there is a decision point in the Tri-Party Agreement (TPA) to address that and they have not reached it yet. Ben said the commitment is still there but the first decision that needs to be made is whether supplemental treatment is needed, then the decision about what technology at which point the costs will be necessary.
- *Is there a limit on the amount of melters that can be added to the system?* Ben said he does not know the answer. Ken Gasper asked the answer to be included in the systems study that DOE-ORP is doing for HAB Advice #192 response and the ramifications on delay.
- *What are you doing to show you can handle the whole range of waste?* Ben suggested he will review the range of testing they are doing at the next committee meeting. They are doing an advancement of the engineer testing and will review this with the committee so they can understand how DOE-ORP is enveloping the feed.
- *How much money are you asking for to continue next year?* Ben said the range is between \$1.4 – 5.4 million for what they will need to continue.
- *When are you expecting box 40 A testing?* Ben said in 2011.
- *How will you get the waste from S Farm over there?* Ben said they will use transfer lines that will have a new line and a control room.

Black Rock Reservoir Site Seepage Study

Woody Russell, DOE-ORP, said he is the National Environmental Protection Act (NEPA) compliance officer for Hanford. Black Rock is one of three alternatives in the Columbia River study. The study includes a no action alternative, a conservation alternative, and a Wyman River storage alternative. The Wyman River is a small reservoir whereas Black Rock is the larger proposed reservoir; the dam would be 175 feet tall. As part of this study, they conducted hydraulic analysis and some other studies to evaluate seepage under the dam. That report has been released and indicates there is a fair amount of seepage even within design standards. This alternative would have an impact on the water table and flow through the Hanford site. Woody said there is a lot of information on the Bureau of Reclamation (BOR) website that evaluates the pros and cons of each alternative.

Regulator Perspectives

- Dib Goswami, Ecology, said Ecology has submitted their comments to the central office on water resources concerning this project. The seepage of water spread is more than 100 square miles and once it crosses the 200 Area it mixes with the

groundwater and will enter into the Columbia River. It will increase the water level in the 200 West and East Areas. There was another study done by Pacific Northwest National Laboratories (PNNL) to look at the impact on plumes and how they should move forward. The report will come out in January or February and it is Ecology's understanding that these issues will be addressed. However, they will probably not evaluate the Hanford impact completely in that short timeframe. Dib felt they should not proceed with this project if it will undo the work they have done on groundwater and vadose zone mitigation. There is a technical report Dib can give to the committee that examines how the Black Rock project will have an impact in terms of contamination transport.

Committee Discussion

- *Is the biggest danger the flow of water through Hanford because it would increase the movement of chemicals that would not be moving over the next ten thousand years otherwise?* Dib said the Seepage Study mainly calculates how much water will flow out. It does not address the movement of contaminants on the site. The preliminary study did raise some of these initial problems with water rise and contaminant migration. Woody said they are still trying to determine the level of analysis in the Environmental Impact Statement (EIS). Due to the scheduled release of the Black Rock EIS in January, they will not have data about the contaminants when they do the Tank Closure and Waste Management EIS (TC & WM EIS). DOE-ORP remarked at this point the data will be qualitative until Black Rock is built which will then provide more data.
- *Has anyone looked at varying the height of the dam and the effect on the seepage?* Woody said he cannot speak for BOR, but would suspect they are looking at the options. Dib confirmed that they are looking at minimum and maximums levels. Woody explained that the lake would fill in thirteen months and the peak loss would occur during that time. After the lake stabilized those seepage rates would drop off.
- *Is DOE in a position to say the reservoir should not be built?* Woody said as a cooperating agency their concerns will be known, but they do not make the final decision.
- *Who issues the final permit for this project?* Jeff Lyons, Ecology, said Washington State Department of Ecology would issue the permit under Washington Administrative Code (WAC) 1732.16. This would include a public hearing and a comment period. Harold Heacock thought Congress would have to authorize it and landowners and tribes in the Yakima Valley would also have to agree to it. Maynard Plahuta said the issue of the landowners is interesting because some of the big users already have the water rights and why would they pay more for something they do not need. Woody said this is the first of many studies and even if NEPA said to go forward with Black Rock, there are years of studies before they could move forward.

Tank Closure & Waste Management Environmental Impact Statement (TC&WM EIS)

Jerri Main provided an issue manager overview of the topic. She expressed concern that the technical people on the TWC need to have another format to get their questions answered. Jerri suggested the committee discuss dividing the issue managers into two groups to better reflect each group's interest and to keep focused. She recommended a political and technical group so each can pursue their own interests.

Mary Beth Burandt, DOE-ORP, said some workshop attendees have been frustrated with the process. Mary Beth said they are trying to balance the feedback they are getting about too much technical detail in the groundwater discussions with providing enough details about the TC&WM EIS. The original purpose of the workshop was to address the alternatives and how the agency will use the alternatives to make a decision. She said she thought they did not reach the level of understanding she was hoping for and got sidetracked on other issues. Mary Beth said she thought it was important to walk committee members through the TC&WM EIS so they can understand the agencies decision making process and evaluation of alternatives.

Mary Beth mentioned the groundwater modeling piece is not done in terms of having a dialogue about it. The model technical review group will release a report in November 2007 that will conclude the groundwater modeling work. On December 11th the model technical review group will review the report and address any questions. Mary Beth said she is hoping to address some of the unanswered questions from June about what decisions were made to address specific technical issues. Some technical issues will have to wait until the TC&WM EIS is done such as the groundwater piece which is written last and the results are rolled into that.

Regulator Perspectives

- Jeff Lyon said Ecology has been meeting frequently about the TC&WM EIS as a cooperative agency. Jeff said the current issue is model development to move from the old system to the new modeling efforts they are doing. Jeff said he has been keeping track of this effort and thinks they have been doing a great job of documenting their methods and their quality assurance/quality control system is in good shape. Jeff said Mary Beth understands the concern in the draft HAB advice on the weaknesses of the system. It would be good to know exactly what information the HAB needs to make this clear. Jeff said in Ecology's review they are focusing on what the issues are and what they can do to make it clear. Ecology will be holding a workshop on the EIS but the date has not been determined yet.

Committee Discussion

- *Will you address the Greater than Class C (GTCC) and Black Rock issues in the EIS?* Mary Beth said they are addressing how Black Rock could influence the different types of decisions that could be made in the EIS. She said that question will evolve as

their drafts go out for review and they get comments. GTCC will show up in the cumulative impacts of the EIS. The depth at which they address it will depend on the data available at the time.

- *Are we still on target for March?* Mary Beth said they are shooting for the May timeframe to release the draft. Once it is published in the Federal Register, the 60 day public comment period will start. Mary Beth said the review period will be finalized once DOE - Headquarters (HQ) sees the EIS and she was not sure the 60 day period will be sufficient.
- *How big is the EIS?* Mary Beth said it is eight chapters with 20 appendices and makes up a 6 volume set paper-wise. They will send out postcards to ask how individuals would like to receive the information; people will have the choice of receiving a CD, a summary, or the whole volume. Mary Beth expects to send out the postcards between November 2007 and January 2008.
- *The HAB is currently writing advice on the readability of documents public review. Will this document have a summary that is written from a user perspective instead of copying paragraphs out of the document?* Mary Beth said they are working on developing graphics and visual representation that will help people understand the technical information. They will include this information in the appendices for those wanting more detail. The challenge on the cumulative impact section is how to capture all of the information and have a succinct message Mary Beth said they have to think about who their audience is remembering the requirement to be readable by an eighth grader. One committee member suggested having the summary be available on the website. Mary Beth will look into this.
- *Will the TPA negotiations correlate with the information in the EIS?* Mary Beth said she is fairly certain that the finalized TPA will not match the dates in the EIS. The list of assumptions used to determine the dates for the alternatives includes a drop dead date for data which is about a year from when they produce the document. The TPA may use a different basis for its assumptions. Mary Beth said she is confident, however, that the dates will be in the same range.
- *Will the EIS be robust enough to enable the public to understand how they relate to the dates in the TPA?* Mary Beth confirmed that it would be. Suzanne added that the EIS will not evaluate the impact of staying in single shell tanks (SST) longer.
- *How does the public understand the risk of staying in SSTs?* Suzanne said they have talked about how to make assumptions on that, but decided they do not have the data needed to put into a model to address those concerns. What is needed is a study on the tanks that have already been retrieved to see how robust they are and apply that to the rest of the tanks.
- *Are all of the assumptions listed somewhere in the document?* Mary Beth said appendix D will describe the processes for retrieval and supplemental treatment and will include a description of the assumptions used in the analysis.
- *How are you handling cumulative groundwater effect?* Mary Beth drew a picture to demonstrate how DOE-ORP is addressing cumulative groundwater. She explained the alternatives available: Fast Flux Test Facility (FFTF), waste management, tank

closure, groundwater, etc. In the cumulative analysis, they will show everything, then pick the no action from each of these and show the no action added to each alternative. They will repeat this exercise for closure. The EIS will illustrate each scenario so the reader will be able to understand if nothing is done where the site will be at, and if everything is done where the site will end up. The reason for the two extremes is to show the long term and short term. In the cumulative analysis there will be three different types of analysis in a visual format that will show to do nothing – get the most impact, to do everything – get the best look at groundwater, and the middle demonstrates a range between the two.

- *Once the EIS is issued and a decision is made that is different than what was anticipated, will you have to go through an additional analysis to understand the impact?* Mary Beth said closure is a good example of that because if you close more tanks then predicted you can go back to see what the EIS said about the closure. The process will have to be continuous since there is a degree of technical uncertainty and that is where defining the assumptions will be important years down the line.
- *How long can you rely on the EIS?* Woody said they will do a five year review once it is released and questions would be identified as a part of that review.
- *We think of this as a site-wide EIS, but can it be used that way?* Mary Beth said it is comprehensive enough that you could do this type of review for a site-wide even though it does not have that title.

Begin Joint Committee Meeting with HSEP

S-102 Tank Spill

Mark Brown, DOE-ORP, reviewed the details of the S-102 tank spill. Mark said they drained the hose, boxed it up and contained the liquid in the spill area. The dose rate through shielding had a very high radiation adsorbed dose (RAD) rate and therefore confirmed they had the spill material in the house. Mark said the spill area was stabilized with a fixative and has not spread. They plan to continue to maintain control in high contamination and high RAD areas at the site. The sampling will confirm how deep they will need to go to address the spill area. They can only go down six to eight feet until they hit the tank. The soil needs to be sampled to decide where it will be disposed of.

DOE-ORP has conducted several investigations but Mark will discuss the Type A accident investigation. Mark said the direct cause was a failure in properly designing the retrieval system. The root cause was the pump system did not have a mechanism to prevent backflow and over-pressurization of the hose which is a part of the safety requirements. They need to conduct an engineering process to see if a pump can safely be used in the tank again. Mark indicated they do not plan to use this particular pump again and there are no similar pumps being used currently onsite. The replacement will be a centrifugal pump.

Mark said they need to improve their emergency procedures to include one for a waste leak that does not meet the emergency requirements. They have come a long way for industrial hygiene monitoring during normal operations, but they need to improve the processes for abnormal events and conducting real time monitoring. Mark said what could have pointed to a tank waste leak sooner was if a health safety person was testing for beta as well as gamma. Mark said they need to better define in the response procedures that they have a leak until proven otherwise. For now on, notification procedures follow this procedure.

A summary from the Type A investigation is included in Mark's handout and is also available on the web. Mark explained that Volume 1 is a summary and Volume 2 contains the details. Type A requires formal corrective action plans that require verifying the actions were implemented as stated and are effective which is the responsibility of the ORP manager. DOE - Environmental Management (EM) will review the corrective actions developed as a response to the three judgments of need presented from the investigation related to ORP's oversight. Mark said DOE is implementing corrective actions real time.

Regulator Perspectives

- Jeff Lyon said they did an investigation and a generator report that they are hoping to get a response to by the end of the week. This report may be posted on the website. Jeff wanted to clarify whether they are doing an engineering analysis on the pump or are they not going to use the pump again. Mark said CH2M Hill (CH) will do the analysis on the pump. When the workers tried to operate the pump in reverse and could not get it going they used a torque wrench to move the shaft. This could have bent the shaft by using more torque than was allowed and the pump may fail next time it is used. Mark explained this is why the judgment of need for the pump evaluation was made. In addition, DOE-ORP and CH will not use this particular pump again.

Committee Discussion

- *What does it mean to stabilize the spill area?* Mark explained that stabilized means the contamination will not spread in the horizontal or vertical direction. They use a solution similar to diluted Elmer's glue and spray it on the ground. This creates a wax like coating over the spill area and keeps the contamination in place until they can deal with it.
- *Is there a way of knowing what the constituents of the spill are?* Mark said they can get that information through soil samples and by conducting chemical and radiological tests on the samples. Mark said they did core samples of the tanks in 1998 so they have a general idea of what constituents they are dealing with.
- *Who conducts the Type A investigation?* Mark said there were 20 members of the accident investigation team. A Board was developed to manage the investigation; the Board includes a chair from HQ, one local DOE person, members from Health Safety and Security, and a member from Idaho. They had 15 other participants from around

the country representing fields such as industrial hygienist, occupational medicine, safety analysis, etc. The Board keeps following the corrective actions once they come out. The Board reviews and comments on the corrective action plan.

- *Are there other types of lower investigations?* Mark said there are other types for other kinds of accidents. Type B is for lesser serious personnel injuries or events. The Type A investigation was determined by HQ; there is specific criteria the incident must meet to warrant this type of investigation. There has been less than a handful of Type A investigations in all of DOE over the past year.
- *Is there a program to look at all contractors and activities to improve oversight of contractor radiological control practices?* Mark said their lessons learned address that. Mark said they put the information on the website because they are not the only ones that have toxic and radiological waste in tanks. Mark said there are other programs that could learn from this event.
- *In addition to lessons learned what other programs are in place to foresee problems?* Mark said the judgments of needs in the outline are a summary; there are actually a total of 16. Some corrective actions include improving the safety analysis process to brainstorm what could happen or go wrong with a new system.
- *Will you go back and look at other equipment that was designed in a similar timeframe and see if there are other issues as well?* Mark confirmed that this is a part of their process.
- *Can you summarize the details of the employees that reported health effects?* Mark said there were 63 employees in the spill area during the event. Of those, 13 reported symptoms from the spill. Of the 13, they think there is one person who is presenting symptoms that may be from the spill. Mark said all 13 employees will continue to be monitored.
- *Does the normal discharge line still have waste in it since it has not been run since the spill?* Mark explained when they found the pump was stuck, they conducted a raw water flush of the receiving line. When they did the reverse pump rotation, it sucked liquid into the transfer line and forced the material out the transfer line with raw water. The way the hose is situated up hill it stayed full of raw water. It sucked the raw water through plus what waste was in the pump column. Mark said the waste is like peanut butter, but worse. The layers within that tank are such that one technology might only work for 20 inches of the tank and then they need to switch to a new technology.

End Joint HSEP meeting

Technology Readiness Assessment (TRA) Options Study

Ken Wade, DOE-ORP, said his involvement with the TRA is to develop a business case study for supplemental treatments. Ken said the request for this case study came from EM-1. The Government Accountability Office (GAO) report came out in April which recommended the need to reevaluate supplemental treatments at Hanford. The question

was posed, if supplemental treatment is needed how does bulk vitrification stand up against second low activity waste (LAW)? Ken said they have attempted to address those questions.

Ken explained that as 50%, 70% and 90% design of a technology is complete, technology needs are identified which gives you an idea of funding or where to go to develop the funding. The TRA process is structured after one developed at the National Aeronautics and Space Administration (NASA). Ken said they adapted their process for a radio chemical facility and will refine it for department-wide use. This process gave them an idea of what additional testing needs were for pretreatment and other areas.

Ken reviewed the business cases from this handout. He said in Case 1 if no supplemental treatment was used, it would take 60 years to treat all the waste demonstrating the need for supplemental treatment. In Cases 2-5 the supplemental treatment technologies of second LAW, bulk vitrification, cast stone, steam reform are evaluated. All of these assume a start date of 2019. Cases 6-7 look at the advantages of early start cases because design issues have delayed the construction of the high level waste (HLW) and pretreatment facilities. Case 6, is looking at bulk vitrification technology that could be ready by 2014 to support early LAW treatment. Both cases require a supplemental pretreatment facility that is tank farm based.

Ken next explained the process DOE-ORP used to evaluate the TRA by identifying critical technology elements (CTE). They also assess the technology readiness level (TRL) for each CTE. Each subsystem is a CTE and each element is assessed against hardware, software, processability, and programs. Ken explained an element must go through a set of questions on the TRL scale, if the element satisfies the questions then it advances along the scale. Each element will receive a score and the overall technology will get the lowest element score. The advantage of this is it flushes out how to move forward to resolve the issues with the technology. Ken said ORP chose level 6 as the level that needs to be met before final design can begin. TRL 9 is the full scale. Jim Rispoli, DOE-EM, reviewed this report in September and asked for an outside expert review. They are in the process of providing feedback. Ken said they are working to provide a revised report back to EM on October 30th. In November they will release the business case report and the TRA case report to the public.

Committee Discussion

- *This looks like only LAW will include pretreatment.* Ken said this is just the business plan for LAW, they have done pretreatment and HLW as well separately.
- *What if it takes longer because of the total sodium?* Ken said they attempted to address this in a report that assumes 60,000 metric tons of sodium which demonstrates that more supplemental treatment is needed. Al said this means the difference between eight bulk vitrification lines and 24 lines.

- *Were the TRAs based on how mature the technology was at the time in 2003?* Larry Lockrem said bulk vitrification was evaluated up until the TRAs were done; the others were only what was complete in 2003. Ken confirmed that this was true.
- *How were the costs developed?* Ken said the charter was to look at the technologies and compare them against each other. The costs they have did not use bottom up estimates, they used what was already existing and standard costing methods to build the facilities. They spread out the operating costs over a 30 - 60 year period. The 60 year period dominated. A relatively small capital investment would benefit an advanced schedule.
- *What level does bulk vitrification system rate at?* Ken said bulk vitrification ranged between a 4 and a 5, but did not include the latest integrated test melt. DBVS would be up to a level 6.
- *What level did the pretreatment facility rate at?* Ken said he was not sure but knew the score for LAW was between a 5 and a 6. It was advanced enough to continue through with design. The results from the pretreatment indicated they need to do more scale testing on the filtration testing.
- *During the TPA negotiations discussions, the Department's proposal recognized that beginning construction on the bulk vitrification facilities can not happen until several years after a second LAW facility. Will the business case study reflect the reality that bulk vitrification would not be started until after 2014?* Ken said their planning assumes bulk vitrification around 2014 and assumes getting the demonstration project re-permitted. Dennis Hamilton, CH, explained that after the last test, the bulk vitrification facility would be at TRL 6, and would initiate the design process in 2008 for the production facility. The baseline assumes that could happen. Gerry Pollet said HAB members were told last week at the TPA negotiations workshop that the fastest feasible schedule is 2021. Gerry felt if the baseline says you can start the full scale facility before the test is finished then it is out of line.
- Maynard said second LAW, third LAW, and iron phosphate are all not being considered. Ken explained that they started off with 13 cases and shortened it so they could compare them without getting too complex. Maynard felt that the comparison of a second LAW with early LAW is key.
- *The cost of doing bulk vitrification has increased exponentially and if that trend continues it will be too expensive to pursue.* Ken agreed that the cost will be somewhat higher and reiterated that a second LAW facility is still on the table.
- *The biggest treatment issue is sodium and these cases should address a range of sodium treatment facilities because you are talking about decades of difference.* Ken said they do not have a business case that looks at sodium but it is being talked about and addressed separately.
- *If bulk vitrification is operational by 2020 according to the TPA, with 32 years of operation then bulk vitrification cannot meet the TPA milestone by 2047. Will it take 32 years to process from operation date?* Ken said it will take 32 years from the 2014 operational date. Dennis reiterated that this is the baseline. If they start later and want to finish earlier than they will need to build more lines.

Technology Roadmap

Paul Bredt, PNNL, said they started the technology roadmap with a site meeting in October and continues to be a working document with sections being added. Paul said they plan to implement the roadmap for FY08. They have discussed what makes sense to have in a long term program with staff from national laboratories which assisted them in writing up their activities and needs for the roadmap. In September they worked with Difference by Design (a contractor) to prioritize this work in terms of safety, risk reduction, and how might these things fall.

Paul said they met with federal agencies last week and now have two prioritization lists. The budget is going up, but they do not know by how much. They were told a high of \$65 million and a low of \$29 million for the tank waste program. All three offices are working on a multi year program that will be merged together soon.

Paul said they took the needs in the roadmap and broke them into five groups: waste storage, tank cleaning, closure, pretreatment, and immobilization. They evaluated what the risks were, what activities they could perform to minimize risk, and what they could do to prevent duplicating activities. From this, they outlined a gap analysis to meet the risks and identify the benefits for safety, schedule baseline assumptions, cost reduction, maturity level of activity, probability of the activity being successful, etc. They ended up with an initial list of 133 activities. They prioritized the list by items that could be delayed until 2009 and the ones that are the highest priority.

Paul said the Hanford inputs were the starting inputs to the roadmap. Dennis Hamilton and Billie Mauss, DOE-ORP, can provide the full list of inputs if the committee is interested in seeing it. The working group took the input received from some committee members and others and added to the list so it might have changed since the committee last saw it. Paul said the people working on this are primarily staff from the national laboratory at PNNL.

Committee Discussion

- *Is there anything in the program plan on iron phosphate as the vitrification agent?* Billie confirmed that there is, she said she saw it as an alternative to glass and as iron phosphate. Paul said included in the storage section is a description of a liquid interface monitor. Paul said the real issue is gas retention and they wanted to look at gas retention monitoring to see if they can get more tank space.
- *At what point do the benefactors get to review this process?* Billie said they are struggling with how to do a review. Paul said next week they are meeting with Mark Gilbertson to talk about their progress and they will know more after that meeting.
- *It would be nice if you could provide advanced notice so the different organizations can talk about their needs and provide input.* Billie said she agrees, and that this is the

first attempt at the roadmap and there needs to be a relevancy review. This is a multi year program and will be updated annually.

- *How many years away are we for results from this work?* Billie said some have funding in 2008 but they will have to develop an acquisitions strategy.
- *Can you recall specifics on secondary waste the group has been interested in?* Billie said one big problem is performance and what you do other than glass for long term performance. Al suggested putting it in a model for the short term and see if the drinking water is higher than the standards.
- *Is DOE - Richland Operations Office (RL) involved in this process?* Billie said they are involved on decommissioning and deconstruction (D&D) and groundwater. Larry said they are looking at secondary waste streams coming from bulk vitrification and LAW. They will have to come up with ways to resolve the technetium and iodine issues. Billie said both ORP and RL are aware of that and have an interface document with FH and RL to address it.

TPA Negotiations Workshop

Ken Gasper summarized the comments made at yesterday's RAP committee meeting. Ken said the committees supported the draft advice that Gerry provided. There was also a general agreement that the draft advice was a little wordy and needed further editing before it goes to the Board. Committee members expressed their shock about the delay in milestones that were announced during the TPA negotiations workshop. Ken said Gerry captured this well in the write up of the advice. If committee members have additional comments today they should provide them directly to Gerry to be incorporated.

Ken said he wanted to offer two comments on the advice. Ken wanted to see a closer tie in the notes on the workshop discussion. The advice does a good job of tying in the life cycle cost report but an inadequate job of the SST delay being made prior to the SST report coming out. The HAB concern was that the TPA not go forward until the risk analysis information is complete from this report.

Harold said the notes attached to the advice capture the discussion in the Budgets and Contracts Committee (BCC) of the options concerning the waste process schedules being delayed. There was stronger support for second LAW than bulk vitrification. The bottom issue the committee identified is that the negotiations are based on the cost of projects and this is something the Board might want to take a position on. Maynard added that there is a lack of incentives to move these dates forward, and on some of them more data is needed to meet these dates. There should be incentives provided to continue with the data gathering process to speed this work up. HAB should push for continued effort to look at newer technology or other methods.

Al Boldt felt that DBVS is driving completion of a technology program. The schedule is supposed to tell us to use the best available technology, so why is the Department still saying they do not know how good DBVS is? It will end up delaying the program seven

years. Harold said the contaminants in the tanks have been there for fifty years and some of it will be there forty years from now. Harold said currently there are no assessments of what shape those tanks are in.

Dick Smith said this advice is suggesting DOE prepare a schedule and a budget for doing everything full speed ahead and then compare the projected delays and see what the differences are. Jerry said they learned in the workshop all of these items are interrelated in the schedule, and if you drop one, then all are delayed further. Ken suggested the study that ties these together for ORP is the same one HAB requested in Advice #192 but has not seen any progress on since the spring.

Regulator Perspectives

- Jeff Lyons said Ecology struggles with the delay in dates for retrieval too. The tanks are highly radioactive making it difficult to do tank assessments and there is no clear answer on how long they will last. As part of the negotiations, they looked at building additional DST which would take ten years, cost \$10 billion to construct them, and another \$10 billion to retrieve them. This best case scenario means they would have complaint storage in 2030. In addition to building more DST, it is important to evaluate the impacts to the sites as well. Including where to put the soil once it is excavated, and then the problem remains of retrieval later. Jeff assured the committee that Ecology has discussed these issues. Jeff said he supports the HAB asking for more money to build more DST, but acquiring and managing the money correctly is a big challenge to overcome. Jeff said he does not want to discourage the committee because the advice is good, but would like to make sure everyone knows what they are dealing with too.

Committee Discussion

- *How does building new tanks compare to early LAW?* Suzanne said it did not bring the end schedule in very far, only a couple years. You will have to do pretreatment for technetium and iodine and would have to redo the piping.
- Ken said the SST risk assessment report is currently a deliverable in 2009. The reason for a slow down is a budget standpoint and continuity of crews over the long term. Maynard added the advice should emphasize that DOE should do what they can now with available technology.
- Larry said the TPA draft schedule for SST states by 2016 there would be four tanks retrieved and five tanks by 2019 equating to a tank and a half per year. Larry suggested the advice state increasing tank retrieval. Ken said he agreed and thought it could tie in with what they said during the workshop about tank space availability. Jeff said Ecology did examine whether it is technically possible to retrieve C Farm. Jeff said if you want to accelerate retrieval it would have to come after 2015 or after Waste Treatment Plant (WTP).
- *What is the scope of the program that will look at SST that have been emptied? There is still waste in the bottom of those tanks.* Jeff said he does not know what the scope

is. He said he is hoping qualified engineers will develop a plan to retrieve the waste. Dick said it would be good if the engineers clean the tanks demonstrating that it is feasible. This would support the TC&WM EIS on clean closure. Jeff said they monitor each retrieval, and some tanks can be cleaned and others cannot because they are all different. Lifting solid material 60 feet in the air with a pump is really hard.

- Gerry said there was a study done in the early 1990's on additional DST cost estimates. He encouraged Ecology to use that for a reference point.

Committee Work Plan

The committee discussed the following list for future committee and Board topics

- TRA report
- Black Rock EIS
- List of inputs for Technology Road Map
- Agency update on S-102 report for the Board in November
- Lori Gamache will check on the status of a response to Advice #192

TWC will hold a committee call in November to determine if they need to meet in December after the issues managers meeting.

Handouts

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

- River Protection Program Supplemental Treatment Updated –DBVS Status, DOE-ORP & CH2M Hill, October 2007.
- Hanford River Protection Project Low Activity Waste Treatment Business Case Study and Technology Readiness Assessment, Ken Wade DOE-ORP, October 17, 2007.
- S-102 Tank Spill Update, DOE-ORP, October 17, 2007.

Attendees

HAB Members and Alternates

Al Boldt	Jerri Main	Mike Priddy
Ken Gasper	Vince Panesko	Jim Trombold
Harold Heacock	Bob Parks	Dick Smith
Jeff Luke	Jerry Peltier	Keith Smith
Susan Leckband	Maynard Plahuta	Bob Suyama
Larry Lockrem (by phone)	Gerry Pollet	Gene Van Liew

Others

Karen Lutz, DOE-RL	Madeleine Brown,	Dennis Hamilton, CH
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	Ecology	
Carrie Meyer, DOE-RL	Suzanne Dahl, Ecology	Lyndsi Lewis, CTUIR
Mark Brown, DOE-ORP	Dib Goswami, Ecology	Mike Keizer, CWBLTC
Mary Beth Burandt, DOE-ORP	Jeff Lyon, Ecology	Cathy McCague, EnviroIssues
Ben Harp, DOE-ORP	Beth Rochette, Ecology	Emily Neff, EnviroIssues
Billie Mauss, DOE-ORP	Eric Van Mason, Ecology	Chris Jensen, FH
Lori Gamache, DOE-ORP		Barb Wise, FH
Erik Olds, DOE-ORP		Paul Bredt, PNNL
Woody Russell, DOE-ORP		Annette Cary, Tri-City Herald
Bill Taylor, DOE-ORP		Peter Bengtson, WCH
Ken Wade, DOE-ORP		