

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
TANK WASTE COMMITTEE MEETING**

*August 15, 2007
Richland, WA*

Topics in this Meeting Summary

Welcome and Introductions 1

Discussion on Supplemental Alternative Treatments Study and Early Operation of the
Low Activity Waste (LAW) Facility Report 1

S-102 Tank Spill 4

Demonstration Bulk Vitrification System (DBVS) 8

Sodium Waste 10

Tank Waste System Integration 12

Phase 2 Soil Corrective Actions Milestone & Committee Values for Tank Closure 13

TC&WM EIS Update 15

Committee Business..... 17

Handouts 17

Attendees..... 17

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

Eric Olds, Department of Energy-Office of River Protection (DOE-ORP) announced that the seismic and ground motion criteria for the Waste Treatment Plant (WTP) have been certified. Eric said John Eschenberg will discuss this with the committee later on the agenda. He distributed a press release to the committee.

Rick Jansons, Tank Waste Committee (TWC) Chair, asked for introductions and welcomed the committee.

Rick asked if there were any changes to the May meeting summary, there were not and the committee approved the summary.

Discussion on Supplemental Alternative Treatments Study and Early Operation of the Low Activity Waste (LAW) Facility Report

Delmar Noyes, DOE-ORP, provided a status update on the alternative treatments study. He said this study was requested by Environmental Management 1 (EM1) to look at WTP and to provide funding for the demonstration bulk vitrification system (DBVS) and early low activity waste (LAW). The target for completing the report was the end of June but

the schedule has slipped. Delmar said they changed their parameters after it was presented to senior management who felt the report did not communicate the results well and how it related to the Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS) and other environmental studies.

A Government Accountability Office (GAO) report on supplemental treatment was submitted to DOE. Delmar said his study was modified to incorporate the results of this study. He said the study has been simplified to seven cases and focuses on a specific subset to communicate the results more effectively including the sodium waste issue. Delmar said they are collecting comments from senior managers and defining a path forward. Although he is uncertain how James Rispoli, Assistant Secretary Environmental Management, will use the study, it is designed to communicate the results of the study with Congress.

Regulator Perspectives

- Laura Cusack, Department of Ecology (Ecology), said they do not have a perspective on the report since it has not been issued. Laura said Ecology still believes a second facility is needed and their preference is for bulk vitrification or a second melter facility. Ecology has not seen anything that makes them think it is worth looking at other technologies or that they can live without a second technology.

Committee Discussion

- *Pam Larsen asked if the seven cases remaining are the technical issues from last fall.* Delmar said this study is looking at the WTP only option which demonstrates the need for an additional treatment facility to support WTP whether it is early LAW or DBVS. He said it is more of a WTP lifecycle analysis and does not focus on the testing of WTP. This is looking at the cost, scope and schedule of an early LAW. The study asks how they fit into the lifecycle and what the impacts are.
- *Maynard Plahuta asked if there is a deadline for getting the product to Mr. Rispoli.* Delmar said he still needs input from senior managers before it can move forward. They need to communicate if there are benefits of changing the technology and if they need supplemental treatment.
- *Larry Lockrem asked if the report issued several months ago that outlined some of the requirements of early LAW fed into Delmar's study.* Delmar said yes that they were the main inputs and will be publicly available soon.
- *Rick asked if early LAW is included in the study.* Delmar confirmed that it is one of the scenarios. Delmar said his preference would be to share the report with the committee after senior managers approve it and before it goes to Mr. Rispoli. Delmar clarified that this study does not review the technical aspects of the technologies under evaluation. The assumption is that they could all be made to work.
- *Pam asked about the alternate waste matrix for tank waste.* Delmar said Pacific Northwest National Laboratory (PNNL) at the Environmental Molecular Science Lab

is building a new building to support this activity. Pete Furlong, DOE-ORP, said it is reasonable for PNNL to support their work. Delmar said they are looking at next year's technology roadmap activity which includes waste treatment.

- *Rob Davis said at the last meeting the committee had a good overview of the project schedule. He said the committee realizes that there are certain advantages with keeping the current LAW team together until their contract ends. Rob asked if the study addresses the team continuing to work together.* Pete remarked that the study recommends if a new facility goes forward, those engineers already working on the project should continue working together. Pete said they want to get the pretreatment facility almost complete before starting the possible second LAW facility. Delmar added this study does not make that decision, but outlines the cost and benefits of doing any of those scenarios. Delmar said the basic message is consistent with what Laura said: if you do not have supplemental treatment the cost will increase dramatically and the timeframe will be moved out indefinitely. It also supports pursuing the two technologies that Laura mentioned and says we do not see significant evidence to pursue a new technology.
- *Dirk Dunning said one item discussed yesterday at the Budget and Contracts Committee (BCC) meeting was DOE providing money for the contractor to build DBVS.* Delmar said they wanted to make sure that this report did not preclude or pre-decide decisions that will be made in the TC&WM EIS and National Environmental Policy Act (NEPA) processes. The report is designed right now for a higher level discussion and will include Mr. Rispoli's perspective. Delmar felt there are some key points that are important to tell Congress about and one is the need for a supplemental treatment technology.
- *Dirk said the committee was surprised to hear that there are technology investigations going on that they have not heard about. Dirk wanted to suggest that these technology investigations happen in a committee and not ad hoc.* Steve said the DOE has created a draft technology road map. The National Academy of Sciences (Academy) will be on site at the end of October for a couple days. Steve said they had representation from the states, Ecology, HAB and PNNL when they talked with the Academy previously so he thought it is timely to talk with them again. Steve said it will be good to update this group on the road map prior to the October meeting. Delmar added the EM 20 just assigned a new report to deal with waste treatment technologies.
- *Bob Parks asked where DOE is at with choosing one treatment technology. Bob expressed concern that the focus is just on bulk vitrification and he is worried it will become a defunct project and replaced by some other technology.* Delmar said the DOE's goal with bulk vitrification is to get it as far as they can. He said Idaho has just begun using a steam reforming plant and that data is represented in his report as well. The report attempts to analyze the technologies on the same level. Delmar said whether it is bulk vitrification or second LAW, the analysis does not indicate a better option. They first need to close the loop with bulk vitrification and complete the data set.

- *Rob asked if there is an inherent advantage with the LAW facility.* Delmar said yes it is a proven technology, but they need to consider the strengths and weaknesses of both. They are not sure they want to go forward with one treatment option.
- *Harold Heacock asked Delmar how long it will take to make a decision once the report is published.* Delmar said it depends on the decision and they have to finish the TC&WM EIS first. The latest schedule for the TC&WM EIS release is 2009. Delmar said his best guess is somewhere around 2015 before they move forward. Laura added that 2015 is the latest date a decision could be made. She said they are doing testing with bulk vitrification right now and Mr. Rispoli could make a decision on the DBVS facility in the next three to six months.
- *Larry asked if one of the reasons for doing the study was because there are potential waste streams that will go to the Effluent Treatment Facility (ETF) and they need to know how to deal with the secondary waste stream.* Delmar said the secondary waste stream is a big issue with all the technologies. He said the technology readiness assessment (TRA) does not focus heavily on the secondary waste streams; it assumes they can be resolved in the technology. The secondary waste streams of some of the early start up technologies will take some major engineering work to resolve. Pete said if they defer the operation of early LAW or bulk vitrification they need to take the time to understand the process so they do not end up with big problems after a decision on a technology has been made. Steve added when they talk about the technology road map they will look at technology for secondary waste.
- *Al Boldt said if the document has been recast for management consumption because the first draft was too technical, then will the technical version be available for review.* Delmar said they have taken all that documentation and put it in their records so it will not be lost, but he did not know if it will be made publicly available. He will bring this up with management and get an answer for the committee.
- *Rob emphasized the need to recognize a certain amount of urgency and DOE can not keep going back to Congress for a bit of money at a time.* Pete said early LAW proves that DOE can get things done. But they have made mistakes in the past by saying that a technology works and later run into problems. Pete said it is now a more mature process to obtain the right decision.
- *Dick Smith said he has not seen Delmar's seven choices, but no one has focused on iron phosphate glass. How much would it take to qualify another glass?* Steve said he knows that the Academy is looking at waste forms and waste forming. He said they will carry that question forward.

S-102 Tank Spill

Mark Brown, DOE-ORP, provided the committee with a handout on the S-102 tank spill area, diagrams of the pump failure and the investigation to date. Mark indicated that the S-102 tank has been on retrieval mode since 2004. The waste has been hard to pump because it contains phosphate giving it the consistency of peanut butter. He estimated the

spill was up to 114 gallons based on how long the pump ran. He said the area has now been fenced off and is marked as a high contamination and high radiation area.

Mark said they have had gel problems with the tank waste, therefore 20-25 gallons per minute of dilution water flows into this inlet during operations to prevent gelling. On July 27, they were operating the pump in reverse because it was stuck. They believed (they have not taken the dilution hose apart to examine it because it has high radiation requiring additional planning to enter the area) what happened was that a waste plug clogged up the pump's filter causing pressure on the inlet and forced waste into the dilution hose causing it to rupture. Mark conceded that this was an engineering failure because there was no check valve to ensure waste did not enter into the water system.

Mark summarized the sequence of events. Around 7:00 p.m. on July 26 the crew saw an electrical fault indicator come on shutting down the pump automatically. Electricians determined the pump motor was fine and they did not find a ground, so they commenced retrieval operations. When the pump was restarted it got stuck. The operating procedures allow the crew to operate the pump in reverse to get the pump unstuck. They manually tried to get it going from midnight until 2:00 a.m. They tried twice manually, and the third time they thought they had freed it up. They left the tank farm at 2:05 a.m. At 2:10 a.m. the operations control tried to operate the pump in reverse again for a minute and a half. A technician in the tank farms noticed that background count level that went up from 150 to 400 counts and then went back down. Mark said they think that was when the leak occurred.

Mark said for the most part they followed their abnormal operating procedures. The staff from the swing shift was suppose to go into the tank farms to do the dose rate surveys, however, their limits for radiation were exceeded so they retreated. They then sent in a crew wearing high contamination gear and no indication of a leak was detected at this point. When they got close to S Farm they noticed the dark soil around the pump. They saw dose rates at 25 radiation absorbed dose (RAD) per hour and notified their supervisor. A fixative was applied that afternoon and the next day to the soil and contamination area.

Mark outlined the immediate actions his team has taken to stabilize and protect the spill area and to continue to monitor for potential spreading. CH2M Hill Hanford Group (CHG) has chartered three investigation teams: spill event and initial actions, emergency response, and health effects and personnel follow up. Mark talked about the activities they will be conducting during their investigation and discussed next steps for the DOE.

Regulator Perspectives

- John Martell, Washington State Department of Health (DOH), said his department was notified of the event through the abnormal event notification system. The initial notification they received was that the samples taken to date were below levels that would threaten worker health. They were above an environmental air sample but they were low. There was no deposition outside of the tank farm and the level would not

have been impacted offsite. John said they have decayed the samples for a few days and have evaluated that they are all at the levels reported by the crew. John said they continue to evaluate the air samples to monitor if the waste is moving around although no movement has been detected. DOH has asked CHG to continue to apply the fixative and to add additional air protection when they are sampling in the area. They have discussed putting up a tent around the site to monitor the air in the tent. DOH expects that the monitoring will continue and they will continue to be provided with up to date information.

Committee Discussion

- *Dirk said there were clearly some serious engineering problems that need to be addressed and wanted to know if Mark has talked to the National Atmospheric Release Advisory Center (NARAC) to do an air analysis.* Mark said he did not know if anything like that that has been planned. Dirk described the tests that could be done to evaluate the air down wind of the spill. He said unfortunately because that was not done immediately the data will not be available.
- *Gerry Pollet asked if the tank retrieval procedure includes running the pump in reverse.* Mark confirmed that it did. Gerry asked if it includes manually moving the pump. Mark said it does not but they did manually move it. Gerry asked what was reviewed in terms of waste being able to move up into the line. Mark said there was a design review done in 2002 and it was evaluated whether that this could occur, and it was reported that this was not a credible scenario. Mark said they are still gathering all of those documents. He said clearly that was a bad call and that was not smart engineering.
- *Gerry asked if DOE has asked for an independent investigation.* Mark said they are not at that yet. DOE is evaluating whether this should be a Type A or Type B investigation right now which will determine the kind of investigation.
- *Gerry asked if the notice given to Ecology was at 11:03 a.m., and if that was a half hour after the on-site notification.* Laura said she is not involved with this spill, but she has not heard anything about Ecology having a delay in notification. Gerry said he was concerned that Ecology was not involved in the on-site interviews and that there was a nine hour delay in notifying the agencies.
- *Gerry asked if they had the indication of potential release.* Mark said all they had at 2:40 a.m. was high dose rates in the tank farm. They did not get the test that showed a release in the tank farms boundaries. One of the potential sources is a transfer leak. That is why they sent people into the area in protective clothing. Mark said he understands Gerry's concern and assured him they are investigating it.
- *Rick said there was not an emergency response capability when he first came to work at Hanford. There were many independent investigations of the spill in 1997 which lead to the forming of a good emergency response team. When Rick audited the Plutonium Finishing Plant (PFP) the funding for emergency management was cut. Rick said environmental management becomes important after an event, but is forgotten later. Rick shared his concern that this may also be happening at tank*

farms. Are they running drills? Are they following the procedures? Mark said one of the steps was to call 911 and they did not because they did not need additional help at that time. Based on the indications they had, they knew there was a high RAD area but not a leak. Rick clarified they had not transferred in the forward direction, but they moved the pump manually which was not in the procedure.

- *Pam said Mark indicated that the reverse process can only go for 105 seconds which corresponds with the 114 gallon leak if it pumps at one gallon per second. Did the material come out in one cycle when they were reverse pumping?* Mark confirmed these details. Pam said she thought it was important to focus on the protection of the workers. Mark said the folks that went into the farm at 2:40 a.m. were in full gear but not breathing equipment.
- *Dirk said that an engineering evaluation of what would happen if you ran the pump backwards if it was pressurized was missing. The engineering needs to be revised to make sure this does not happen again.* Pam said they need a robust process that can capture lessons learned. Mark said they are doing that. Rick added that his point is that lessons learned from many different spills have a short life and the budget does not support funding this permanently.
- *Ken Gasper asked about confirming the hose malfunction.* Mark said they want to do an autopsy of the hose because the dose rates were at 5 RAD. Ken said testing should have been part of the work procedures. The engineers would have realized the deficiencies in the system and the need for additional containment. Ken suggested that the break down was not only in the design but in the process that created the procedure. Mark said the test facility is a cold facility and they can not test waste in there. They can not know until they get out in the field what will happen.
- *Rob said the breakdown of the process and following procedure is paramount to nuclear work and it is unconscionable that these breakdowns are still happening today. Have we gotten so used to pumping tanks that we have gotten lazy?* Mark said he does not think so. Mark suggested what needs to be understood is that this tank has been in retrieval mode for three years. The system has been modified many times, and when those modifications happen it muddles the engineering system.
- Harold said it is an engineering norm to reverse the pump and for the pump to get blockages. After looking at the mistakes made, Harold said he has a hunch that when someone repaired the pump they put the hose in the wrong place. It was inappropriately hooked up and needed a check valve; it was not a function failure of the pump.
- Gerry said the HAB should suggest that DOE bring in National Institute of Occupational Safety & Health (NIOSH) to review worker exposure and the procedures. Gerry also felt there needs to be an evaluation of why they did not provide notification at 2:40 a.m. Gerry said Ecology should be the one to look into that. Gerry urged the committee to look at this as advice for September.
- *Dirk remarked other than the 911 call not happening, it went as it was supposed to. Another one of the lessons learned is to make sure the lessons learned get learned. Dirk said the HAB needs to make sure that reasonable failures do not happen, but*

unreasonable failures will happen. He said you do not want to punish people; you need them to be able to say when they made a mistake and then go learn from it. Mark said if you look at the events of this spill, and previous ones, people have followed good procedures. In the past they have had people exposed because they did not see their radiological dose rates rise. Mark said they did in this case and that was good. They applied lessons learned by sending the team in at 9:40 a.m. to investigate in protective clothing. They had the instrumentation on them to measure their dose rate.

- *Gerry asked if the crew at 9:40 a.m. had radios and if so, why they did not notify before 10:30 a.m.* Mark said he did not have an answer to that. Bob asked what the appropriate time period is to call after they see the spill. Gerry said the law says immediately (immediately is defined as within fifteen minutes).
- *Bob asked if this is a worker safety issue if it should go through the Health Safety and Environmental Protection Committee (HSEP).* Ken said the notion of getting NIOSH involved is a part of the HSEP committee evaluation. Gerry noted HSEP is not meeting before the September Board meeting. Gerry felt this committee should move it forward to ensure lessons are learned and workers are protected.
- Committee members agreed that this is a large enough issue that an update should be given to the Board in September.
- Maynard suggested the committee should let the investigation take its course and let DOE and CHG do their review. Then the committee could have NIOSH do a review and compare them.
- Rick said he thought they are still in the midst of deciding what type of review will happen depending on the spill type. Steve said that will happen very quickly and a Type A or Type B investigation will be determined. Steve said Type A is a much more serious investigation. He said the Defense Nuclear Facilities Safety Board (DNFSB) will also do an evaluation and thought if there are too many efforts going on at once it will be hard to support that many people.
- Rick obtained committee consensus to do general advice on an independent review in a timely manner. Rick will draft the advice.
- *Jerri Main asked if the committee is offering advice because this is something it thinks is important, or should it hold advice for when there are activities happening in DOE in which it can be used.* Rick said one of the roles of advice is to provide a public value. Harold said he thought the committee could state a value but did not think any conclusions could be drawn until they see the final report.
- *Larry said he has a concern about the definition of independent review, there are many parties doing reviews. Why is an independent contractor's response better than the DNFSB?* Gerry said he thought that there are some pretty clear standards for being independent that apply to NIOSH and DNFSB.

Demonstration Bulk Vitrification System (DBVS)

PK Brockman, CH2M Hill, presented an update on the DBVS. He reported on two items, where they are at with testing and the critical decision making process. PK said seven previous tests have been done, but this is the first with the melting and drying test as an integrated system. PK said they went through a three phase process to test the dryer and had challenges in each phase. PK described each challenge and resolution with the committee.

The test started on May 31 and finished on July 30. It was scheduled to take three weeks and actually took eight or nine weeks. PK said it was difficult to predict how long the full scale test would take even though engineering was done. A few issues rose during the melting process including particulate matter in the off gas system causing it to plug. PK noted a committee member predicted this would happen and it turned out to be true. The reaction of the feed is exothermic, and PK said they are seeing a particulate carry over much more than expected. They have to mechanically wrought out the pipe to remove the particulate matter. PK said the whole off gas system is not prototypical, and the blowers are undersized.

After the tests, it takes the box three weeks to cool down. Then there will be a deconstruction process and PK's team will decide if they mitigated the issues. A draft review of the baselines was done on July 9, managers have reviewed it and it will be released soon. PK said they had 46 findings which all have corrective actions. PK said Critical Decision 2 (CD-2) will allow them to do procurement, but really it is the precursor to CD-3 to initiate construction. There has been no funding on this program for two years, so PK felt they are doing well given their constraints.

Regulator Perspectives

- Laura said she is happy to see the full scale test done. She asked if they are still getting fines in the feed from the dryer. She said she understands there was a five inch clog. PK said the feed contributed to it but it was not the whole problem. They were running two off gas trains to eliminate the chance of terminating the test if one did not work. They had not switched to the centered metal filter due to the lack of temperature and failure of the propane heater. He said that the system is well within the middle of the system and they would have to stop the system to fix it so they are waiting until the middle gets hot enough to avoid making the centered metal filter bind. Laura asked if they still have mechanical and engineering issues to sort out before they move forward. PK confirmed they do and explained the filters feed wet so when the materials are dropped onto the filter it could cause it to seize. PK said they have to modify the design now to handle the feed.

Committee Discussion

- Dirk asked if they mitigated the ionic salt. PK said they need to get the concentration rates in the glass higher and none in the refractory. Dirk said as good as glass means it is everything. PK agreed with this definition. Dirk asked if there is a good surrogate

for technetium and rhenium. PK said CHG is currently charting an independent review process.

- *Al explained a safety issue that he thinks may occur with the bulk vitrification feed prep system potentially forming extra nitro cellulose to create an unstable state condition that could detonate. Al would like to see an independent review of the chemical reaction.* PK said Al's points are well taken; they have an independent review being conducted. PK offered to brief Al independently on that review.
- *Pam asked how PK will fund the project if CD-2 is issued.* PK said he can get additional money for procurement. PK said they are briefing Mr. Rispoli in September and he will make the decision if they get funding.
- Gerry shared some BCC advice on the tank operations contract Request for Proposal (RFP). This RFP would direct the contractor to continue to operate this demonstration plant long-term. The original commitment of a one year program allowed it to bypass the thorough long term safety processes. Gerry also commented that the contract assumes building two major bulk vitrification facilities and pretreatment for bulk vitrification without waiting for the NEPA review. Gerry felt this raises a conflict of interest because the contractor is given the ability to build three facilities. He added that he learned the House and Senate have added money for tank farm operations in 2008. Gerry thought many HAB members should be aware that it would be used for bulk vitrification and not retrieval.
- *Pam asked Gerry if the contractor needs to be ready to proceed with early LAW.* Gerry said early LAW is potentially in the scope of work, it is not prescriptive as "shall design and construct bulk vitrification facilities" is. BCC thought the contract should read that way for all activities and the contractor should support what is chosen in the Tri-Party Agreement (TPA) and NEPA negotiations.

Sodium Waste

John Eschenberg, DOE-ORP, said Secretary of Energy certified the seismic design criteria for the WTP. This will allow work to recommence on the pretreatment and High Level Waste (HLW) facilities. John said his goal is to start work before October 1. John said they wanted time to leave a one year gap between when the designers finish and the construction crew gets the plans. He said this is not a hard and fast rule, but they will work towards that separation.

John shared his concern about potential procurement issues with the startup of WTP work. He mentioned that the fluctuation in stopping and starting work have forced vendors to seek more reliable work. His main worry is for the tank process vessel fabricators. The pipe in pretreatment is not a problem but the welders and fitters are both also a worry. John said they will exceed the regional demand on this workforce forcing him to do a nation wide search. Right now they have a lot of work and are getting paid more than John can offer making it difficult to compete. As of today, John said they had 560 tradesmen on site and 120 subcontractors. This number could increase to 1,400 tradesmen. John said he can not double work staff overnight and maintain work safely.

John said he is more interested in being deliberate about the staff up even if there is a delay in the schedule. His hope is to have 750 tradesmen by October.

John next addressed the sodium waste issue. Sodium is important because sodium equals LAW glass: the more sodium, the more glass. When they run the plant they use carbon flow sheets to add more salt to neutralize the tanks. John said they think there is approximately 48,000 metric tons of sodium in the plant today. They add more sodium in the pretreatment to dissolve the aluminum to keep it from getting captured in the filters and ending up in high level waste. If they add sodium hydroxide to get the aluminum out, John said they predict instead of 60,000 tons the estimate will be more like 90,000 tons which lengthens the mission.

John said whatever the capacity is, it will have to be larger because it will increase the LAW glass and double the sodium. John said the solutions are:

1. To increase process temperature in WTP from 25-30 degrees C to 45 degrees C so they will not have to add as much sodium.
2. Use a sodium recycling technology that PNNL has pioneered that removes the sodium out at the end and adds it back into the beginning.
3. Use a Bayer process that has been around for 100 years to extract aluminum. John said this process would pre-treat the waste before it enters pretreatment at WTP.

John said he did not want to prejudge how this will work out and what solution will be chosen. He did concede that this is the number one cost risk to this life cycle. He said instead of an eight line bulk vitrification plant it could be a fifteen line plant. If they do not solve this, they will need more capacity; or they will have to accept that it will take longer to treat the waste. John said his priority is to get the HLW into glass as soon as possible, but the production of HLW may be slowed because they do not have enough LAW capacity.

Committee Discussion

- *Al said he appreciated John's description of the sodium issue. He said the supplemental treatment report had an assumption that a miracle will happen on sodium; the evaluation is only done at 60K tons. Al said he heard that DOE is going ahead in the 300 Area on testing some of things like the temperature in the pretreatment. John confirmed that they have some tests going on to resolve the flow sheet issues. Primarily they are looking at using higher fluid temperatures to see what it would do to the process. The idea is not mature, and John said his hesitancy about changing WTP remains.*
- *Larry said EM 20 provides funding on mini studies to look at aluminum process. EM 20 is evaluating whether to move to a phase 2. What is the status on this? John said they have a working group to look at the alternatives. John did not know the deadline for selections. He said they continue to look at it from EM 20 or another source because of the aluminum issue.*

- *Shelley Cimon asked what the Bayer process is.* John said it uses heat, and he promised to bring the committee a conceptual layout of what it would look like tank side. John said he did not know if it could change the waste stream but it has the potential to pull out other metals.

Tank Waste System Integration

Ken said the subcommittee asked for a briefing on Delmar's study because it sounded relevant to the system integration study. The subcommittee did not get the briefing until today so they have not had another meeting since they met last.

Steve said this effort started based on HAB advice. Time was spent gathering agreement on the paths, and then they looked at specific data to determine a path forward for implementing the baseline. He noted that it then became clear they needed to discuss the details of Delmar's study as well as review the technology readiness assessment study. The systems plan effort has been delayed due to the technological substance thus stalling other aspects. Steve said they need to get started again and talk about the technical aspects of Delmar's work.

Steve said Delmar met with senior managers earlier today about his study and they have more comments on it. Once senior management approves the next version they will present it to Mr. Rispoli. After this they can move forward with talking about next steps. Steve said the documents they produced will not be available for public review. They will be treated as notes and not attached to the final document, but will be part of the record. They may be available as a reference for issue manager work. Steve said they do not know if the final document will be released publicly either. Mr. Rispoli will make that decision. He said he thinks there is a high likelihood that the committee will see it at some point but did not want to over promise.

Committee Discussion

- *Al said Delmar's document does not address secondary waste and sodium.* Steve said the process chart evaluates secondary waste. Steve said Billie Mauss has been looking at secondary waste forms for a long time.
- *Larry said he thought EM 20 was providing more funding to look at alternative technologies for the secondary waste.* Steve confirmed that people have been working on that as well. Larry said he would like to see some of the technologies currently being evaluated be brought to the Board.
- *Ken asked how the system integration plan differs from an evaluation of technical alternatives.* Steve said the system plan does not look at alternatives, it implements the baseline. It does provide some output, but it pre-makes the decisions on the technologies being used and the path forward. For every decision on the chart the decision plan is making one decision and then filling it out and determining what the costs schedules and such are. Ken said he thinks it is important to review this for the committee because he does not want committee members to have expectations about

the plan that are different from what they are putting into it. Ken thought this would give the committee confidence that they are not leaving anything off the table.

- *Al asked when will there be an updated systems plan.* Steve said probably this winter.
- *Pam said the integrated baseline budget was supposed to be established in software then it would identify consequences. Does this process have a computer tie to it?* Steve said it could be taken to that level, but it has not been yet.
- Ken said he will take this back to the issue managers as soon as Steve has an update with the contractor on the status of the system plan and how it relates to Delmar's work. Ken did not feel that this needs to be brought to the Board.
- *Dick asked if Delmar's work be incorporated into the baselines.* Steve said it will be incorporated as will the results of the negotiations happening right now.

Phase 2 Soil Corrective Actions Milestone & Committee Values for Tank Closure

Jeff Lyon, Ecology, said they have been negotiating a change package for the M-45 tank farm milestone. They have been exchanging ideas with DOE to get good characterization for tank closure and defining a Data Quality Objective (DQO) process to close C tank farm. They are close to the end of Phase 1 investigation which identifies where the big leaks are and what they look like. Jeff said they expect to get a Resource Conservation and Recovery Act (RCRA) report to guide the next steps in Phase 2 which outlines what can be done to close tank farms.

Committee Discussion

- *Pam said after listening to a discussion about the Rocky Flats cleanup she learned the issue was soil action levels and contamination that will remain. Are you looking at soil action levels by contaminant since there is so much at the tank farms?* Jeff said they need to go through a process to define that, but he expects that they would have contaminant specific goals. Jeff said there are some contaminants 150 feet below the surface, and they do not have an answer for that. It is unclear how the deep vadose zone investigation work is done and how it will impact tank closure. He said it is unclear how DOE intends to clean up the soil, some of which has deep contamination, and tank residuals.
- *Pam asked if this relates to the public compliance and if Jeff is looking at points of compliance next to tanks or regional boundaries?* Jeff said Ecology will look into those and encourages DOE to look at the fence lines around a tank farm. Currently the estimates for fence line conditions are above groundwater standards. Jeff said that is why closure values are important: the regulations indicate the need for alternative points of compliance. Steve emphasized that cleanup levels are so important to the closure of the site and will be ingrained in the TC&WM EIS.
- *Ken said a value for himself and Benton County is site usage. Ken said Pam has struggled with this topic for the 300 Area. Ken asked Jeff if he has a vision of what the tank farms will look like. Will there be a fence and monitoring?* Jeff said DOE has

made some assumptions about site usage. He said they are starting to want it cleaned up to the highest possible level. Currently they have consensus that there will be 50 years of cleanup and 100 years of institutional controls. Based on Jeff's understanding they will clean up the surface as well as they can, but Jeff did not know what that looks like yet. Unrestricted use within 50 years is not possible yet.

- Barbara Harper commented that the Confederated Tribes of the Umatilla Reservation (CTUIR) have not participated in this, but some individuals from the group are involved. CTUIR's starting place is the Natural Resources Defense Act (NRDA) and they are behind in creating definitions for clean closure. Barbara noted that most of them will be the evaluation of cumulatively risk based access to groundwater and discharge to the river. Barbara said they are taking a site-wide approach and they are interested in how this comes together holistically.
- Pam said she thinks it is important to learn from other sites on this because of the complexity and scale of it.
- Dirk said a lot of the heel waste left in the tanks is hot transuranic (TRU) waste, so the one percent of the waste left in the tanks is the worst. He also noted that they will dig to 15 feet, and in some places to 45 feet, but it is unclear how to go any deeper into the vadose zone. Jeff said some have suggested testing a cap on a tank farm to see what happens. Norma Jean remarked that one would have to wait for 200 years to see the result, and that is not useful.
- Pam said at the RAP meeting tomorrow Jay Pendegrass will speak about institutional controls used at various sites and what has and has not worked. She believed this is useful as the site approaches cleanup decisions.
- *Dirk asked if it would be useful to do a workshop on values after the TC&WM EIS is released to examine the alternatives.* Pam suggested Todd Martin might be able to help the committee with this topic. Jeff said after the TC&WM EIS is released a decision will soon follow, so Ecology will develop a closure plan. Jeff suggested that after the release of the TC&WM EIS, the committee discuss closure values to ensure proper timing. He encouraged the committee to start thinking about this today to ensure enough time to develop a few values at a time.
- Rick pointed out the he did not hear anyone say tank closure includes digging up tanks and going to green fields. He said he has heard this from the committee in the past. Dirk said at this point they do not know what is possible. Dirk did comment that DOE has discussed doing a demonstration of digging one up and seeing what is possible. Jeff said that the TC&WM EIS will look at this alternative. Dick said it would be interesting to do it on a tank that has not leaked to see if their estimates are in range. Maynard expressed concern about lifecycle costs and in some cases it might be easier to dig it up. Rick commented if you dig it up you still have to bury it somewhere.
- Dirk commented about the lack of long-term thinking of building the tanks first with stainless steel which proved to be expensive and thus encouraged the committee to think long-term. The TC&WM EIS will evaluate capital costs, but it does not examine environmental costs. Jeff said this TC&WM EIS does a pretty good job of

that and his task is to close a tank farm which will not be easy. He thinks the tools will be there to make a decision but values need to be defined first.

- Rick said most refer to environmental impacts when talking about tank closure. He noted the lack of opportunity cost analysis of spending \$10 billion on a tank compared to spending \$10 billion elsewhere on the site. It may be technically feasible to get perfectly clean, but is that the best way to spend the money? Rick questioned if the committee should be examining this.
- *Bob asked who has the final decision for the TC&WM EIS alternatives.* Steve said tank farms will be closed under RCRA through a permitting process with the state. Pam said the law requires an analysis of alternatives in the TC&WM EIS, it does not require DOE to choose the most cost effective or feasible. Dirk said NEPA has a requirement to look at what is best for future generations. Steve said he has been through several EIS's, and the only way to get to a closure decision is to have adequate consensus on what closure looks like. Steve noted that if the committee waits until after the TC&WM EIS is released, then no decision will be made.
- Jeff further addressed Bob's question by stating that the draft TC&WM EIS will be issued and changes will be made. Then DOE will issue a ROD that can be narrow or all encompassing. Jeff said they will close tank farms by RCRA. Dirk said if it is not covered by RCRA it is covered by Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and that is under the Environmental Protection Agency (EPA).
- *Bob asked if public comments have an impact in the closure decision.* Jeff said public comments are critical and DOE has a strong bias towards public comments. Steve said DOE is not in a position where any one individual can make a decision, it is a bureaucracy, and decisions are influenced more than they are made.
- Norma Jean said the clean up decisions will be made based on the people who live nearby for generations to come. Questions like what will the community bear and will it harm too much need to be asked.
- Rob will take the lead on putting together HAB values based on the TC&WM EIS. Dirk said they are putting together an issue managers group and asked committee members to let him or Rob know if they want to be involved.

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

Dirk said that the issue manager group for this topic has not heard anything from DOE. He said the Greater than Class C (GTCC) EIS is coming up soon and has direct impacts on Hanford. Dirk said there is another study by PNNL and the National Environmental Technology Laboratory (NETL) to do a carbon sequestration demonstration in Walla Walla. Dirk commented that this activity may impact the seismic structure of the Hanford site. Dirk wanted to know how far the injected carbon dioxide moves and if there are implications to the TC&WM EIS?

Steve filled in for Mary Beth Burandt, DOE-ORP on this topic. He said a very significant part of the TC&WM EIS is the cumulative analysis which will examine all alternatives that could impact the Hanford site. He said for the GTCC EIS they do not have enough information. He said they do not know the form of the material or where they plan to put it. Steve said the TC&WM EIS team is following this closely and the scoping meetings will be at the end of the month.

Steve then discussed the Black Rock Reservoir which is part of a water storage feasibility study that would have impacts on Hanford. The project would raise Hanford's groundwater level west and north of the 200 West Area which is DOE's main concern. Steve said this is a Bureau of Reclamation report that a private company is sponsoring; Ecology is assisting on the EIS. He knows little on the impacts to Hanford and stated the draft EIS will be out in January.

Steve said he wanted to ensure the committee is aware of these projects because the TC&WM EIS needs to include all of these projects before it is finalized. He said the commitment they have is the cumulative analysis will consider all impacts on closure. Steve said the TC&WM EIS will be released as a draft spring 2008 and will be final with a ROD in spring 2009. There is a workshop scheduled on September 17. A subject has not been chosen yet, and they are looking for suggestions. Steve said these potential project impacts could be a topic.

Committee Discussion

- *Ken asked if Steve's team is feeding information to the TC&WM EIS team about the current plan to retrieve one tank per year instead of some other number. Steve said Mary Beth is aware of this, but it has not changed her process for evaluating scenarios in the TC&WM EIS. Steve thought it might be worth going through all the alternatives again with the committee because there are alternatives that account for additional tank space for a longer time frame.*
- *Ken wanted to know if the baseline information is being passed on to the TC&WM EIS team. Steve said the information changes so much that the TC&WM EIS can not keep up with it. He said the ROD can help DOE move forward, but it will not analyze an exact baseline. Steve said to expect that the TC&WM EIS will not reflect the current state of knowledge because they have not decided on how they are going to retrieve until 2019.*
- *Ken noted that everyone believes the TC&WM EIS is the key document for which decisions will be made. If the TC&WM EIS is no longer analyzing the issues that need decisions, then is there another round of disconnect? Steve said the TC&WM EIS has been good at evaluating the supplemental technologies and those have not changed. As for the retrieval rate, it has many scenarios that will be sufficient to address the likely outcome.*
- *Ken said he thought Steve's suggestion to have an update on the alternatives would be good to have on a future agenda. He suggested including the projects that could*

impact the TC&WM EIS too. Ken said this could be subsequent or additional to the workshop.

Committee Business

The committee conducted the leadership selection process. Dirk and Ken were both nominated for chair, and Pam was nominated for vice chair. Ken was voted in as the next TWC Chair, and Pam will be the Vice Chair. This change will be effective at the next committee meeting.

Steve asked if the questions attached to the topics on the agenda could be passed on to the agencies a little earlier so they have more time to prepare for meetings.

Future committee topics:

- Alternatives Treatment Study
- System Plan Integration
- Technological roadmap for secondary waste
- Update on DBVS study
- October 19th Bulk Vitrification filming
- S-102 Tank Spill investigation results
- Continue discussion on tank closure values
- Workshop on TC&WM EIS alternatives/issues
- TRA options study (issue managers review topic first)

The committee decided to have a call in September to plan an October meeting. The committee thanked Rick for his contribution to TWC and as chair over the past few years.

Handouts

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

- DOE News: Energy Department Certifies Seismic and Ground Motion Criteria for Hanford's Waste Treatment Plant, DOE-ORP, August 14, 2007.
- S-102 Event and Investigation Overview, DOE-ORP, August 2007.
- River Protection Program Supplemental Treatment Program-DBVS Status, PK Brockman, August 15, 2007.

Attendees

HAB Members and Alternates

Al Boldt	Rick Jansons	Gerry Pollet
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Rob Davis	Pam Larsen	Dick Smith
Dirk Dunning	Larry Lockrem	Bob Suyama
Ken Gasper	Jerri Main	
Norma Jean Germond	Bob Parks	
Harold Heacock	Maynard Plahuta	

Others

Pete Furlong, DOE-ORP	Sharon Braswell, Ecology	Barbara Harper, CTUIR
Lori Gamache, DOE-ORP	Robbie Biyani, Ecology	PK Brockman, CH2M Hill
Billie Mauss, DOE	Madeleine Brown, Ecology	Dan Parker, CH2M Hill
Delmar Noyes, DOE-ORP	Laura Cusack, Ecology	Cathy McCague, EnviroIssues
Steve Wiegman, DOE	Jeff Lynn, Ecology	Emily Neff, EnviroIssues
	Ginger Wireman, Ecology	
	Gail Laws, WDOH	
	John Martell, WDOH	