

FINAL MEETING SUMMARY
HANFORD ADVISORY BOARD
TANK WASTE COMMITTEE MEETING
January 8, 2014
Richland, WA

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

Opening

Dirk Dunning, Tank Waste Committee (TWC) chair, welcomed the committee and introductions were made. The committee approved the November meeting summary with no edits to the distributed draft.

Status Update on Tank Farms*

Agency presentation

Glyn Trenchard, U.S. Department of Energy – Office of River Protection (DOE-ORP), provided an update on Hanford’s Tank Farms (Attachment 2). The presentation focused on DOE’s retrieval progress

* Please see Attachment 1 – Transcribed Flip Chart Notes for key points/follow up actions recorded during the committee discussion.

and integrity of the tanks with a focus on tank AY-102. In his presentation, Glyn noted the following points:

- DOE has made considerable progress in retrieval of the single-shell tanks (SSTs). Ten of the 16 C-Farm tanks have been retrieved to regulatory standards; six under the Tri-Party Agreement (TPA) and four Consent Decree tanks.
- DOE evaluated six SSTs that were showing decreasing liquid levels in February 2013. Tank T-111 was the only tank found to be leaking. In response, DOE initiated enhanced monitoring practices and procedures.
- Double-shell tank (DST) AY-102 is undergoing weekly inspections to monitor for any changes in the leak. There is a leak detection pit and drain system in place.
- A pumping plan for AY-102 was submitted to the Washington State Department of Ecology (Ecology) on June 14, 2013. This plan proposed a 19-month timeline for procuring and installing out-of-tank equipment.
- A Leak Expert Panel Review is conducting a review of the AY-102 Leak Assessment as well as the extent of condition of structural and leak integrity.

Agency perspective

Jeff Lyon, Ecology, presented Ecology's perspective on the tank farms (Attachment 3). In his presentation, Jeff noted the following points:

- Ecology believes good efforts were made to remove as much waste as possible with C-110 with the technologies applied and hopes C-112 will share similar success.
- Tank T-111 is leaking at a rate of approximately 240 gallons per year with no actions for waste retrieval in process.
- Ecology has proposed improvements to interim stabilization of the tanks; including using evaporation from tanks without active ventilation systems, increasing use of active ventilation, and installing pumping systems into selected tanks with drainable liquid.
- The Defense Nuclear Facilities Safety Board (DNFSB) has issued a number of recommendations to DOE regarding DST AY-102. Ecology is concerned that additional leakage could block enough under-tank ventilation slots to adversely impact ventilation capability.

Committee Questions and Responses

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

Q. What are the additional precautions for the SSTs referred to by DOE?

R. [DOE-ORP] The additional precautions are different for each tank. All tanks that have been classified as assumed leakers require additional precautions. DOE and Ecology have done selected retrieval methods and identified limitations to those retrieval methods for each tank, which include considerations such as not filling specific tanks above certain levels.

C. Storms and other atmospheric changes can cause variation in the level of materials within tanks. Tanks also experience diurnal and seasonal changes that affect ventilation.

C. DOE has stated there that there is no evidence of leaking in six of the SSTs using insufficient data. Seven tanks have decreasing liquid levels, which DOE believes can be explained by evaporation. The intrusion rate is unknown for these tanks so there cannot be a definite determination on whether the tanks are leaking or not.

Q. Tank T-111 was leaking in the past and is now known to be leaking again. Why is DOE assuming the tank has not been leaking the entire time?

R. [DOE] DOE completed interim stabilization of all tanks in the late 1970's and again in the late 1990's when all pumpable liquid was removed. Any tank that could not be proven to be sound was assumed to be a leaker. The list of potentially leaking tanks was conservative and DOE is now working through that list to verify or disprove assumptions.

Q. Is the 19-month countdown initially proposed for pumping Tank AY-102 still on schedule?

R. [DOE] DOE's proposal was to pump AY-102 following a 19-month timeline unless the level of liquid clearly begins to decrease or waste is found outside of the secondary tank. Equipment is on site right now to remove pumpable liquid from the tank but DOE does not currently have the capability to remove the supernate. There have been some delays to the originally proposed timeline because of budget.

Q. Will there ever be the potential for a major chemical reaction within the tanks as the evaporator campaigns are occurring?

R. [Ecology] Compatibility assessments are always conducted whenever an evaporator campaign is planned to ensure contaminant concentrations are known and to maintain specific safety margins.

R. [DOE] The tanks are routinely sampled and DOE adjusts the databases to include sampling results, including any loss of liquid. There are also additional precautions DOE takes during evaporator campaigns such as adding caustic liquids to maintain tank integrity.

Q. Does DOE have the capability to pump materials out of the annulus space today?

R. [DOE] There is an Emergency Pumping Guide that outlines procedures to follow in the event that any liquids are found in the annulus. Emergency pumping equipment is available and ready for use at the Hanford Site. DOE is working with Ecology to revise the emergency pumping guide since it was written with a focus on leaks occurring on the sides of tanks while the leak in AY-102 is at the bottom of the tank. The Emergency Pumping Guides includes a 10-14 day timeframe to remove materials from a leaking tank.

C. DNFSB has suggested that if ventilation slats are being lost, DOE may want to consider pumping the tank quickly.

C. Tank AY-102 was constructed in bad weather, which created construction challenges. Modifications to how the inner tank was stress relieved were required. From the slides presented by DOE, it appears that the secondary detection system is connected to the secondary containment system. The secondary tank is very thin and was never stress relieved so if there is a leak in that area, additional materials such as rainwater can enter the space and cause an overflow in tank waste materials.

Q. Is DOE analyzing the potential for an event such as a restriction of air flow in AY-102?

R. [DOE] Evaluations consider worst-case scenarios; a complete loss of ventilation is considered as part of the Documented Safety Analysis.

C. Any analysis of risk should include the public perception of risk. The public is less interested in the technical details and are more concerned with what is happening immediately to address the risk. The public and Congress have the perception that the Hanford Site does not address problems immediately

R. [DOE] Public perception is very important; the public wants to understand what actions DOE is taking to protect human health and the environment. DOE follows a risk-based approach in determining remediation actions and must also allocate budget for all activities. Tank integrity and protection of workers are very important.

TWC did not identify any immediate actions on this topic but the issue managers will continue to follow the issues and will work with DOE to receive updates as new information becomes available. The committee would also like to discuss revisions to the Emergency Pumping Guide. TWC members also expressed interest in possibly attending the Expert Panel Meetings; DOE will check on that possibility.

Follow-up on DOE Framework*

Introduction

* Please see Attachment 1 – Transcribed Flip Chart Notes for key points/follow up actions recorded during the committee discussion.

Liz Mattson referred the committee to two handouts for reference during the discussion of the Hanford Tank Waste Retrieval, Treatment and Disposition Framework (Framework) document: summarized comments from the December Hanford Advisory Board (Board or HAB) sounding board grouped into possible advice concepts (Attachment 4) and a summary of recent Board advice regarding issues discussed in the Framework (Attachment 5). Liz said the issue managers for this topic are proposing to write advice to DOE and Ecology using concepts from the sounding board. Ecology specifically asked the Board to identify any concepts it does not support in the Framework. The ultimate goal of Board advice would lead to the protection of human health and the environment via successful treatment of waste, to a standard that is at least as good as glass.

Committee Questions and Responses

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

C. Concerns about the lack of schedule and cost from the Framework was mentioned repeatedly during the sounding board meeting. Construction of the Waste Treatment and Immobilization Plant (WTP) has been on hold for a year and a half. The Framework includes a discussion of possible early start-up of low-activity waste (LAW) treatment and also states that there should be additional studies; plus, it identifies at least six new facilities that may need to be constructed. There will likely be a large increase in the cost and a much longer timeline to complete work outlined in the Framework. Congress may simply stop funding the efforts if the budget becomes too large. However, the Framework is an important and useful document since the WTP situation does need to be reassessed.

C. The Board supports early LAW and has issued advice regarding that in the past.

C. Transuranic (TRU) waste retrieval should also be considered. Waste should be disposed of at the Waste Isolation Pilot Plant (WIPP) if it meets regulatory approval and can be classified as TRU. The Board is sensitive to the concerns of New Mexico and would support TRU retrieval to WIPP only if New Mexico concurs.

R. [Ecology] Classification of waste as TRU does not solely rely on waste characterization; the process history of the waste must be evaluated. The first step in the process is to determine that the waste is not high level waste (HLW) because HLW cannot be sent to WIPP. Once waste is determined to not be HLW, it may assay out as TRU and could then be sent to WIPP. The definition of waste is very dependent on how that waste was processed. Ecology is concerned about undertaking a process to identify waste as TRU that could be very time consuming when there may be a more immediate solution to addressing leaking tanks. Tanks currently thought to be TRU do not currently represent a significant risk to the environment compared to the risk from leaking tanks. Ecology wants all tanks retrieved, especially those that pose near-term threats.

C. The Board's primary focus is to remove waste from tanks that may be leaking. Material that can be classified as TRU should be disposed of at WIPP if New Mexico is willing to accept that material; if not the Board would like that material to be classified as HLW and go through the vitrification process. The Board is concerned about any recommendations to classify tank waste as mixed-LAW and bury it in the near-surface at the Hanford Site.

C. The way waste is classified should be changed; definitions are not rational and are not based on risk levels of activity. Classifications should be useful for decisions on treatment and disposal. Changes in these definitions would need to take place at the congressional level. The Board has the waste definition topic on the 2014 Work Plan and will be discussing the issue. The Board should consider offering separate advice regarding waste classification.

C. Construction of the WTP was delayed for a year and a half and the issues are still not well-understand. The Board is unclear about which teams are working on which issues and how the technical problems can be resolved. DOE has proposed another alternative path forward but there is not a lot of information on the big-picture HLW treatment facility. What is the status of that facility? How are the technical issues being resolved? Will Congress be willing to fund a major increase in cost? Will there need to be a complete re-design and re-build of the entire facility?

R. [DOE] The Board should break some of the topics outlined in the Framework document into smaller discussions and hear briefings from DOE. There is a high-level path forward for waste treatment that can be outlined for the Board.

C. There are ongoing concerns about unresolved issues with quality assurance and quality control at WTP that the Board may want to consider. A number of high-profile workers at the Hanford Site, including the chief engineer, have recommended that these issues be resolved before additional money is spent to fix the WTP.

C. The Board is concerned about DOE's progress in resolving the technical questions and does not have information about the types of evaluations that have been completed. System Plan 7 would be a good starting point for some of these discussions but efforts are currently on hold. DOE has not contributed any scenarios and Ecology's scenarios are relatively inconsequential, focusing more on high-level programmatic issues. The consequences of proposals in the Framework document could be included as part of the system planning efforts and the Board could include that specific recommendation in its advice.

R. [DOE] DOE has run a lot of models, including direct-feed LAW but has not run every eventuality outlined in the Framework. Documentation is available on the conceptual designs in the Framework.

R. [Ecology] Ecology has selected five scenarios for System Plan 7 and those do include a scenario for direct-feed LAW as well as the impacts of leaking tanks on the system. Ecology does not believe these are trivial scenarios.

C. When will consideration be given to where waste might be stored and the risk assessment tool that would be used to determine the needs of the Environmental Restoration and Disposal Facility (ERDF)? What will happen if an orphan waste stream is created that cannot be classified as LAW or TRU? Should that type of information be included in the Framework document?

R. [Ecology] One of the outstanding questions regarding TRU classification is what happens with retrieved waste that does not assay out to be TRU and has also been determined to not be HLW. That waste could potentially be classified as mixed low-level waste but that waste would not be vitrified and would be disposed of in the near-surface at the Hanford Site. Ecology has expressed concern about this issue. Ecology believes that all waste remaining on the Hanford Site should be vitrified.

C. The Board needs to keep concerns at a high policy level and identify what the Board is concerned about and why. Board members expressed concern that the Framework did not meet expectations; the Board needs to identify where these expectations came from.

C. The Board has already offered advice covering a number of these issues. How should the Board reiterate previous statements from past advice into any advice on the Framework document? Board advice on the need for additional DST space is still timely and relevant for this discussion.

C. There may not necessarily be a need for new DSTs; the need is for more DST space. Direct-feed LAW may provide a quicker pathway to obtaining that space than building additional tanks. The Board should ask DOE for a projected timeline of DST construction versus start-up of direct-feed LAW. Both of those pathways offer additional space for waste storage.

C. The Board still believes more DST space will be needed regardless of the path forward DOE proposes since there is no timeline at this point. There are also concerns that if funding for TRU becomes available those efforts could delay moving forward with WTP. The Board should be very cautious in what it recommends. Frank Marcinowski, DOE – Office of Environmental Management, has stated that there will be a preference given to waste that has an avenue for disposal. Decisions on orphan waste around the DOE complex could trump work occurring at the Hanford Site.

There is a large issue manager group that will work on refining the advice using the sounding board discussion and conversation heard today. The issue managers will have at least one call to further discuss the draft advice. A first draft will be distributed to the committee prior to the February TWC meeting so members have time to review it and bring their comments to the meeting. The goal would be reach committee consensus at the February TWC meeting so the advice can be brought to the full Board in March.

Per DOE recommendation, TWC asked agency staff to provide a list of recommended topics for a DOE Framework Topic Briefing series and the timeline for when such discussions might be appropriate.

Briefing on the Tank Closure and Waste Management Environmental Impact Statement Record of Decision*

Agency presentation

Mary Beth Burandt, DOE-ORP, gave a briefing on the Tank Closure and Waste Management (TC&WM) Environmental Impact Statement (EIS) Record of Decision (ROD) (Attachment 6). She said this is the first in a series of RODs; the schedule for when additional RODs might be issued has not been determined. Mary Beth reviewed what is included in the scope of this ROD and some areas that are outside the scope. This document does not make decisions on supplemental treatment for LAW, TRU tanks, or considerations for off-site waste, among other items. The ROD does reiterate the decision for 99% retrieval of waste by volume. There is a long list of alternatives that are discussed in the ROD; the recommended alternative is 2b and the document includes a long list of activities that are required to support this alternative.

Agency perspectives

Jeff Lyon, Ecology, said the ROD is helpful from a permitting perspective. Ecology had an issue with groundwater modeling in the previous Solid Waste EIS and sued DOE over the issue. Ecology now feels comfortable with the modeling in the TC&WM EIS and continued the permitting process. Ecology is disappointed that supplemental treatment was not included in the ROD although it can be added in the future. The question is whether the ROD can encompass potential new DSTs and where that would fit into permitting.

R. [DOE] The EIS does include an analysis of 84 new DSTs and also an analysis of other additional DST scenarios. The preferred alternative is written with storage capacity in the ROD; if the decision is made to build new DSTs the agencies can refer to the analysis to determine appropriate number to build. The ROD would need to be amended to include any additional DST space.

Committee Questions and Responses

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

C. How does the ROD encompass the facilities proposed or suggested in the Framework document?

* Please see Attachment 1 – Transcribed Flip Chart Notes for key points/follow up actions recorded during the committee discussion.

R. [DOE] That discussion is included in Appendix E under direct-feed LAW and includes the available information when the document was drafted. Whatever the path forward is determined to be, there will need to be an amendment to the ROD.

Q. The EIS does not analyze the effect of pump and treat in the future. How would this fit into the comprehensive analysis?

R. [DOE] The analysis does not assume pump and treat although DOE did conduct an analysis of pump and treat for 200 West. Some information on groundwater pump and treat is included under the cumulative information as part of the context but not part of the decision.

C. Analysis of Iodine-129 varies widely and most values are higher than those used in the EIS. Off-site waste coming to the Hanford Site could be high in iodine content, which will lead to higher concentrations of iodine in the environment than other contaminants. It is important that measures for iodine are accurate.

R. [DOE] DOE and Ecology are in general agreement about the amount of iodine in the tanks. There was also agreement on the analysis in the EIS. Measures of iodine have higher uncertainty and there is more information in the final ROD than there was in the draft. The document states that the agencies believe there is enough of a concern about technetium and iodine already at the Hanford Site that bringing in off-site waste with these contaminants is not advisable. After additional analysis, there was some discussion on whether the iodine and technetium levels for off-site waste could reach a low enough number that it would cause less concern at the Hanford Site. The draft does not reach any conclusions; it only analyzes the issue.

TWC did not identify any immediate next steps on this topic and will wait for additional RODs.

Committee Business*

3-month work plan

In February, TWC will request a meeting to develop advice on the Framework; discuss DOE's response to the Board's advice on DSTs; and have a briefing from Ecology on the direct feed LAW scenario in System Plan 7. The two-hour glass tutorial was moved to March. TWC would also like to discuss TRU and waste classification, likely in March. The Health, Safety and Environmental Protection committee will likely be discussing the topic of flammable gas during their committee meeting, which is a joint topic with TWC.

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TWC noted that advice on TRU might be timely in September since there are typically higher-level agency personnel that attend the Board meetings.

The committee reviewed the February meetings topics table and decided not to hold a January committee call. Hillary will send a Doodle poll to issue managers for the Framework document to schedule a call. The draft advice will be sent to the committee by February 3.

Attachments

- Attachment 1: Transcribed flipchart notes
- Attachment 2: DOE-ORP update on Hanford’s Tank Farms
- Attachment 3: Ecology’s perspective on the tank farms
- Attachment 4: HAB sounding board concepts on the Framework document
- Attachment 5: Summary of recent Board advice on issues in the Framework document
- Attachment 6: TC&WM EIS ROD

Attendees

Board members and alternates

David Bernhard	John Howieson	Jerry Peltier
Richard Bloom	Steve Hudson	Maynard Plahuta
Allyn Boldt	Theresa Labriola (phone)	Dave Rowland
Tom Carpenter (phone)	Pam Larsen	Mecal Seppäläinen (phone)
Shelley Cimon	Susan Leckband	Dick Smith
Shannon Cram (phone)	Liz Mattson	Bob Suyama
Gary Garnant	Melanie Myers	Jean Vanni
Rebecca Holland	Alex Nazarali	

Others

Mary Beth Burandt, DOE-ORP	Jim Alzheimer, Ecology	Todd Nelson, Bechtel
Tom Fletcher, DOE-ORP	Dieter Bohrmann, Ecology	Nicole Addington, EnviroIssues
Jeremy Johnson, DOE-ORP	Suzanne Dahl, Ecology	Hillary Johnson, EnviroIssues
Michelle Sears, DOE-ORP	Jeff Lyon, Ecology	Sharon Braswell, MSA
Glyn Trenchard, DOE-ORP	Nancy Uziemblo, Ecology	Tom Rogers, W-DOH
Kim Ballinger, DOE-RL	Ginger Wireman, Ecology	