

Waste Treatment and Immobilization Plant Communications Approach

Draft White Paper – last revised: 3/12/16

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Summary

The Hanford Advisory Board, following discussions conducted by the Board's Tank Waste, and Public Involvement and Communication committees with the U.S. Department of Energy, Office of River Protection (DOE), prepared this assessment and these recommendations for a communications approach regarding the High Level Waste (HLW) Authorization to Proceed and the Low Activity Waste Pretreatment System (LAWPS). The review was performed at the request of the DOE Waste Treatment Plant (WTP) Assistant Manager, as described in the Hanford Advisory Board 2015 and 2016 Work Plans. Specifically, the Committee's discussions focused on the two products requested by DOE:

- A description of the Board's perception (local and regional) of the High-Level Waste (HLW) Authorization to Proceed and Direct Feed Low Activity Waste (DFLAW) Project, and
- A review of information about HLW and DFLAW that has been provided to the Board and propose approaches and techniques that may be used to effectively communicate information related to these facilities with both highly technical audiences and the general public.

The results of these discussions are addressed separately in this document.

This document is not a communication plan. It is an assessment by the Board of the current status of the Board's and the public's perception of the WTP facility, and a sampling of the information needed by the public to better understand DOE activities related to the WTP path forward. While there is a marked level of inherent uncertainty that exists in these highly complex projects, it is hoped that this communication approach will serve as an informational baseline document for future stakeholder outreach.

The following white paper provides suggestions for WTP Management and Communications staff as they continue to update their comprehensive communications plan. As noted, there is much uncertainty regarding the path forward for WTP. This uncertainty will be a challenge to convey, and the DOE Communications Plan will need to consider strategies for working through these uncertainties. Of course, the strategies that DOE is currently following will likely continue to evolve as the work on the WTP progresses.

In general, the Board believes the public's perception of the HLW Authorization to Proceed and DFLAW Project can be summarized as follows:

- The WTP's history of delays, lack of transparency, technical difficulties, and cost overruns has **damaged** DOE's overall credibility and believability.

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- The Board's is **skeptical** of the of the HLW Authorization to Proceed. The history of technical issues with the HLW and Pretreatment facilities has stopped or greatly slowed WTP progress.
- The Board's perception of the DFLAW Project is **hopeful**. The DFLAW shows evidence that DOE may begin to vitrify some of the Tank Waste significantly earlier than the current operational date of the WTP.

Some potential techniques that can prove useful to effectively communicate WTP status and information are presented in summary form in the following Waste Treatment and Immobilization Plant Communications Approach Tools and Techniques Table, and are discussed in greater detail within the document.

WASTE TREATMENT AND IMMOBILIZATION PLANT COMMUNICATIONS APPROACH TOOLS AND TECHNIQUES

Audience	Knowledge Level	Suggested Topics	Form of Delivery	Suggested Follow Up	Next Steps
General public <i>Such as those that go to the Hanford Reach Museum, on Hanford Site Tours</i>	Diverse	<ul style="list-style-type: none"> River Protection Project Overview Tank Farm 101 WTP 101 	Displays Video Kiosk Speakers	Questionnaire Information to request a speaker with the types of presentations available Unanswered question follow-up cards	Follow up with requests Speaking engagement
Employees	Diverse	<ul style="list-style-type: none"> Safety How their jobs fit into the big picture of RPP 	Face-to-face meetings (small and large) One-on-one Focused groups	Question and Answer Suggestion forms Dialogue	Follow up with key individuals
Oregon Hanford Cleanup Board	Medium to High	<ul style="list-style-type: none"> Current status on events pertaining to HLW and DFLAW/LAWPS 	In person briefings Articles for distribution	Question and answers Dialogue with Board coordinator	Continuous updates as new information becomes available

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Audience	Knowledge Level	Suggest Topic	Form of Delivery	Suggested Follow Up	Next Steps
Interest Groups represented by HAB Members	Diverse	<p>Topics could be based on the “foundation” concept.</p> <p>Focus on what has changed that indicates that the path forward is not going to repeat the mistakes of the past.</p> <p>Bigger picture discussion about treatment of tank waste start to finish and the timeline and cost of current proposals.</p>	<ul style="list-style-type: none"> • Articles in newsletters, websites • In person discussions or briefings • Panel discussions 	<p>Questions and answers</p> <p>Where to find additional information</p>	<p>Solicit ongoing input about materials for publication – what is clear, what is unclear, what is missing.</p> <p>Continued dialogue with HAB representative</p>
Hanford Advisory Board	Diverse	<ul style="list-style-type: none"> • Continued updates at committee and Board levels • One-on-one meetings (like breakfast meetings) between AM/Deputy AM and Issue Managers • Evening outreach sessions on topics of interest – shared effort between HAB and RPP 	<ul style="list-style-type: none"> • Briefings • Displays at HAB meetings • Videos • One-on-ones • Evening educational sessions 	<p>Questionnaire</p> <p>Offer speakers</p> <p>Provide and post additional information</p>	<p>Debrief with HAB and committee members on what worked and didn’t, how to make improvements.</p> <p>Solicit ongoing input about materials for publication – what is clear, what is unclear, what is missing.</p> <p>Speaker Bureau</p> <p>Articles sent to HAB members</p>

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Audience	Knowledge Level	Suggest Topic	Form of Delivery	Suggested Follow Up	Next Steps
Colleges/Universities <i>Identify a group of Freshman and follow them through their Senior year</i>	Low	<ul style="list-style-type: none"> • Build that foundation of information • Tank Farms • WTP – general • HLW/PT Technical Issues • DFLAW/LAWPS • One-System Approach 	<ul style="list-style-type: none"> • Identify an organization and 3-5 people responsible • In person meetings • Visit classrooms • Continued dialogue for 4 years or more 	Dialogue Questionnaires to them and that they can use to gain information to provide back to ORP Potential summer Internships	Work with professors Building relationships Progress briefings To develop either future employees or better understanding with youth about Hanford cleanup and what it will take.
Technical Organizations/ Societies	High	Very specific and focused discussions	<ul style="list-style-type: none"> • Briefings • Focus groups on specific topics for feedback 	Follow up with the group on how their input affected a decision	Continuous dialogue

Detailed Discussion

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Review information about HLW and DFLAW that has been provided to the Board and propose approaches and techniques that may be used to effectively communicate information related to these facilities with both highly technical audiences and the general public. 8

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Describe the Board's Perception of the High-Level Waste (HLW) Authorization to Proceed and Direct Feed Low Activity Waste (DFLAW) Project

Overview

Over the years, the Board believes that the public, in general, has formed a perception of the Department of Energy, Office of River Protection's (DOE) lack of progress toward the safe immobilization of Hanford's tank waste. The Waste Treatment and Immobilization Plant's (WTP) history of delays, lack of transparency, technical showstoppers, and cost overruns have **damaged** DOE's credibility and believability.

This view is based on a long history of: leaking waste tanks, tank vapor and related safety issues in the Tank Farms, and work stoppages and delays in WTP construction progress.; Critical public statements by congressional and state leadership and significant Governmental Accountability Office reports and Defense Nuclear Facilities Safety Board issues concerning the WTP technical design, safety culture and the suite of issues outlined above have also broadcast the extent of challenges to successful, timely and cost-effective startup of the WTP. Finally, Washington State lawsuits over safety and whistleblower concerns and missed major TPA construction milestones coupled with the impacts of the information restrictions imposed during the extended Consent Decree negotiations have also blunted public respect for DOE reliability.

The fast track approach to the construction of the WTP, with numerous construction stops, starts and delays due to design and technology issues has reinforced the feeling that DOE's path forward is flawed. The imposed secrecy on the expert technical teams charged with resolving the WTP technical issues; long periods of little or no public information during the cycle of legal actions and court imposed restrictions. Also the lack of DOE participation at many public meetings has reinforced the public feeling that DOE is not fully sharing information on the numerous issues surrounding the WTP. The on-going litigation between Washington State and DOE is an issue that greatly impedes the communication of progress being made at the WTP.

It will be a challenge for DOE to attain the public's trust and support. The Board believes this trust can be rebuilt, but only if DOE can demonstrate that it fully understands all of the issues and is making measurable progress on a workable and achievable path forward.

The Board is aware that review and approval by DOE Headquarters and the Department of Justice are routinely required before presentations/information can be released for public access and that this process restricts the timeliness and responsiveness of the local DOE office in responding to the Board's and the public's requests for information. However, once these restrictions are lifted, DOE should be prepared to actively communicate what they can and be fully prepared to discuss the full scope of the vitrification process from the origins of the waste in the tanks to its final disposal in a deep geologic repository.

High-Level Waste

The Board is **skeptical** of the HLW Authorization to Proceed. The general public does not understand the HLW Authorization to Proceed process. Technical issues related to the high-level waste vitrification facility have on two occasions stopped or greatly slowed construction progress. DOE was previously directed by the Court to commit to a schedule for WTP construction completion. Due to a lack of WTP progress, the WTP completion schedule is once again the subject of legal action and is entangled in information restrictions imposed during the on-going Consent Decree discussions.

Direct Feed Low-Activity Waste (DFLAW) Project

The Board finds **hope** in the DFLAW Project. Given that the State of Washington does not believe the WTP can be fully operational prior to 2034 (and DOE maintains 2039 under the best-case scenario), DFLAW provides hope that at some point in the future, DOE may begin to vitrify the low-activity component of some of Hanford's tank waste.

This DFLAW approach, as proposed in the September 24, 2013 Hanford Tank Waste Retrieval, Treatment, and Disposition Framework (Framework) document is promising. This document describes a strategic framework for addressing the risks and challenges to completing the DOE mission by implementing a phased approach. The approach outlined in the document proposes to construct the necessary facilities to start the immobilization of the low activity component of the tank waste through the use of the DFLAW process. By separating and vitrifying a significant portion of the tank waste as low level waste, DOE gains time. Once this process is fully operational, there is the potential to create some much needed capacity in the existing double shell waste storage tanks. The early operation of the DFLAW would allow treatment of tank waste while work continues to resolve the technical issues impacting the construction of the Pretreatment (PT) and High-Level Waste (HLW) Facilities.

Review information about HLW and DFLAW that has been provided to the Board and propose approaches and techniques that may be used to effectively communicate information related to these facilities with both highly technical audiences and the general public.

Overview

The Framework document describes a strategic framework for addressing the risks and challenges to completing the DOE mission by implementing a phased approach that would:

- Begin immobilization of the tank waste as soon as practicable through the DFLAW process.
- Process transuranic (TRU) tank wastes for disposal at the Waste Isolation Pilot Plant (WIPP).

- Resolve technical issues for the Pretreatment (PT) and High-Level Waste (HLW) Facilities, including determining how to adequately mix and sample the waste prior to processing, to enable design completion, and the safe completion of construction, startup and operations of these facilities.

The complexity of both the waste itself as well as the WTP facilities has led to difficult, and to date, unresolved technical issues for portions of the PT Facility and to a lesser extent the HLW Facility. Because the current design of WTP anticipates that all waste will be processed through the PT Facility, immobilization of any waste could not occur per the current plan until the technical issues involving the PT Facility are resolved.

DOE's current emphasis is to focus on the DFLAW approach and does not appear to be pursuing the disposal of tank waste in WIPP alternative.

WTP Communications Approach

The Board attempted to answer questions as to who should be communicated with, how often and best ways to provide information. HAB discussions revolved around what this communications approach could entail, and include:

- Highlight areas for the WTP Communications Approach focused on three topics, and help DOE understand the best way to communicate the information in understandable terms. The topics include:
 - HLW Safety Design Strategy approval and implementation
 - HLW Authorization to Proceed with full Production Engineering
 - Direct Feed Low-Activity Waste (LAW) Initiation of Pre-Conceptual Design and Engineering
- The WTP Communications Approach should focus on techniques for public involvement and communications rather than specific technical information because the three topics outlined are ready for communications sooner than other WTP components. To be able to talk about moving forward in these areas, DOE will have to talk about what went wrong before. The news does not always need to be positive; progress is being made.
- Immediate communications can focus on progress being made in the WTP complex, and the TPA agencies can provide additional information once the Consent Decree issues are resolved. Information can be provided in stages.
- The approach should not determine how DOE communicates with the tribes and the Defense Nuclear Facilities Safety Board. DOE will be adding staff to their communications department and should invest a representative to work with these organizations on a regular basis. The approach should help DOE fulfill specific engagement requirements.
- The Oregon Department of Ecology (ODOE) developed communication materials on tank waste and tank waste treatment approximately 15 years ago, these could be reviewed, updated and used again.
- A focus group could be used to help inform what information is relevant to the public and methods for communicating it. ODOE has had successful focus groups ranging from large to small, from national issues to reviewing a fact sheet.

- Public open houses on LAW and HLW could use visual flowcharts to demonstrate how they fit into the larger WTP picture, but the information would focus only on LAW and HLW.
- A template for communicating familiar information can be developed to help streamline methods for communication; concrete examples can be presented.
- It is important to communicate a concrete schedule and budget for the completion of WTP, as the public, stakeholders, and contractors, have been repeatedly notified about delays and increase in costs.
- DOE should be open about the timeline and technical issues, as well as provide a feedback loop.

Consent Decree

Washington State lawsuits over missed major TPA milestones coupled with the impacts of the information restrictions imposed during the extended Consent Decree negotiations have also dampened public respect for DOE's creditability.

The on-going litigation between Washington State and DOE is an issue that greatly impedes the communication of progress being made at the WTP. The Board is aware that review and approval by DOE Headquarters and the Department of Justice are routinely required before presentations and information can be released for public access. This process restricts the timeliness and responsiveness of the local DOE office in responding to the Board's and the public's requests for information. However, once these restrictions are lifted, DOE should be prepared to actively communicate what they can and be fully prepared to discuss the full scope of the vitrification process from the origins of the waste in the tanks to its final disposal in a deep geologic repository.

Some of the ideas discussed include:

- The time during the Consent Decree litigation should be used to prepare for an abundance of open communication when legal issues are resolved. Now is the time to prepare communications and think about structuring information, though the public should not be bombarded with too much information all at once.
- The previous lack of transparency on WTP issues and lingering questions about the Consent Decree only serve to damage the creditability of DOE.
- The Consent Decree has provided an excuse not to share information. To have a truly meaningful communication, DOE has to be able to talk about everything, realizing that the Board and the public want DOE to be successful.
- The process would be easier if the TPA agencies would commit to what information they are willing to make public, and determine the best way to communicate it.
- Any information not related to the Consent Decree currently under litigation, should be communicated to the public.

Tailor Presentations to the Audience Being Addressed

Building a WTP Communications approach will be complicated due to differing levels of background information and context. Building that foundation can also be easily disrupted when an event or other

recent news events diverts the public's attention from the planned presentation. The local DOE offices have little ability to address items that are off topic during formal presentations or public meetings, as everything is required to be pre-approved by DOE Headquarters.

Some of the approaches discussed include:

- Determine what information the public will be interested in, and determine how the TPA agencies can best develop key messages and methods for engagement.
- The TPA agencies should do a better job communicating with the community-at-large apart from regulatory requirements.
- It was noted that DOE declined to attend recent community-led meetings, while Ecology and U.S. Environmental Protection Agency (EPA) representatives attended. DOE should attend meetings where Hanford information is being provided and discussed.
- Information about Hanford should start with the least informed member of the public such as the Washington state resident who does not know Hanford exists. Others are uneasy because they only hear the bad news stories such as leaking tanks. Information should start with how DOE is fixing the leaking tanks and moving forward to safely stabilize the waste. The public does not understand that vitrification has been successful at other DOE sites; it is a proven process, though being done on a larger scale at Hanford than anywhere else, and with waste that is not quite understood. In order to resolve the issue of limited tank space, the public needs to understand it is either vitrification or build additional tanks.
- DOE should leverage community resources, like the Hanford Reach Museum, to display and provide information. They should also consider how to respond to bad or incorrect information. Tax payers deserve information, as they are the ones funding cleanup. DOE needs to be more positive about the public and forthcoming with information, because they are not the enemy.
- Hanford documentaries could be made to run on television, not just YouTube, and the Hanford Communities frequently make videos for PBS to talk about Hanford. It was noted that DOE has the Hanford Story series and specials on the History Channel.
- It is okay to have bad news, as asking the public to believe everything on site is going well is not the goal. Share actions being taken to address problems and issues at Hanford with the public. Schedules and plans for work at Hanford change when there are issues or delays, and communications can help the public understand the new path forward.
- At times a speaker may be asked a question that he or she does not feel confident or qualified to answer. The speaker usually promises to 'get back to the questioner' with an answer to their question. Depending on the speaker, this may or may not happen. To facilitate the keeping of this commitment, a process needs to be created, where speakers are supplied with pre-printed cards that can be handed out to the individual asking the unanswered question. The questioner fills out the information requested on the card (their question, their contact information & the date) and returns the card to the speaker. It now becomes the responsibility of the speaker to either contact the questioner with an answer, or forward the question card to the Communications Organization. Depending on the question, the Communications Organization will determine and contact the questioner with the correct response. This will also provide information to the Communications

Organization on what areas potential audiences are interested in knowing more about, or questions future speakers should be prepared to answer.

Effective Communication with a General Audience

Effective communication with a general audience requires establishing common background information and inviting dialogue about the path forward and asking for feedback and questions. Too often DOE overlooks both the general kinds of questions people want answered as well as the kinds of answers they are being provided in social media. Presenters should be provided information about what the audience is interested in, prior to a scheduled meeting and be prepared to discuss that subject in non-technical, jargon and acronym free language.

Given the history of delays, technical showstoppers, and cost overruns, special attention should be given to establishing what is different in the current environment that will negate the previous pattern.

Effective Communication with a Technical Audience

Effective communication with a technical audience needs to engage out-of-the-box thinking and invite participation in puzzling through the challenges inherent in solving the technical challenges at the High-Level Waste and Pretreatment Facilities. The backgrounds and levels of technical knowledge of the audience can vary greatly depending on the topic to be addressed. The presenter should identify the nature and background of the subject being addressed before launching into the topic proper. This tends to produce a more disciplined discussion and a more engaged audience.

Effective Communications with Office of River Protection Workers

One audience that should not be forgotten is the Tank Farm workers, the Vitrification Plant workers, and other WTP complex employees who need to understand how the work that do fits of into the bigger picture. A detailed understanding by each member of the workforce of the organization's overall and near-term goals and activities, of which they are a part, will allow them to be a strong, informed communications representative of the project. An informed and supportive workforce can be a very effective vehicle for communicating with friends, neighbors and the public in general.

High-Level Waste

The High Level Waste (HLW) Facility function is to vitrify the HLW slurry from the WTP Pretreatment Facility into a stable glass form. This vitrified glass is than stored in sealed containers for future shipment to an offsite repository.

Engineering, construction, and procurement activities for the HLW facility have been limited since 2012 due to unresolved technical issues. This technical issues concern the pulse-jet mixer performance, erosion-corrosion validation, vessel structural integrity, high-efficiency particulate air filter adequacy, and design and operability review vulnerabilities.

The HLW was authorized to begin production engineering in 2014. Currently process improvements, technical and design issue resolution, and nuclear safety basis alignment are being implemented.

Due to this significant delay in facility construction, Bechtel National is in the process of revising the WTP project baseline. The WTP completion schedule is the subject of legal action and is being subjected to information restrictions imposed during the current Consent Decree discussions.

Some of the ideas noted during these discussions were:

- Focus on how to communicate about HLW and the HLW facility, and the best ways to communicate that the facility is back in full construction after the resolution of technical issues.
- The approach should also address how to tell the story of how HLW connects to WTP, and how the whole system works together.

Direct Feed Low Activity Waste Project

In order to begin the process of vitrifying waste as soon as practicable and at the same time creating much needed waste tank capacity, the DFLAW project was created.

An alternative approach for immobilizing waste as soon as practicable, while simultaneously resolving the remaining technical challenges, was identified. By adopting the DFLAW option, in which the waste bypasses the PT Facility, waste immobilization could begin significantly earlier than if treatment of the waste is delayed until all technical issues are resolved and the PT and HLW Facilities are completed.

DOE should communicate why it is important to do the Direct Feed LAW, where the resulting glass will be disposed, and why it will be better solution in the interim and the long term. The information should be outlined in a fact sheet the public can take away with them, like the Vit-101 and PT fact sheets.

One-System

The One System concept could be usefulness as a communication tool. The One System approach should reassure the public that efforts are underway to integrate and address all of the various aspects required to support facility operation, such as: permits, procedures, operations, supporting facility modifications, etc.

Regional, public open houses are the best format for presenting complex information, because participants can move around the room to address their own different levels of information. At these open houses, the One System presentation can be used to show how all the pieces will work together. Subject matter experts can be available at each stations to provide the level of information to satisfy each person visiting their station. TPA agencies need to commit to following-up on questions that cannot be answered during the open house.

Tank Waste Origins and History

No discussion of any of the WTP facilities would be complete without discussing the waste in the tanks and the urgent need to get it into a safe, stable form for final disposition. All presenters should be prepared and have backup materials to at least address these topics at a summary level should questions arise during their discussions. This material should be pre-approved and consistent with the information available online at a level that the general public could easily access and understand.

Individuals who are requested to make presentations should be able to access this library to quickly obtain consistent and reliable background information that they could use to supplement or as backup material for their presentations.

A listing of some of the information that should be pre-approved and available to the general public or for presenters is itemized.

The following is a list of information that should be available on-line and/or as pre-approved presentations for use by the general public. This material should be available at a level that the general public can easily access and understand. Individuals who are requested to make presentations should be able to access this library to quickly obtain consistent and reliable background information.

- General History of the Hanford Site
 - Tank Storage History
 - Origins of the waste in the tanks
 - Tank age and condition of the tanks
 - Single Shell Tank Integrity
 - Double-Shell Tank Integrity
 - Tank capacity needed to be able to safely store waste
 - Leaking Tanks and the threat to the environment
 - Tank Retrieval (leaking and non-leaking) Progress and Plans
- History and Scope of the WTP
 - WTP Facilities
 - Map of WTP Site with WTP Facilities shown
 - Brief Description of function of each facility
 - Current Construction Photos and Status
 - WTP Technical Issues
 - High-Level Waste Authorization to Proceed
 - Proposal for fixing problems
 - Timeline
 - Budget
 - Systemic changes that ensure this project will work
- Direct Feed Low Activity Waste Facility
 - Proposal
 - Timeline
 - Budget

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- Systemic changes that ensure this project will work
- Final Waste Disposition
 - Deep Geologic Repository
 - Interim Storage
- Timeline and Budget
 - Design and Construction
 - Technical Issues and Resolution
 - Remaining Open Issues
- Safety Culture, Safety Conscious Work Environment, and Safety Foundation
 - Tank Vapor Issues & History
 - Reporting of Concerns