

WM2016 Conference Panel Report

PANEL SESSION 35: **Panel: DOE Hanford – Direct Feed Low Activity Waste (DFLAW) Update – Part 1 of 4**

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Panelists:

1. **Kevin Smith**, *Manager, Office of River Protection*
2. **Mark Lindholm**, *President and Project Manager, Washington River Protection Solutions*
3. **Tom Fletcher**, *ORP Assistant Manager Tank Farms Project Manager, Office of River Protection*
4. **Bill Condon**, *One-System Manager, Washington River Protection Solutions*
5. **Bill Hamel**, *ORP Assistant Manager/Federal Project Director, WTP*
6. **Margaret McCullough**, *Project Director, WTP, Bechtel National Inc.*

This panel session focused on the approach of directly feeding the low-activity (DFLAW) waste from Hanford double-shell tanks to the Waste Treatment Plant (WTP) Low-Activity Waste Vitrification facility. This approach is the quickest means of beginning to treat and dispose tank waste and provides many benefits to the overall River Protection Project mission. The One System organization was established to perform integration functions between DOE-ORP, DOE-RL, Tank Operations Contractor (TOC), Waste Immobilization and Treatment Plant, and other Hanford Site contractors to successfully and efficiently commence the Hanford tank waste treatment and disposition mission.

Summary of Presentations

Kevin Smith presented the overview of the Office of River Protection (ORP) Mission and Vision. He introduced the Direct Feed Low Activity Waste program in the context of the overall tank waste disposition mission at ORP. He also introduced the One-System concept as driving the integration of the various facets of DFLAW.

Tom Fletcher presented an overview and history of the Hanford tank farms, including the sources/characteristics/volume of the waste, and the physical aspects of the tanks and ancillary systems. He completed the briefing with the priorities of the tank farms and the necessary preparation for DFLAW including development of the Low-Activity Waste Pre-treatment System (LAWPS).

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Bill Condon presented a more detailed discussion of each of the tank farm priorities: (1) Retrievals, (2) Tank Space Management, (3) Infrastructure Management; and (4) DFLAW preparation.

Bill Hamel presented the WTP-LAW physical changes to support the DFLAW program and the contractual construct and status of these changes. He also introduced the Effluent Management Facility, a new facility to support a necessary/existing capability to prepare the return streams to tank farms.

Peggy McCullough presented the status of the necessary changes to the WTP to support DFLAW. Peggy reported the status of LAW as 80% construction complete, EMF 40% design complete, and Laboratory nearly complete.

Bill Condon presented the One-System organization and approach to integration of the numerous contractors to ensure a successful DFLAW startup. Bill briefed the components of the approach including integration between DOE, contractors, and National laboratories.

Kevin Smith (DOE-ORP) Remarks

The DOE-ORP gave direction to develop a One-System organization with seven simple bulleted goals. The creativity of the contractors and the ORP organization led to the successful development of the current One-system Organization. The program has several goals including;

- (1) Driving down risk
- (2) Consolidating guidance to WTP
- (3) Develop tank farms of the future
- (4) Aggressively reduce cost of operations by 50%, of which WRPS has made great progress
- (5) Design and build with the worker in mind

The WTP is currently only designed for operations through Pre-treatment (PT) and then to HLW and LAW facilities. The WTP has to modify the design, isolate utilities, and change the facility operations to support DFLAW. This is a significant activity and work to date is a major accomplishment.

Over the last several years, national laboratory integration has been reestablished. The DOE-ORP created the grand challenges program which restores the linkage between creativity and the people. It is the fourth year for the grand challenges, where proposals are submitted, evaluated by senior management against criteria of \$250M savings as the metric for inclusion.

One-system and LAWPS have become the hallmark of value engineering. Through various initiatives, the O/S and LAWPS have been able to enhance the schedule, reduce the cost and conserve double shell tank space (which is the price of gold) to the extent possible.

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The O/S has met this big challenge and has forged an extremely good team. The O/S utilizes a Governance Board which ensures an overall integrated delivery of DFLAW. The target date of 2022 is in sight and the team is rallying towards success.

Questions and Answers

Q. Paul Bredt (PNNL): Can you please discuss the throughput rate of DFLAW vs. baseline flowsheet of Pre-Treatment to LAW?

A. Bill Hamel (WTP-DOE): The LAW facility continues to be designed/built to meet the rate of the baseline flowsheet through PT. This rate will sufficiently match the DFLAW processing rates through LAWPS and feed 15 metric tons/day/melter.

Q. Kevin Smith (DOE-ORP) to Mark Lindholm (WRPS): Can you please discuss the use of SCBA and the workforce?

A. Mark Lindholm (WRPS): The workers are protected from vapors in the interim by using Self-Contained Breathing Apparatus (SCBA) while engineering solutions are being developed. The tank farms were able to accomplish approximately \$100M more scope through efficiencies including the retrieval of Tank AY 102 which was an 18 month journey while on SCBA. The Tank farms continues to complete many tasks while the workers are on SCBA, in which it is difficult to work. The workforce has done tremendously well without injury while in SCBA. The tank farms are in phase 1 of the process in which the hazards as related to vapors will be identified, numerous technologies will be matured, and control strategies explored followed by the next phase which will implement these solutions.

A. Kevin Smith (DOE-ORP): The tank farms were able to accomplish their goals while accounting for \$50M shortfall and still met AY-102 retrieval schedules.

Q. Kevin Smith (DOE-ORP) to Tom Fletcher (DOE-ORP): Can you discuss the 242-A Evaporator and upgrades to ensure it works to meet mission needs.

A. Tom Fletcher (DOE-ORP): The 242-A evaporator operates at relatively low temperatures and vacuum. It is understood that the 242-A is a single point failure and the critical components within the 242-A to maintain operations are understood. For example, reboiler replacement is under consideration given the lessons learned from the 3H evaporator at Savannah River.

Q. Dan Leone (Exchange Monitor): It has been mentioned that the permitting process is “daunting”. What exactly are the permits you need?

A. Tom Fletcher (DOE-ORP): The DOE Environmental Compliance Division (ECD) is working closely with O/S and the permitting agencies to create a schedule and work through the permits in a logical way.

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A. Bill Hamel (DOE-WTP): Ecology is a partner with us and we are working collaboratively through routine interactions. The extensive levels of paperwork are reflected in a well laid out schedule and process is in place. For example, the EMF is a new construction with numerous permits, and we are actively working with the state to minimize the iterations at the end.

A. Bill Condon (WRPS): There are 32 permits. LAWPS has submitted a notice of intent to Ecology. The integrated schedule has been shared with to Ecology to help the State plan resources. In addition, technical information is being shared with the state as developed to ensure understanding along the way rather than only at the end. Following this process, the State has typically turned out the permit apps very quickly.

A. Kevin Smith (DOE-ORP): Transparency with Washington State Ecology is the key and permits are submitted depending upon their design state. This is a byproduct of a design build project and we have to plan accordingly.

Q. Dan Leone (ExchangeMonitor): When will all the permits be done?

A. Tom Fletcher (DOE-ORP): Over several years consistent with the integrated schedule.

A. Kevin Smith (DOE-ORP): Waterfall approach to equalize the resources necessary to complete the permitting.

Q. Kevin Smith (DOE-ORP) to Bill Condon (WRPS): Can you discuss the optimization initiatives around the EMF?

A. Bill Condon (WRPS): There are a number of areas where the flowsheet is being optimized, not needs, but efficiencies to the flowsheet. One of the goals is to return no secondary waste from EMF back to the tanks. The EMF outputs are currently recycled within LAW or returned to the tank farms. Options to break these returns to the tank farms and/or the recycle are being considered and alternately dispose of them are being considered. This optimization could lead to optimized waste loading and would conserve tank space in the tank farms by not returning volume.

Q. Mark Barnhardt (DOE-HQ): What is the timeline of when we realized HLW, PT weren't going to happen in a timely manner, so how about DFLAW?

A. Bill Hamel (DOE-WTP): In 2013, HLW was slowed and Pre-Treat (PT) was stopped due to technical issue resolution. In late 2012, Secretary Chu's team review of WTP developed a consolidated list of technical issues taken from 2002-2003. These technical issues were in various stages of resolution including some that were re-opened. Secretary Chu brought them to the fore-front and Kevin Smith formulated them into a format by which they are being actively addressed.

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A. Tom Fletcher (DOE-ORP): The concept began with the “Vision 20/20” vision around 2011 with feed to LAW early and has evolved. Kevin built the concept about redundancy and it has evolved from the “Vision 20/20” to Secretary of Energy’s Framework to redundancy now as we await the startup of Pre-Treatment.

A. Kevin Smith (DOE-ORP): The current concept began in January 2013 as evolved from early law to DFLAW, which was the fastest way to reduce risk, make glass, and get tank space.

Q. Keith Kline (Longenecker & Assoc.): where are you in terms of LAWPS design process, safety design, lessons learned from Pre-Treatment?

A. Tom Fletcher (DOE-ORP): LAWPS just passed the 30% design, with 60% by late 2016. The project will be revising the ventilation strategy in the near future. Steve Pfaff is delivering the project with a design strategy that keeping safety at the fore-front. The team is engaging with everyone at the 30% design phase to ensure alignment at the 90% design stage with few remaining questions.

A. Kevin Smith (DOE-ORP): I have given the team the goal of making the LAWPS the model project for the DOE.

Q. Craig West (DOE-HQ): There is a big difference in integration between the contractors, DOE, and the ecology who are all on-board. Where are the HAB and the tribes on this?

A. Kevin Smith (DOE-ORP): Most folks are supportive of DFLAW. The other stakeholders are mostly interested in tanks and end-states.

Q. Kevin Smith (DOE-ORP) to Peggy McCullough (BNI): Where are we on the MIP activities?

A. Peggy McCullough (BNI): For the past two years BNI has implemented a management improvement plan (MIP). BNI brought in industry nuclear operator experts to gauge the effectiveness of implementation of the MIP in: (1) corrective action for QA; (2) corrective action with corrective action program; (3) effectiveness of the MIP and other initiatives. There were more than 50 discrete initiatives. The review concluded that the program is effective in corrective action plans, is focused on sustainability, and does not depend or focus on the personalities within the project. A few gaps were identified, however, BNI is satisfied that the efforts achieve their intended outcome.

Q. Kevin Smith (DOE-ORP) to Bill Hamel (DOE-ORP): How is the radiological startup of the laboratory going?

A. Bill Hamel (DOE-ORP): The lab was an originally Category 3 facility, but the hot cell portion of the lab will not be used in the short term. The hoods etc. that are necessary for DFLAW will be used and configuration control of the laboratory will be maintained to ensure and start

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each portion as necessary. There are existing safety management programs that allows us to make the jump to HLW when necessary.

Q. Dan Leone (ExchangeMonitor): What is the off-gas treatment system update to LAW?

A. Bill Hamel (DOE-ORP): off-gas treatment for LAW series of engineering analysis to make sure to ensure that the controls are adequate and the classification of the controls are adequate. When the studies are complete, will be compared with system, and evaluate whether additional operational/administrative controls are necessary.

Kevin Smith, Final Remarks

The ORP team is certainly aligned with a common focus to get DFLAW operating as soon as possible. The team communicates very well with the key of preventing surprises. I am very pleased to see the professional and team approach all of our federal and contractors have in achieving DFLAW.