



MEETING SUMMARY

HANFORD ADVISORY BOARD

Tank Waste Committee (TWC) | Health, Safety & Environmental Protection Committee (HSEP)

DATE: Wednesday, November 13, 2019

Richland, WA

TOPICS IN THIS MEETING SUMMARY

Opening 2

Effluent Treatment Facility (ETF) Update 2

Grout..... 8

Traffic Safety..... 11

Tank Vapors 13

Committee Business 22

Open Forum..... 23

Attachments..... 23

Attendees 24

The following meeting summary represents topics and presentations covered during the Hanford Advisory Board Tank Waste Committee (TWC) | Health, Safety & Environmental Protection Committee (HSEP) on Wednesday, November 13, 2019, from 9:00 a.m. - 3:30 p.m. in Richland, WA. This event took place at the Best Western Plus Columbia River Hotel & Conference Center. This is only a summary of the issues and actions discussed at this meeting. The following represents a summary of the topics corresponding with the meeting agenda with annotation of Questions (Q), Response (R), Announcements (A), Comments (C) and may not represent the fullness of represented ideas or opinions, 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

Adrian Woolcock (Facilitator) made introductions, invited everyone to sign in, and introduce themselves following meeting co-chair introductions. Bob Suyama, Chair of the Tank Waste Committee (TWC), Rebecca Holland, Chair of the Health, Safety & Environmental Protection (HSEP) committee respectively, welcomed committee members and introductions were made by the meeting co-chairs, board/committee members and alternates, and other participants (including those on the phone).

Bob Suyama reviewed the agenda for the day, and Rebecca Holland noted that the meeting might be extended into open forum – reviewed her agenda and announced that James (Jim) Lynch, Deputy Designated Federal Officer (DDF), for the U.S. Department of Energy (DOE) Office of River Protection (ORP) and Richland Operations Office (RL) will be giving the first presentation.

Previous Month(s) Meeting Minutes

The May, September, and October 2019 meeting minutes were discussed but have not been approved as they are still in the process of being updated by the Facilitator pending final approval by the Tri-Party Agreement agencies [DOE, Washington State Department of Ecology (Ecology) and U.S. Environmental Protection Agency (EPA)]. Meeting minutes should be reviewed by the next committee meetings.

Announcements

Bob Suyama followed by Rebecca Holland made open calls for announcements and updates:

Jim Lynch announced that River and Plateau (RAP) Committee meetings had good discussions. Further, an announcement was made that there will be a Public Involvement and Communications (PIC) committee meeting on Dec 3, 2019. The Hanford Advisory Board (HAB or Board) meeting is scheduled for Dec. 4-5, a Committee of the Whole (COTW) meeting is planned for Jan. 7-9, 2020, followed by a Board meeting on Feb 4-6, 2020.

Effluent Treatment Facility upgrades to support Direct-Feed Low-Activity Waste Update

Richard Valle, Program Manager for ORP Tank Farms Programs Division, provided a presentation¹ on Effluent Treatment Facility (ETF) upgrades to support Direct-Feed Low-Activity Waste (DFLAW). The presentation covered an overview of the DFLAW program which integrates a group of individual projects, facilities, and infrastructure upgrades with involvement from all of Hanford's contractors.

An overview illustration of the DFLAW site, which includes the Low-Activity Waste (LAW) Vitrification Facility, the LAW Effluent Management Facility (EMF), Analytical Laboratory, the ETF, Tank-Side Cesium Removal (TSCR), the Integrated Disposal Facility, and the 242-A Evaporator.

The mission of the Liquid Waste Processing Facilities (LWPF) is to receive, treat, and dispose of liquid effluent from authorized programs and projects. The LWPF includes Liquid Effluent Retention Facility (LERF), ETF, the State-Approved Land Disposal Site (SALDS), and the Treated Effluent Disposal Facility (TEDF).

The LERF has three primary basins – Basin 42, Basin 43, and Basin 44. These basins are surface impoundments that are permitted through the Resource Conservation and Recovery Act (RCRA). As the discharge of waste to the soil is not allowed, the LERF provides needed interim storage of large quantities

¹ [Effluent Treatment Facility Upgrades to Support Direct-Feed Low-Activity Waste](#)

of low-level, low-hazard liquid effluent prior to treatment. Each basin has a permitted storage capacity of 7.8 million gallons. During DFLAW operations, the primary effluent streams will come from of 242-A Evaporator, leachates, and the Waste Treatment and Immobilization Plant (WTP).

The DFLAW process flow starts at AP Tank Farm which feeds untreated tank waste to a cesium removal system and prepares waste for feed to the LAW Vitrification Facility. The Tank-Side Cesium Removal System (TSCR) uses ion exchange to provide for this at-tank “first feed” pretreatment technique to remove cesium and prepare LAW waste for further treatment. The pretreated LAW waste is then sent to the LAW Vitrification Facility and mixes LAW feed with glass-forming materials to produce a vitrified waste form in stainless steel containers for long-term storage. The Effluent Management Facility (EMF) is used to evaporate and concentrate liquid effluents generated from the LAW Vitrification Facility. The LWPF then receives the liquid effluents from the WTP verification process for further treatment before disposal. The Integrated Disposal Facility (IDF) accepts the containers of the vitrified low-activity waste for long-term disposal.

A closer overview of the ETF was described. Managers, engineers, and planners work in building 2025EA, the 2025E building serves as the process floor for the treatment stages, and the 2025ED building is used to receive tanker trucks, as well as small quantities of waste.

As the discharge of waste to the soil is not allowed, the ETF provides the necessary treatment of aqueous waste through a series of process units to remove or destroy waste constituents. Aqueous waste is processed through the main treatment train (MTT), and reject streams from MTT are processed through the secondary treatment train (STT). Effluent treated by ETF is verified for discharge to the SALDS, located north of the Hanford 200 West Area.

Richard Valle explained a diagram of ETF’s unit operations illustrating the MTT and the STT. The diagram starts with effluent feeding the ETF, primarily from LERF. Initial filtration is provided by influent filters before being deposited into a storage tank at the front-end of the process to provide a local backlog for the MTT. Auxiliary filtration may be performed before treatment for organic constituents through the use of Ultra-Violet (UV) Oxidation units. Hydrogen peroxide is mixed with the waste. The UV Oxidation system uses the photochemical reaction of UV light on hydrogen peroxide to oxidize the organic compounds.

After a pH adjustment stage, residual hydrogen peroxide from the UV Oxidation stage may be present in the waste stream. Because hydrogen peroxide is a strong oxidizer, the residual hydrogen peroxide is removed using the Peroxide Decomposer to protect the downstream equipment. Additionally, a by-product of the UV Oxidation stage is the generation of carbon dioxide. A Degas Column is used to purge dissolved carbon dioxide from the aqueous waste to reduce the carbonate loading to downstream processes within the MTT.

The influent then moves to the Reverse Osmosis (RO) system which uses pressure to force clean water molecules through semi-permeable membranes while keeping the larger contaminants in the membrane. The RO process is divided into two stages (i.e., first and second stage). Because the RO process removes most of the dissolved solids in an aqueous waste, a subsequent Ion Exchange (IX) process acts as a polishing unit. The IX system consists of three columns containing beds of cation and/or anion resins. Finally, three Verification Tanks are used to hold the treated effluent while a sampling is performed to determine that the effluent meets discharge limits. If acceptable, the treated effluent is discharged to the State-Approved Land Disposal Site (SALDS).

Reject streams for the MTT are received into two Secondary Waste Receiving Tanks (SWRTs) where chemical adjustment can be performed to optimize evaporator performance. The effluent in the SWRTs

then becomes feed for the ETF Evaporator to concentrate the secondary waste streams. The resultant concentrated streams are received into two Concentrate Tanks (CTs) where chemical adjustment can be performed to optimize waste drying performance. The effluent in the CTs then becomes feed for the Thin-Film Dryer which dewateres the secondary waste streams into a powdered waste form. The powder is collected using a container handling system that packages the dewatered secondary waste for disposal on the Hanford site.

Next, we received a close-in view of the State-Approved Land Disposal Site (SALDS) with a discussion on materials deposited. There is an approximate 6-mile run to the disposal site from the ETF. SALDS is a gravel-gilled drain field that provides a controlled and monitored location for water discharge after ETF treatment. However, the ETF cannot effectively remove tritium. SALDS was sited within the Central Plateau to allow for the decay of tritium (half-life of approximately 12.5 years) before it reaches the Columbia River.

A close-up view of the TEDF was provided. TEDF is a separate collection system that accepts non-radioactive, non-hazardous effluent collected via pump stations in the 200 East Area and 200 West Area. The system discharges wastewater into two adjacent five-acre infiltration ponds. TEDF receives effluent streams for sources such as steam condensate, cooling water, raw water, etc. The system consists of approximately 12 miles of pipeline, three lift stations, a sample station, and two adjacent 5-acre infiltration ponds.

Following ETF, the TWC covered Upgrades to Support DFLAW. In order to receive and treat DFLAW effluent, the LWPF must improve in three key areas – capability, capacity, and reliability. The DOE-ORP funds the work needed to ensure the facilities have the capability, capacity, and reliability to support DFLAW operation. Examples of activities in each of these three areas were provided, and include:

- **Capability**
The capability is needed to send the WTP effluents to the LERF. Currently, existing pipelines must be connected to allow for the transport of radioactive, dangerous waste liquid effluents from the WTP to the LERF for processing by the 200 Area ETF.
- **Capacity**
Additional capacity is being pursued to construct an additional LERF Basin, or LERF Basin 41. The depression for the basin had been dug out. ORP intends to outfit and use that and claim that additional storage space to reduce risk. Plans are to design, permit, and install an additional LERF basin to provide more storage capacity for Hanford Site generators.
- **Reliability**
An upgrade of the ETF air compressor system was recently completed in September of FY2019. The upgraded configuration improves the system's reliability by removing and replacing the single air compressor with two new compressors.

Direct-Feed Low-Activity Waste Projects List

- **Treatment System Life Extension Projects:**
 - Replace peroxide destruction modules
 - Install brine load out system
 - Replace ultraviolet/oxidation units
 - Replace reverse osmosis pumps and valves

- **Infrastructure Life Extension/Upgrades:**
 - Replace HVAC chiller units
 - Replace transfer line leak detection systems
 - Replace compressed air and cooling water systems
 - Repair verification tank coating
 - Replace LERF covers and leachate systems

- **Operational Reliability:**
 - Conduct of operations, training, procedure improvements

Illustrations were provided to show upgrades at the facility. There are various elements and installations that constitute upgrades at the facility. Examples of which include the install of a brine loadout system, replacement of the UV oxidation units, and infrastructure life extension upgrades that include the HVAC chiller, compressed air, secondary containment, recoating of tank interior to extend the remaining useful life, and replacement for each LERF cover as open air evaporation is not permitted.

- **Area Reliability:** Slides 18 and 19 provide a before and after images of the ETF air compressor room. The compressor on slide 18 was installed in 1994 and needed upgrading, avoiding a single point failure. The system includes newer technology one unit is blocking the second unit, but there were two air compressors installed.
 - The ETF compressed air system provides service air to process equipment and dry instrument air to process instrumentation and air-operated valves
 - Compressed air system is critical to ETF – failure to supply air will shut down ETF processing operations
 - Completed upgrade in FY19 with new compressor system components
 - Upgraded configuration by removing and replacing the single air compressor with two new compressors

Richard Valle identified Key Takeaways from the ETF update.

- Liquid waste processing facilities are last step in DFLAW before treated liquid effluent is discharged to the environment
- To receive and treat DFLAW effluent, liquid waste processing facilities must improve capability, capacity, and reliability
- ORP funds the work needed to ensure the facilities have the capability, capacity, and reliability to support DFLAW operation

Agency Perspective

Katie Hall, Washington State Department of Ecology (Ecology) thanked Richard Valle for the presentation and stated that Ecology has been working very hard on their end to support the DFLAW mission with efforts that include, but not limited to, process permit modifications for upgrades to accommodate capacity and capability.

Further, DOE has been great at providing information ahead of time so Ecology knows what is upcoming. The current modifications that the project team is working on, including adding WTP pipelines and that has been a complex project – they have been working very hard for a while. Katie stated that on Jan. 21, 2020 is the target date which includes a 30-day extension to respond to complex comments Ecology expects to

receive. Key elements include “Statewide permits that Ecology permits and need to be renewed for DFLAW and LERF.”

Board Member Questions, (Q), Responses (R), and Comments (C):

Note: This section reflects individual questions, comments and Agency responses

Q: “It is going to use and generate liquid waste as we take out of the tanks. Handling all liquid waste is very important. What is the difference, what is the facility we saw on the tour? How is it different from what ETF does?”

R: “Effluent is generated from the WTP vitrification process. Therefore, the Effluent Management Facility (EMF) is being constructed at the WTP site primarily to evaporate and concentrate on this waste. Subsequently, the EMF overheads will be sent via pipelines to LERF for eventual treatment at ETF. Bottoms rec (overhead means evaporated condensed back to liquid and sent down the pipeline).”

Q: “What is the final output of solid materials? Are they hazardous?”

R: “In terms of quantities, it is dependent on the waste we are feeding the ETF. A process control plan is developed for each processing campaign. It depends. The solids created are radioactive and dangerous, we meet requirements for shipping and disposal on-site.”

Q: “DFLAW operations, is ETF going to have to run 24/7? Is it critical to be running while DFLAW is running glass?”

R: “Currently, the ETF is already staffed to run 24/7. We just need people to run that 24/7. There is no projected increase for additional personnel for the 24/7 operations. Have to be continuing to process down. We need to improve our throughput capabilities.”

Q: “Have you in critical path how you will complete --- in the time frame, is it available?”

R: “All projects identified to meet the applicable cold or hot commissioning need dates, as proposed.”

Q: “Going to be going through the preliminary process? Are you confident you understand the process along with the streams when you put them together you will be able to hit it the first time? Understand streams well enough to help get through the stream the first time?”

R: “I believe so, as we come closer to the start of DFLAW things naturally start falling out or becoming more clear.”

Q: “More detail mechanisms of transport from the surface to groundwater, tritium half-life. Before reaching any waters. What waters are you talking about and are you comfortable with the pathways? Be sure this is as consistent as the rest of the sampling that has been done.”

R: “Treated effluents are discharged in accordance with State Waste Discharge Permit ST0004500. The Project Team works with Richland Operations Office and Katie (Ecology) mentioned statewide permits. The discharge permit describes a series of groundwater monitoring wells to keep track of the tritium plume, and has a Tritium Tracking and Groundwater Monitoring Plan submitted to Ecology. In addition, DOE submits tritium tracking reports to Ecology as required by the monitoring plan.”

Q: “What is going to be in the powder? Has there been a life cycle to see what is going to be produced in powder and presented to ERDF?”

R: “Point of clarification, without WTP operations we are sending waste for landfill disposal to the Environmental Restoration Disposal Facility (ERDF). However, once WTP is in operation, ETF will send waste for landfill disposal to the Integrated Disposal Facility (IDF). We are doing the evaluation to see if some powder waste form can be sent to IDF. The grout waste form can be sent to IDF.”

Q: “During DLFAW period are you going to manage technetium?”

R: “We have a flowsheet organization where we are actively looking at those types of questions. Currently, the ETF radiological controls are primarily driven by cesium and strontium. However, once WTP is in operation, we expect this to change to a strategy primarily driven by technetium and iodine.”

Q: “Is technetium taken care of by the TSCR system.”

R: “We will take a look at that.”

Q: “For organic compounds, I understand the heat of the melter burning off organics. I’m surprised to see the organics made it to ETF. Can you help me understand that?”

R: “The cold cap of the melter process creates an environment that allows for some organic compounds to still exist in the waste stream that is eventually sent to ETF. We have a flowsheet organization where we are actively looking at those types of questions.”

Q: “Total amount of liquid that will be reinjected into Aquifer?”

R: “Both of the statewide permits have daily, monthly and yearly volume limits we have to meet. Our injecting levels into the ground, if necessary, will be less than these defined thresholds.”

Q: “Defined objective to how much liquid can be poured in?”

R: “Were living with previous versions of the permit, so I’m not sure how those volume limits were calculated. In the renewal cycle, we will look at re-evaluating the permit and look at how that was calculated.”

Q: “As part of SALDs permit it is required to evaluate modeling and update whatever modeling used to track plumes and would expect as part of the modeling update that we might see some changes in this charge as far as volume go.”

R: “We are actively working the permit renewal. Treated effluents are discharged in accordance with State Waste Discharge Permit ST0004500. The Project Team works with Richland Operations Office and Ecology. The discharge permit describes a series of groundwater monitoring wells to keep track of the tritium plume, and has a Tritium Tracking and Groundwater Monitoring Plan submitted to Ecology. In addition, DOE submits tritium tracking reports to Ecology as required by the monitoring plan”

Q: “LERF scheduling replacing liner? Encourage making that schedule to look at some lessons learned from the past the other two ponds the liners were replaced in as far as timing the year/ having to be a part of those in the middle of the summer, tropical shifts, hoping look at not doing in the middle of the summer.”

R: “Were only replacing the cover and not the liner. We were doing different shifts to get the work done safely. We gained lessons learned in radiation control and worker safety and hope that proves fruitful for the last remaining cover replacement project.”

Q: “What permits are involved?”

R: “To date, we have primarily worked on RCRA the water permits. This year, DOE and its contractors have assembled inter-media permit teams that takes into account RCRA, water, air, health, etc. permits. The intent of the permit teams is to meet on regular basis to make sure permits are regulated and pushed to upgrade the facilities. We are integrated and have subgroups to ensure a unified permitting approach.”

Q: “At the public meeting permit Susan Leckband and I asked several questions about lack of information about constituents. In a nutshell there is a required technical fact sheet, the permits does not say what the total hazardous constituents are a year. It is hard to comment without that information. I’d like to know when are we going to get that and will it give us time to comment on permits? We also suggested permitting for EMF and ETF together because pipelines are related and are common issues and having one as major modification, where one is minor doesn’t make any sense for public comment. Like to ask if that is going to be done and what the timelines will be?”

R (Katie Hall, Ecology): “Comment period ends next week and during the public meeting it is up to DOE to submit modifications.”

C: “Requesting important advice from the committee for permitting should be done together and this current one should be reopened.”

Q: “What’s a specific activity to be classified as low-activity waste?”

R: “Don’t have that information at this time from the top of my head.”

Grout

Bob Suyama introduced the topic and appointed Jeff Burright as the Issue Manager Lead. Jeff Burright led a collaborative group discussion regarding strategies for the planned Issue Manager (IM) advice regarding “Grout”. Jeff Burright stated that the topic of grout has re-entered conversation and there is now a new opportunity to respond to the new information - point to start.

C: “Originally the National Academy of Sciences (NAS) Project Team last visited and presented to the committee it was at the end of a two-year study effort where research and development looked at supplemental Low-Activity Waste (LAW) at Hanford with further discussions around the right path to managing the issue. The question was posed “do we change course? Is there additional pretreatment we can do?”

C: “The Project Team doesn’t have to advise NAS it’s to provide the Tri-Party Agreement agencies. I don’t expect to come out with advice points but hoping to get a shared understanding related to tank waste treatment and figure out what perceived as risks and what additional information and what are overriding objectives, The Project Team don’t want this topic to get lost?”

As Jeff Burrighr continued the collaborative group discussion, a whiteboard illustration was developed and a facilitative conversation helped to complete key elements of objectives, risks, opportunities, information needs, and advice options (on-site vs off-site grout).

20191113 TWC GROUT STRATEGY WHITE BOARD

HLW (10%)		
Secondary (Grout)	Grout?	Organic Treatment
Tc-99- 7% I-129 - 7%	Tc-99- 7% I-129 - 7%	
Glass		Tc/I Treatment
Tscr	Tscr	
Cs-137 Sr-90 Tc-99	Cs-137 Sr- 90 Tc - 99	

OBJECTIVES

- Focus On Changes recently/New Grout & Waste Control Measures
- Promote Successes not question current/future successes
- Differentiate On-Site vs Off-Site Grout
- Don't exceed drinking water standards
- Enhanced classifications of HLW and LLW according to activities to enhance savings opportunities – Activity (include Risk visive location) Based Classifications
- Worker Safety Concerns, requirements, opportunities for improvement

RISKS

- Harder To Challenge Decisions previously made
- Public Opinion drives decisions
- What if WCS Closes to Hanford?
- Contingency Requirements
- Will the Grout Breakdown
- On-Site Grout – Relying on the Grout to protect groundwater
- Off-Site –
- Lack of adequate information on waste constituents
- Calmative Risks Uncertain
- Finding Sources constrained/curtailed

OPPORTUNITIES

- Challenge Existing standards?
- Waste Control Specialists are brand new since previous Decisions Made
- Transfer long-term stewardship of the radiation elsewhere (another State – Deep in the Heard of TX)
- Alter 10F to improve Grout
- Grout Performance Improvement Initiatives
- Information needs
- TECU Russian/Mayak Experience
- Who Defines Success – More stable than now vs safe for the long term
- Treatment Standards (on-site vs Off-Site?)
- Containerization of Grout – effects of placing in containers?
- List of questions needed for understanding so that advice can be developed – more learning

ADVICE OPTIONS

- Focus advice on issues/concerns evident in facts of each case – new HLW Interpretation(s)
- Focus on perceived risks related to On-Site vs Off-Site Grout

ON-SITE VS OFF-SITE GROUT

- Worker Safety

Board Member Questions, (Q), Responses (R), and Comments (C):

Note: This section reflects individual questions, comments and Agency responses

C: “If The Project team opted/voted to dispose the waste in the state of Texas there may be less restrictions on iodine abatement than that which exists at Hanford.”

C: “Studies iodine-129 half-life is so long technetium half-life is low unless getting continuous technetium there is no harm. Gave overview of biological opinion.”

C: “Should be focused on changes happening recently because decisions made in the past.”

C: “Always focused on-site storage life cycle to monitor now we have possibility of someone else taking care of Texas. If this was my home, I know what I would take. The ability to transfer responsibility and long-term stewardship to someone else.”

C: “The fly in that argument because we are talking about performance of grout waste form but not talking about potentially affecting of waste site. One can perceive putting in barriers to address migration from the waste form, external waste form much like to make our site more a keen to Texas site so that if we put our bank on it going to Texas, there is an alternative should it have to stay in IDF to address this issue.”

C: “The idea of the contingency plan if the governor of Texas writes saying no more. If we build all our infrastructure to pursue that path and it changes, what will the Project Team do? One option for managing risk is having more than one risk where it can go. Talking to Ecology, concern if it does go down this one path there might be some permitting issues.”

Q: “We should be looking to success because there is a risk, we can’t shut door if there is a way to litigate that risk. As citizen committee the permitting struggle for LERF is not minimal. I still believe VIT plant will never operate because of permit issues. The questions are: is it 0 risk? The answer is no but should still promote success.”

Q: “Where’s investigation of combination? Who defines success? To me it is when there is no potential harm to people.”

Q: “Are you talking more related to composite to the Site and a risk map?”

R: “Yes, and if grout breaks down –it hasn’t been studied.”

C: “If we want to talk about the biological effects of what? We can bring people in for that, lets discuss grout. There is on-site grout and off-site grout and we shouldn’t confuse the two.”

Q: “What are the risks to on-site and off-site?”

R: “Issue of grout on-site has always been the fact we are relying on grout to protect groundwater, essentially, and we have done analysis of grout to capture all relevant constituents, and it doesn’t do a good job, and the IDF has a conservative permit to see what the total load will be (if we exceed 75% drinking water standards we have reached capacity) in Texas we are relying on waste form, groundwater and how many hundred feet of clay. Geologic repository provides shielding and even so we’re meeting RCRA treatment requirements. Need to know what treatment standards are, met on-site for grout vs off-site and different approach because no treatment standards set from EPA or Ecology.”

Q: “Are we talking about in terms of IDF or TBI or what is purpose? Is DOE looking at grouting?”

R: “What opportunities might exist for grout. Yes, DOE is looking at grouting formulations. There are still some questions that need to be answered.”

Q: “I want to know if Grout will be in containers?”

C: “Can’t assume will happen but need to look at what steps need to happen for the waste coming out of Hanford.”

C: “New grout analysis.”

C: “Hanford burns out of money at some point in time, how much grouting cost and at what point does the cost end?”

C: “There are different cost amounts for different grouting options. I think we are out of money to pursue whether grout or glass.”

C: “Maybe instead of advice here are a list of questions that we need to understand before we can provide any kind of informed advice because there are more questions than there are answers here. We need to do more learning.”

Q: “That’s a pretty steep hill because it gets into – how deep do we want to get?”

R: “Low activity divided on-site/off-site the Project Team do need to talk about the top level.”

C: “Instead of asking a bunch of questions, as a group get consensus to identify what risks we have and make advice as to which advice on risks and what they should address.”

C: “One additional new thing that came out the definition of non-high-level waste. If definition goes through and classify waste as that-will it make a lot more waste into the low level or less than class C or A waste and dispose as grout? What’s defined as high-level waste?”

C: “It is my understanding that a lot of low-activity waste as high activity waste and vis versa is classified by activity if were controlling for radioactivity it has to be activity based doesn’t it? Risk is directly related to activity?”

Q: “It is not classified on the activity but on where the model will be disposed. Risk is not directly related to activity?”

R: “It’s also related to location.”

C: “There may be more waste but were not really sure what the new effect may be but the Project Team does know that Hanford will not discuss it. I would ask the committee to think about risks and invites them to have an open dialogue.”

R: “There doesn’t need to be advice issued from this. The approach is really good to discuss objectives, risks and opportunities. I didn’t hear anything in regards to worker safety, so something we should think about.”

Bob Suyama announced that there will be an Issue Manager update after this meeting. The Grout Issue Manager Team will include Tony Umek, Jeff Burright and Bob Suyama. Jeff Burright will put together a list and bring back to the TWC as a check in.

Traffic Safety

The Traffic Safety committee meeting and topic discussion was led by Rebecca Holland, Chair of The Health, Safety & Environmental Protection Committee (HSEP). During the last board meeting, the

committee issued some advice and a presentation was given back in May 2018 with Issue Manager and HSEP Committee work performed on the advice in June 2019 and at the September 2019 Full Board Meeting - it was passed.

The TWC/HSEP Joint Meeting on Traffic Safety is still a pending response back from DOE. The committee noted during the discussion that while getting consensus on advice, there was quite a bit of energy and the committee brought up possibly another piece of advice on a separate issue (traffic safety) that could possibly move forward consensus approval.

The Committee took some time to brainstorm potential topics for additional HSEP advice and reviewed the previous [Advice #286](#) as well as the corresponding [response to Advice # 286](#) along with the conversations and comments that we can potentially drive additional advice. Since September 2019 there was a fatality on the Hanford Site and another employee who will probably never work again as a result of an accident. At the employee meetings, the traffic safety issues are the number one issue employees are talking about so it's something the HSEP believes will need an additional level of focus.

- Rebecca Holland overviewed 286 bullet point advice

Board Member Questions, (Q), Responses (R), and Comments (C):

Note: This section reflects individual questions, comments and Agency responses

C: "It's incredibly important but in all of our advice I don't believe we have ever suggested a directive to the employee educational don't pass three cars at a time. There's a level of employee responsibility as well, maybe if we had a program to educate employees during safety meetings to demonstrate what could happen if people do not stop passing three cars at a time. Take upon self to be responsible for own safety."

C: "There was an article in Tri-City Herald about Hanford Site traffic safety and the patrol wanting to get rights back to the traffic stops."

C: "There needs to be a reasonable distant between cars, basic driving standards."

C: "The headlines in Tri-City Herald is what I'm picking up on. Hanford patrol would like authority on-site, there was also a study being done on improvements coming from the Site. There are things going on and we represent the public and maybe we can weigh in on what we think is a good idea."

C: "Anytime there is a fatality, it is a terrible thing. Speed limits have increased. From my perspective we represent public and encourage DOE to enhance that process maybe have police pull them over and warn them, Benton County doesn't have enough staff to control that, my opinion."

C: "At the September 2019 HAB meeting we had presentation with Brian Vance and the presidents and talking about past, present, and future and fact as WTP starts up going into nuclear options mode 24/7 and give same presentation to board members. Sounds like a great opportunity to manage traffic if people manage 24/7. That is something to keep in mind going forward of staggering shifts."

C: "Only at the VIT plant. We have a lot of sites on Hanford working 24/7 but I am still seeing a lot of traffic."

C: "This is not Ecology's opinion but a personal opinion: the proposed plans on traffic, Kingsgate would be connecting Queensgate to Vangesen but the other ones are still at this end of town (south) one would destroy business and the other one put round about at Wellsian Way near Fred Meyer and the public has

been asking for high-occupancy vehicle (HOV) lanes. This shouldn't all be Richland – Kennewick and Pasco should be participating as well.”

C: “The first bullet on advice – DOE response was inadequate which has a DOE rideshare app which posts were from 2016. *“The Board advises DOE to implement safety and environmental improvements through commuter traffic reduction for DOE and its contractors that does not place all burden on the workforce.”*”

Rebecca Holland announced that there will be time this afternoon to discuss in more detail the safety issue. An emergency response was a big issue with traffic safety. When the fatality occurred, there were nowhere employees on the Site (in vehicles) could go - they had to turn around – The salient point is if there's an accident there's no way for employees to get to work.

C: “Reduce to 35 to reduce deaths if carpooling could potentially reduce distracted driving.”

C: “This is an opportunity for the board to again write clear advice. Some ideas today can be a part of the advice. December is good time to issue it- employee safety on 25th anniversary might be a great time. Let's have issue manager review these bullets and having phone conversations about this. My proposal: see if we need to issue advice and identify issue manager team.”

Rebecca Holland took a poll for participants on an HSEP Issue Manager Team: Richard bloom, Susan Leckband, Rebecca Holland, Bob Suyama, Tony Umek, Dr. Antone Brooks. The HSEP Issue Manager team lead will determine date and time for an Issue Manager call and designate an HSEP IM members who will draft the advice.

C: “Broad topic, is this something the issue managers believe can be ready to move forward to December for HESP consensus and can make this work for the full board? Can we all agree on that? Will have opportunity in February 2020 for another HSEP meeting.”

C: “Would be helpful notes taken last employee meeting the one specifically DOE with the employees, questions and comments amongst employees.”

C: “The Hanford Project has not lost a life on Site to any other things but traffic, so it seems traffic should be important due to the fatality. One thing to think about for the advice: what barriers to stop us from doing this? Is there a barrier The IM's don't understand?”

C: “There has been good energy on this topic and we look forward to developing some advice that can contribute to an enhanced level of awareness and actions across Hanford Site.”

Tank Vapors

Jim Lynch presented² on the topic of Tank Vapors at Hanford. In addition to his role as DDFO, Jim Lynch also serves as Tank Farm Vapors Program Manager for the DOE, Office of River Protection (ORP). In attendance to provide support was Steve Killoy (Operations Technical Support Manager, Chemical Protection Integration) with Washington River Protection Solutions (WRPS).

Jim stated that he has been leading Tank Vapor Project Initiatives for almost five years and has been with ORP for almost 11 years. The presentation centered on key themes of "How we got to where we are today" and covered Tank Vapor Assessment Team recommendations and how, through their flow diagram, will

² [Update on Tank Farm Vapors](#)

get to a Comprehensive Vapor Action Plan (CVAP). Implementation plans are refined through additional recommendations from workforce and external assessors as part of an overall Hanford Vapors Integrated Safety Management Strategy and CVAP.

Jim noted that around the 2014 time-frame, the number of uptakes and concerns for vapors increased. Consequently, a Contractor Vapor Assessment Team out of *Savannah River* developed a set of 47 recommendations and a very detailed, phased implementation plan to address tank vapor concerns. The Project Team also solicited and received additional recommendations from the Hanford workforce; requested and received assistance from the National Institute of Health, and performed enterprise assessments, and chartered various groups for assistance based on their areas of expertise (chartered Expert Panel).

Also involved in this effort were the former heads of the Washington State Department of Ecology, the medical community (Harvard View), and professionals with project management skills relevant to the tank vapor initiative. Other active stakeholders and project contributors included the WRPS Charter Center for Toxicology and Environmental Health (help with risk communications) along with other external resources.

The objective of the initiatives was a robust Tank Vapor Assessment Team Recommendations and Phased Implementation Plan, implement refined through additional recommendations from workforce and external assessors, and follow an overall Hanford Vapors Integrated Safety Management Strategy and (CVAP).

Recommendations and Engagement

- The DOE, ORP and WRPS are addressing over 360 recommendations provided by experts through an integrated safety management system strategy and CVAP.
- Pulled expertise and coordinated with multiple groups:
 - Tank Farms project management;
 - Environmental, safety, and quality programs;
 - Tank farm operational teams;
 - Chief Technology Officer;
 - Chemical Protection Programs Office of Communications and Public Affairs; and
 - Legal counsel.

Keys to success were the project team's willingness to pull expertise according with larger number of groups (operations, health groups, chief technology officer, communications, and legal counsel) for involvement in the project. Our success to date has been born through functioning with a team and workforce comprising a very large cross-functional team.

To achieve environmental goals, the Project Team is guided by refined Integrated Safety Management System and Hazard Controls. Through all project actions the team looks at things fundamentally through an integrated systems perspective – Define Work Scope | Analyze Hazards | Develop and Implement Controls | perform work within controls | provide feedback as part of a continuous cycle.

Key to success is Integrated Safety Management System (ISMS) and hazard controls where accountability is embedded in all project work across paradigms for:

- Worker involvement
- Line management responsible for safety
- Clear roles and responsibilities

- Competence commensurate with responsibility
- Balanced priorities
- Identification of safety standards and requirements
- Hazard controls tailored to work being performed
- Operations authorization

The ISMS includes environmental management aspects in all five core management functions (define work scope | analyze hazards | develop and implement controls | perform work within controls | provide feedback) that support work planning, hazard analysis, hazard control, work performance, and feedback and improvement. The objective of ISM is to integrate safety into management and work practices at all levels, addressing all types of work and all types of hazards to ensure safety for workers, the public, and the environment.

To achieve this objective, DOE has established guiding principles and core safety management functions. The Pyramid illustration accompanying the ISMS and Hazard Controls Framework that shows increasing effectiveness to a level of elimination/substitution starting with Personal Protective Equipment (including Respirators) at the base. On top of Personal Protective Equipment are Administrative and Work Practice Controls and lastly Engineering Controls.

The Vision Strategy For Hanford Vapor Management

The Vision Strategy for Hanford Vapor Management is first and foremost for workers to feel and be safe across the Hanford Site and in the community. The Vision Strategy is based on looking strategically at how the Project Team do their work (how work is planned, conduct operations, continuous improvement).

Jim pointed out that the Hanford Vapor Management Vision is to implement a comprehensive vapors management strategy that protects and actively embraced by all workers on the Hanford Site so that workers are safe and feel safe. This Vapor Management Vision can be achieved through:

- Limited access to nine single-shell tank farms
- Centralized control room for command and control
- Establishment of a strategy for odor management/response
- Improved vapor related communications
- Configuring monitoring and controls specific to each farm
- Installation of engineering controls and abatement technologies
- Use conservative risk-based decision-making process
- Transition to a modernized tank farm of the future

An illustration was provided for the integrated safety scheme with specific callouts across the Hanford Site. The integrated safety scheme requires worker involvement and communications and calls for:

- **Limited Access To Nine Single-Shell Tank Farms**
 - Goal to reduce entry to twice a year
 - Maintain respiratory controls
 - Future priorities will dictate engineering controls and infrastructure improvements
- **Odor Management Strategy**
 - Implemented outside the fence lines

- **Centralized Command And Control:**
 - Conservative risk-based decision process
 - Technical baseline
 - Source monitoring
 - Area monitoring
 - Defined personal protective equipment
 - Active ventilation and abatement
 - Industrial hygienist (IH) rounds and routines
 - Management “defense-in-depth” controls

Jim noted that Integrated Safety Management System and Hazard Controls is a key element of CVAP Outcomes. The Tank Farm Vapors Program Managers considers how the Project Team performs work across the tank farm and the central plateau in three distinct ways:

- Single-Shell Tank Farms Stewardship Program (oversee tanks, surveillance, monitoring, commissioning of tanks evolves over time through monitoring and programs) as well as looks at those kinds of operations. We are not looking to rebuild infrastructures but to improve the programs.
- Conservative risk-based decision process: A lot of work is going on right now, how can we better put together central command – this is where we look at the technical baseline, source monitoring, engineering controls, industrial hygiene
- Comprehensive odor management strategy: There is a lot of concern for tank farm vapors (specifically what [vapors] are coming out of the tanks).

There had to be an expansion in the way Tank Farm Vapors Program Managers look at what we have encountered on the site. This is a full industrial site, there are people working on site that work for entities other than Washington River Protection Solutions (WRPS); there are project teams performing infrastructure work, animal control, etc. in and around 200 East Area. Based on that, we moved into some comprehensive action plans

Comprehensive Vapor Action Plan Outcomes

As there had to be an expansion in the way Tank Farm Vapors Program Managers look at what we have encountered on the site, the frame out presented lists various elements of frame out all the outcomes of Vapors Program Manager action plans: Define Work Scope | Analyze Hazards | Develop and Implement Controls | Perform Work Within Controls | Provide Feedback

As part of our Comprehensive Vapor Action Plan, it is key to have active communication and worker involvement. Even before scope of work was defined, we made some adjustments and improvements where we took a hard look at our technical bases. How the project team did exposure assessments, staffing, analyzing hazards (thinking about stronger tools and continued exposure works looking at the quantitate risk assessments which it boiled down to looking at hazards in tanks. Looking at what we have seen over the last decades out there and consider what was the worst-case scenarios that assess what our exposures are) looking at data, development and implementing controls to have a process in place to manage current and future hazards on the Site.

The project team uses a Vapor Data Management Tool which looks at how to take that huge amount of data to drill into that and look at how we can get outcomes - creating a systematic approach to managing data:

Define Work Scope

- Industrial hygiene (IH) program
- Technical basis
- Start exposure assessment (EA)
- IH staffing
- IH training and qualifications
- Chemical worker training

Analyze Hazards

- Continued exposure assessment
- Quantitative risk assessments
- Integrated data analysis and visualization EA / chemical mixtures methods tools
- Work boundaries
- Characterization and monitoring
- Fugitive emissions

Develop and Implement Controls

- IH work permit
- Vapor Data Management System stack monitoring
- Area monitoring
- ToxiRAE personal monitoring
- Cartridge testing and personal protective equipment election
- Improved exhausters and stack height increases

Perform Work Within Controls

- Data Fusion and Advisory System (DFAS) real-time monitoring in control room for stack and meteorological data
- IH personal and area monitoring
- NUCON testing
- Public announcement systems / reader boards

Provide Feedback

- (DFAS IH / IH technician (IHT) data analysis
- IH exposure reporting
- Abnormal Operating Procedure-015 response and investigation
- Employee communications and feedback*

❖ IH – Industrial Hygiene | IHT – Industrial Hygiene Technician

Building in ways to better provide feedback

DFAS piloted last fiscal year, now that we have active monitor on stacks, we can take a look at the modeling off the stacks. Data Fusion Advisory -can go into central control room and look at period of time to find data analysis -unique things of the operators doing retrievals – based on some outputs can make decisions and planning of the day. Example: *If someone smells odors we can go out and investigate those things.*

The Tank Farm Vapors Program Managers root cause analysis completed in FY 2019 (looked back historically at vapors concerns) and stressed that continued communications with the work force, including better collection and sharing of vapor monitoring data, is key. As part of our root cause analysis we looked all the way back to the 80s because there has been re-occurrence of issues.

▪ **Key Findings:** drop in communication, or some collected data was not effectively communicated. Our hope as a result of all of this is an effectiveness review will be conducted to ensure communication and things that are happening will continue withholding those standards. Make sure nothing has fallen off – an insurance what we are doing now is different.

Vapors Work Scope Highlights

An illustration was provided showing a stack extension of the 242-A evaporator from 65 ft. to 111.5 ft.

- **Stack Extensions:**
 - 242-A Evaporator stack extension completed in FY 2017 – from 65 ft. up to 111.5 ft.
 - AW Tank Farm – from 28 ft. up to 60 ft. above grade, permit submitted to Ecology, targeting for FY 2020 completion if permit is received.

- **IH Programmatic Updates:**

IH programmatic updates included internal/external review process for chemicals. The world-class IH/IHT program is for the risk-based approach to work boundaries/controls, parity with radiological controls.

The activities based on scenarios which developed whereby the Project team decided to enhance reviews based on Key performance Indicators (KPI) to make assessments at frequency levels more than every 10 years – charted with PNNL and looked at ways we can research and find newer data and look at ways we can update technical data through different process. There links to data analysis that the committee can review.

- **Chemical Cartridge Evaluation Testing** - we have made huge strides.
 - Unique cartridge testing process using jig to run real tank farm headspace air through cartridges
 - Full face air purifying respirators were successfully implemented in actively ventilated farms

Vapor monitoring detection-looking at ammonia, some consideration if we want to expand looking beyond ammonia. But for now, looking at ammonia to see if concentrations are changing to help influence our work out there

- **Vapor Monitoring and Detection System** - the final testing and turnover to operations of the stack monitors was completed in FY 2019. Stack monitoring now in place in AN, AW, AX, AP, and 702-AZ (for AY and AZ) Tank Farms for real-time monitoring of tank vapor concentrations and meteorological conditions for operations

Research development-continuous development targeted to look at destruction and looked at testing PNNL to see if destroyed at small concentrations vs. large and looking at design permitting – looked at several other things in our workshops.

- **NUCON Thermal Oxidation System (Research and Development):**
 - Two phases of testing (proof of concept at NUCON in Columbus, Ohio and bench scale at Pacific Northwest National Laboratory [PNNL] completed)
 - Design and permitting efforts underway for potential future field testing

Settlement Agreement

The Settlement Agreement is effective as of October 31, 2019. The presentation included a slide describing continuing settlement agreement actions [slide 9] which include:

- Engineering controls: NUCON thermal oxidation unit testing (chemical destruction)
- Interim worker protections: WRPS and Hanford Atomic Metal Trades Council (HAMTC) memorandum of agreement (MOA) for cartridge testing / IH program analysis by independent third party (Stoneturn Consultants [STC])
- Information sharing:
 - Post AOP-15 event investigation reports publicly
 - Annual reporting (if changes are made) on the tank farm waste worker medical surveillance program (routine occupational tests)

HAMTC and WRPS Memorandum of Agreement

HAMTC and WRPS MOU were signed in 2016 The Project Team has not done a lot of waste disturbing activities in recent years. The following list reflects other activities and accomplishments.

- HAMTC and WRPS MOA signed in 2016
 - Supplied air required until chemical cartridges are proven effective and concurred by HAMTC third party, STC
 - Interim mandatory respiratory protection required until engineering controls or other approaches proven effective
- Cartridge testing - implement Hanford Vapors Integrated Safety Management Strategy (HVISM) and complete Comprehensive Vapor Action Plan (CVAP) activities
- Demonstrate full-face air-purifying respirators (FFAPR) and powered air-purifying respirators chemical cartridges are effective with tank farm mixture
- Implement FFAPRs in actively ventilated farms:
 - Concurrence from STC received
 - Cartridges implemented in SY, AN, and AX/AY/AZ Tank Farms
 - Completed implementation in AP and AW Tank Farms in March 2019
 - Implemented ToxiRAE Pro for ammonia monitoring in actively ventilated farms
- The new AP Tank Farm Exhauster - work with STC on steps to transition to risk-based controls:
 - Demonstrate effective implementation of the IH EA

- Establish guidelines for determining when no respiratory protection is required
- Recognize ammonia as the sentinel chemical for monitoring the source and the worker breathing zone for change conditions
- Implement and maintain vapor rounds and routines
- Timely evaluation and communication of monitoring results
- Communication/training to support risk-based decision making

Current Work for Fiscal Year 2020

- Continued integration and engagement with the workforce
- Gather data during waste-disturbing and other work activities to support current and future pace of operations
- Install stack monitoring for SY Tank Farm and new A Tank Farm exhausters
- Design and permitting for potential field testing of NUCON unit

There are four key pieces to institutionalize

- Comprehensive IH program
- Operational control with defense in depth
- Continuous improvement
- Workforce information and engagement

Information sharing links of interest to the committee and the public

- Publicly available website here: <https://hanfordvapors.com/>
 - WRPS-1700777, Hanford Vapor Integrated Safety Management Strategy and WRPS-1700022, Comprehensive Vapor Action Plan <https://hanfordvapors.com/reference-materials/document-library/>
 - Want to see settlement agreement items? https://hanfordvapors.com/wp-content/uploads/2018/08/SA-Page-4_30_webpage-items.pdf
 - Want to see the AOP-15 event investigation reports? <https://hanfordvapors.com/whats-in-the-tanks/vapors-events/aop-015-event-investigation-reports/>
- Want to see the tank farm vapors data? <https://www.tankvaporsexplorer.com/>
 - Also linked through the PNNL-Hanford Online Environmental Information Exchange (or PHOENIX) application: <https://phoenix.pnnl.gov/apps/gallery/index.html>

Key takeaways from the Effluent Treatment Facility update

Communication and worker engaged has to be one of our high points of our efforts. Vapor monitoring, injection center activities are preemptive and not reactive. We have engaged Stoneturn Consultants to assist in efforts for Vapor Management. We strive to continuously improve environments of safety.

- Overt and continuous **communication and worker engagement** must be the key focus area
- Vapor Monitoring and Detection System, DFAS Smart Sites, personal monitoring, reader boards to achieve **pre-emptive vs. reactive** program
- Stoneturn Consultants, independent third parties, are validating the IH program as technically sound and **progressing towards risk-based controls**
- Striving towards the **are safe and feel safe** vision everyday as we institutionalize the safety program and process improvements with the help of our workforce

Agency Perspectives

Ecology was excited to see all of this, relief to see more real time data.

Board Member Questions, (Q), Responses (R), and Comments (C):

Note: This section reflects individual questions, comments and Agency responses

Q: The NUCON unit is this a unit that would continuously be taking air from tanks?

R: It hasn't been scaled as large as a double-shell tank, it's a low-flow situation. I do not see it as replacing vitalization but see it as a potential tool. As we go testing and work on getting permitting to do testing on site. (BY tank which has worst contaminant) we want to see how it performs out in the field and as it works through additional testing.

Q: Are the vapor filters off-the-shelf or specialty?

R: Off-the-shelf and that is the reasons why we chose to test them. They really only test groups of chemicals and target specific chemicals of concerns (because not all will reach the workforce).

R: We tested Air-purifying respirator (APR) as two separate tests even though it's has the same material it has different characteristics.

Q: Is there a formalized group meeting to inform how things are going or looking at normal process? Package feedback? Is there an organized group meeting?

R: We have a committee, and we routinely (monthly) to review vapor related information.

Q: Thank you for the presentation. Do you have the equipment that can identify if someone was exposed to the vapors in the field?

Q: Jim talked about personal monitors, the ammonia indicator. Ammonia is prevalent in all tanks and largest contributor in all tanks, we have adopted some procedures for stack monitors. If we see 6-part per pavilion, we know something is going on and we are trained to investigate. We are in a good place allowing us to detect ammonia.

R: One of the key things we are able to track are chemical plumes and vapors. We have to protect against exposures and to solve it so that work can continue. We are trying to get some run time so we can understand how all the operations are affected.

C: Appreciate the briefing, well done. IH technician, have the Project Team done anything with qualification program to address the vapors of what we are seeing the understanding and ability.

R: Yes, we did and the last few years working with HAMMER we have made a strong program and it is part of their qualification program. We have gone back and taken the grandfathered role to re-train them.

Q: Talked about real-time, is there anything like weather detection similar to notify?

R: A data infusion pulling Hanford data every 15 minutes displaying on the dashboard. Able to see stack monitoring information. Mission elapsed time (MET) conditions and able to look at that, using information from QRA's to see potential risk areas. The ultimate goal – display information on dashboard out in work areas so workers are now empowered with that information to understand that condition as well.

Q: On what farms?

R: AX stacks 702AZ and receive from AP Tank Farm this year expanding AW and AN. Turnover is scheduled to occur so that it will be a fully active operating system this year.

C: Installed public announcement systems so even if they are out in the field working, it can target specific PA system areas.

C: Figure out who is responsible and how they can take action.

C: Most impressive is the capability resides out on the cloud, as long as we can plummet into the HLAN, any HLAN can get into that data.

Q: As a big advocate for personal monitoring, I am happy to see this taking place.

R: Everyone that enters the tank farms is wearing them.

Q: Clarify to Jim how to make sure protection in place and education in place to continue?

R: That's why we wanted to do that look back in time. Update entire programs and will continue to collect data to drive forward. I think you're right we have made a lot of progress and a lot of it is based on trust and we have to continue to nurture that. Make sure we have the right communications strategy moving forward.

Q: Communication one had to do with monitoring and communications.

R: Part of the communication is one-way sharing of information, but the other part is two way communications which was something not done for example, back in the 1980s. So a strong focus this year is an institutionalized worker engagement piece. Almost everything we have done here has had workers involved and telling us what they need.

Rebecca Holland thanked everyone for presentations and closed the agenda session.

Committee Business

Bob Suyama introduced the topic of Committee Business for TWC. He explained that he will touch base with some people working on things with Vince Panesko (lateral flow), Jeff (grout effort) and for Critical Path Direct Feed Low Activity Waste (DFLAW) and find out what facilities are on the critical path. TWC committee business included the following:

- Holistic negotiations, what it is, progress made
- The high-level waste alternative analysis

Bob announces there will be Committee calls next week on November 19 and 20th and noted that members should expect a full day meeting surrounding the topics of the Vince Panesko and Jeff Burrigh papers at the next TWC meeting.

Rebecca Holland introduced the topic of Committee Business for the HSEP. HSEP committee business included the following:

Topics Table

- Traffic Safety
- Waste Draft Primer
- Site-Wide Respiratory protection program
- Heat Stress Mitigation/worker monitoring
- Organizational and safety culture

Rebecca Holland announces HSEP does not need to meet on Tuesday, November 19 but requests a call after the December full board meeting.

Open Forum

Bob Suyama and Becky Holland open discussion for members to provide general thoughts.

Committee Member Questions (Q), Responses (R), and Comments (C):

Note: This section reflects individual questions, comments, and agency responses.

C: I have an idea for the future TWC agenda. There was confusion on how Functional Requirements Design Criteria (FRDC) got the number on the supplemental treatment of Hanford Tank Waste and it generated questions looking at waste volume flow through the system currently pVIDroposed. I think it would be helpful to say how much high-level waste we have, how much liquid added to waste and waste volume.

R: We will talk to and follow up with Jeff Burright.

C: I know you had some comments issuing advice on traffic safety and you have some comments if we proceeded to write further advice. If you had any comments right now or have any later, you can send them to me (Rebecca Holland).”

C: I wanted to thank Jim Lynch for his presentation today, you did a great job.

R: I like this role because speaking passionately about this project helps me understand your concerns too, so I appreciate it.

Attachments

Attachment 01: Effluent Treatment Facility Upgrades to Support Direct-Feed Low-Activity Waste (FDLAW)

Attachment 02: Update On Tank Farm Vapors

Attendees

Board Members and Alternates:

Jeff Burright, Member	Rebecca Holland, Member	Bob Suyama, Member
Chuck Torelli, Member	Tony Umek, Member	Marissa Merker, Alternate
Susan Leckband, Member	Antone Brooks, Member	Margery Swint, Member
Gerry Pollet, Alternate	Richard Bloom, Alternate	Pam Larson, Member
Dan Soltiz, Member (Phone)	Liz Mattson, Member (Phone)	

Other Meeting Participants:

James Lynch, DOE-ORP	JoLynn Garcia, DOE-ORP	Tom Rogers, WA-DOH
Dana Gribble, MSA	Stephanie Schlieff, Ecology	Katie Hall, Ecology
Richard Value, DOE-ORP	Steve Killooy, WRPS	Peter Bengston, WRPS
Ginger Wireman, Ecology	Anne McCartney, DOE-ORP	Kelsey Shank (Phone)
Lindsay Strasser, North Wind Solutions (Phone)	Colleen Drinkard, MSA (Phone)	Adrian Woolcock (Facilitator), ProSidian
Ashley Herring, ProSidian Facilitation Team		