FINAL MEETING SUMMARY

HANFORD ADVISORY BOARD
HEALTH, SAFETY, AND ENVIRONMENTAL PROTECTION COMMITTEE
August 8, 2013
Richland, WA

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This is only a summary of issues and actions in this meeting. It may not fully represent the ideas discussed or opinions given. Examination of this document cannot equal or replace attendance and public participation.

Opening

Becky Holland, Health, Safety, and Environmental Protection Committee (HSEP) chair, welcomed the committee and introductions were made. The committee approved the May meeting summary.

Safety Culture Update[*]

Agency presentation

Steve Pfaff, U.S. Department of Energy – Office of River Protection (DOE-ORP) said DaBrisha Smith, DOE-ORP, will be assuming leadership of the Safety Cultural Integrated Project Team after being part of the team for some time. DOE will be continually changing team members based on recommendations from the self-assessment; these changes will occur approximately every 18 months. Steve's presentation

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

focused on results of the Safety Culture Improvement Plan Effectiveness Review over the first year efforts (Attachment 2). In his presentation, Steve noted the following points:

- DOE responded to recommendations from the Defense Nuclear Facilities Safety Board (DNFSB) by preparing a Safety Culture Improvement Plan and completing an Effectiveness Review. Past issues include a perception by workers that any concerns they bring forward will not be addressed and that management does not want to hear concerns.

- DOE-ORP released the Safety Culture Improvement Plan in April 2012. This plan includes nine "Near Term Improvement Actions" that were completed in April 2013. An effectiveness evaluation was performed in May 2013.

- There has been a lot of progress in safety culture improvement efforts but there is also a lot of work remaining. The near-term actions are expected to require five to seven years before full implementation is complete.

- Most of the 9 Near Term Actions have been partially implemented and are either partially effective or the effectiveness is indeterminate. This is largely because the actions were recently implemented. There was not enough time between the start of implementation and the effectiveness review to see definitive results. DOE-ORP has received positive feedback on some of the action items and time will determine long-term effectiveness.

- Two of the nine Near Term Actions are considered fully implemented: establishing an issues management system and improvements to the Employee Concerns Program.

- The issues management system allows any employee to input an issue into an online system. Issues in the system will be visible to everyone and must be addressed at some level. One issue with the system is that it is not anonymous. Some employees may be reluctant to raise concerns using their name, which is why this action item is considered only partially effective.

- DOE deputy management has been very involved in safety culture improvement efforts, which was recognized by the Effectiveness Review.

- Next steps include updating the Safety Culture Improvement Plan in August 2013 using data from the recent effectiveness review, the safety culture self-assessment and recent surveys. DOE – Office of Health Safety and Security (HSS) will also be conducting a follow up review in early 2014.

Committee discussion

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments. Questions, comments, and responses were provided by HAB members unless noted otherwise.

Q. Can DOE provide more information about the incentives being used?

> *R. [DOE] In the past, contractors received performance-based incentives for completing certain tasks. These incentives worked well for rewarding actual fieldwork but became a drain on federal resources as DOE had to verify many small incentive projects. DOE is consolidating small incentives into larger incentive programs. Incentives will also start to focus more on areas such as safety culture that do not have simple checkboxes and will require more subjective analysis. Contractors will be rewarded for resolving their own issues.*

Q. Has DOE addressed the safety culture aspects of the interface between DOE-ORP personnel and the contractors they work with?

> *R. [DOE] The tank farm contractor has completed its own self-assessment. There has not been a major emphasis on improvements between the interface of DOE-ORP and the contractor. Bechtel has identified 50 improvements actions and has its own individual plans that it will be working through.*

C. The public has a very different perception about the Hanford Site than what DOE has portrayed in their presentation today. DOE should issue some sort of news release that details how DOE had a problem with safety culture in the past but are now addressing the issues through the new safety culture program and have made major changes.

> *R. [DOE] DOE appreciates the suggestion and will bring it forward to the communications team.*

C. Improvements in safety culture will not occur until these initiatives are implemented through the contractors and employees in the field. Public perception of safety at the Hanford Site will not improve until improvements occur at the contractor level.

> *R. [DOE] This safety culture plan is from the perspective of DOE-ORP. There have been improvements within DOE-ORP, starting at the top levels. Those improvements still need to move throughout the entire organization. The focus from the DNFSB has been on the Waste Treatment Plan (WTP), including DOE-ORP. The current efforts are only a starting point for overall safety culture improvement throughout the Hanford Site.*

HSEP requested that DaBrisha begin providing briefings and communicating with the committee as the Safety Culture Integrated Project Team continues working through the Near Term Action Items. The committee will provide input as needed.

Buildup of Flammable Gas in Double-Shell Tanks[*]
(Joint topic with Tank Waste Committee)

Issue Manager introduction

Dirk Dunning, co-lead Issue Manager for the topic of flammable gas buildup (also known as buoyant displacement gas release events or BDGRE) in the double-shell tanks (DSTs), said this issue is similar to the burping tank problem identified in the 1990's. The mix of waste chemicals in the tanks undergoes unusual reactions. Radioactive decay causes chemicals that would not be found together naturally to mix and react. Waste forms in the DSTs change over time because of these chemical reactions, potentially leading to the formation of a bubble underneath the sludge in a tank. This bubble may be released as a burp. Dirk said the current concern with BDGRE involves the same type of chemistry. A BDGRE could occur if the level of liquid in a tank drops low enough to allow a bubble to form. If that bubble has trouble moving to the surface, it could lead to an explosion. The Board would like to understand that process and understand the dangers in terms of tank operations.

Agency presentation

Tom Fletcher, DOE-ORP, and Kevin Sandgren, DOE-ORP, provided a briefing about BDGRE. Tom noted the following points:

- The current Documented Safety Analysis (DSA) is broken into three categories: steady state, induced releases and possible instantaneous BDGRE. Five tanks have been identified that could have possible instantaneous episodic releases.
- Current DSA controls include lowering the flammability limit by controlling any potential ignition sources instead of relying on ventilation in the event that there is an instantaneous release.
- DOE is currently testing two different inflow monitors that will provide instantaneous flow rates through the tanks. Testing of the two monitors will be complete in January and then monitors will be installed. Monitors will be placed in the header coming off the tank, moving into the ventilation system to provide a more conservative viewpoint.
- The pressurization alarms are not specific to release events; they are specific to transient vapors and are designed to protect workers rather than identify a BDGRE. Worker safety is vital. If a pressurization alarm is triggered, DOE will attempt to take measurements in order to determine how much gas was released. These alarms do not reflect concerns about explosions in the tanks.

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

- If pressurization alarms are not in service there will be an active watch. An employee will monitor the controls to ensure there is not positive pressure. If positive pressure is observed, that employee will act as the alarm and alert other workers.

Committee discussion

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Q. Are the controls only for worker safety? Do these alarms account for the 2400 different types of vapors that could be present around the tanks?

> *R. [DOE] The pressurization alarm is for worker safety and operates according to as low as reasonably achievable (ALRA) standards for vapors. The alarms indicate a loss of ventilation. When an alarm is activated everyone should leave the area until ventilation can be restored and negative pressure is pulled through the tanks to ensure there is no transient release. Vapor release in any farm at any level is enough of a reason to evacuate the area.*

Q. How is monitoring for flammability levels occurring without the Standard Hydrogen Monitoring System (SHMS) cabinets?

> *R. [Kevin] The SHMS cabinets were unreliable. DOE uses a calculation to determine the amount of gas present in the head space and uses a hand-held meter to evaluate, giving a good estimation of what is in the tanks. The number of readings differs for each tank because the time for buildup is different from tank to tank.*

Q. Is there a requirement for the pressurization alarms to be functional in order for people to be working in the tank farm area?

> *R. [DOE] The alarms either need to be working or there needs to be a watch in place that is actively monitoring pressure levels. These alarms are not part of a DSA requirement for people to be working in the tank area. DOE will verify what the regulations state and provide that information to HSEP (action item for Tom).*

C. There is a major concern from the worker perspective about conducting intrusive work on a tank without a functional pressurization alarm. Workers are uncomfortable relying on someone with a megaphone to alert them to any potential dangers. The person acting as the alarm may not be aware of everyone who is working at the site and might not be able to alert everyone.

> *R. [DOE] DOE appreciates hearing that feedback as staff are working to improve management at the tank farms. Worker safety is the highest priority and DOE will discuss this concern with management and Washington River Protection Solutions (WRPS) to develop a better system.*

C. In order for a BDGRE to occur there must be a combustible material, an oxidizing source, and a spark. The difficultly with the tanks is that the chemistry cannot be controlled; the oxidant and flammability occur automatically. The only option for DOE is to control the spark. This spark can be something very small, like dropping a penny or a battery with a one-volt charge. Hydrogen gas can create its own spark that could detonate a cloud if forced through a small opening because it has an electric charge. If any ignition event occurs, there could be detonation in the tanks with potential damage to the tanks. A tank dome could collapse, which would be a very large event. The goal is to set up a condition in which this type of situation could never occur; in this case, that requires maintaining enough liquid in the tanks so the solids do not degenerate.

Q. What are the consequences of a major BDGRE event? What are the consequences if a dome is compromised?

> *R. [DOE] The significant hazard is not release of radioactive material. A pressure wave could have serious consequences and a tank collapse could occur. All the tanks are well below the threshold of concern for BDGRE events. An expert panel looked at these types of events.*

HSEP requested another briefing after some of the current actions are implemented, such as installation of the flow rate monitors. The report for those monitors should be available in January so an update may be appropriate in the January-February timeframe.

Briefing on DOE's Emergency Preparedness Program[*]
Joint with River and Plateau Committee and Public Information and Communications Committee

Agency presentation

Steve Sanders, DOE-RL, provided an overview of the Hanford Emergency Preparedness Program (Attachment 3). In his presentation, Steve noted the following points:

- The objectives of the program are to protect the health and safety of workers, the public and the environment in compliance with DOE requirements.
- Preparation for emergencies includes individual trainings, drills, and various exercises that are evaluated to determine readiness for emergency response. These exercises include off-site participation.
- The response aspect of the plan includes a number of organizations, facilities, and equipment that is frequently tested. Off-site agencies are given coordinated plans and there are periodic meetings.

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- Consequence Assessments are part of the response and include computer models that are approved by DOE-Headquarters using worst-case scenarios. These pre-planned assessments are conservative.

- Recovery begins when the emergency situation is stable and emergency response measures are no longer necessary to protect people.

Committee discussion

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C. For emergencies that have long-lasting effects, the U.S. Environmental Protection Agency (EPA) Seattle Office assumes control once the recovery phase begins.

> *R. [DOE] EPA would take control during a national emergency and would lead emergency response efforts in conjunction with the Office of Homeland Security. Once the security situation is resolved, DOE would continue to lead on-site recovery efforts.*

C. Plans for the size of the Hanford Site differ between DOE-RL and DOE-ORP. DOE-RL is focused on reducing the footprint of the Hanford Site to the Central Plateau. As DOE-ORP continues preparing for WTP operation, they would like to maintain a larger boundary for the Hanford Site to better prepare for emergency events.

> *R. [DOE] DOE-ORP has stated a number of times that by restricting the boundaries of the Hanford Site, any emergency could be declared a General Emergency. The definition of a General Emergency includes anything that falls outside of the Hanford Site boundaries.*

C. During recent drills, offsite agencies have been told to establish a 20-mile boundary around the Hanford Site. It is important to start engaging areas that could be impacted by emergencies at the Hanford Site; many of these areas do not have relationships with DOE and do not run drills in preparation for an emergency. There could be dozen of jurisdictions involved in a major event at the Hanford Site and DOE would likely not know who to contact for many of them.

> *R. [DOE] Boundaries of the Hanford Site will be decided at a national level. The nominal emergency planning zone is ten miles; any emergency extending beyond the planning zone would necessitate figuring out operations on the fly.*

C. During a recent drill at Energy Northwest that simulated a 7.9 earthquake in the region, there was a lot of confusion about overlapping communications.

> *R. [DOE] A frequent point of discussion is which information center would be used by which agency if there was a joint event.*

Q. What feedback is DOE interested in hearing from HAB on the emergency preparedness plan?

> *R. [DOE] DOE requests that HAB members keep risks in perspective, especially when hearing news reports that the Hanford Site could explode and other exaggerated dangers that are often taken out of context. The Board can help share accurate information on the real risks. Richland is a nice place to live and there are plans outlining the response in the unlikely event of a major emergency.*

C. It would be helpful to have more Board members observe emergency response preparations during the upcoming drill. DOE is only allowing two Board members to observe and an additional two Board members will be observing as part of their jobs.

> *R. [DOE] DOE would like to limit the number of people observing the drill because of space limitations. Work spaces are small and there are already many people required to participate in the drill or to observe for evaluation purposes. DOE is balancing the desire to have as many people observe as possible while still running the drill effectively. There is another exercise scheduled in November so there may be another opportunity for Board members to observe. Kim Ballinger, DOE, will follow up with Board members who are interested in the August drill.*

C. The overview of the program is helpful to understand how it functions at a high level, but specific examples are always helpful, especially for promoting public awareness of the program. The public has a lot of questions about what to do in the case of an emergency such as what would happen if the power goes out, what different sirens mean, and where they should go. It would be interesting to incorporate the public response into drills and understand how the public factors into emergency preparedness.

> *R. [DOE] The public notification aspect of emergency planning is outside of DOE's scope and would be handled by the affected counties and cities. People living within the emergency planning zone receive a tone alert on the radio and are given information every year about hazards at the Hanford Site along with replacement batteries for their radio.*

C. It would be helpful for the Board to have a better understanding about what really happens in the event of an emergency from the perspective of an off-site person.

> *R. [DOE] That type of information would need to be coordinated through the counties. DOE could provide a broad, high-level overview and can check on the possibility of having a more in-depth discussion that includes off site response plans. Pam Larsen may be able to help coordinate through Benton County.*

C. There are complications when coordinating between the states of Oregon and Washington. Each state has differing approaches to how the state and counties coordinate during emergencies that creates complications for the interface boundaries from who has responsibilities for sampling, setting up roadblocks, communications, and controlling traffic on the Columbia River. It may be possible to explore these types of issues through narrative examples to determine what would happen during a major event.

C. DOE may be overly optimistic about how quickly the site could be evacuated. In the past there were buses available that could transport people during an emergency; those buses are no longer at the Hanford Site. Relying on computers or radio for communications would not work during a power outage.

> *R. [DOE] DOE has taken factors such as power outages into consideration. All sirens on the Hanford Site have battery backup systems that are tested frequently. DOE also considers how to ensure people are able to travel using safe routes during an evacuation. Workers should not be concerned about not having the buses at the site since there are enough cars on site to evacuate everyone if needed. People are very responsive to directions during drills and were able to move from one staging area to another.*

C. People behave differently during drills. Workers were stating that during a real earthquake they would leave without waiting for directions.

> *R. [DOE] It is critical to communicate the importance of waiting for directions. DOE's job is to protect all employees and would not want employees leaving without having all the information necessary to keep them safe.*

Next steps for this topic include a possible debriefing of the August drill by the Board members who are able to attend. HSEP could discuss aspects of the drill that went well and what could be improved upon. DOE has asked for the Board's help with emergency response planning and communicating with the public. HSEP also requested a possible workshop to talk through different scenarios and ask questions from a public perspective.

Committee Business*

Susan Hayman, EnviroIssues said that the Executive Issues Committee (EIC) reviewed the 2014 HAB Work Plan with input from DOE, EPA, and the Washington State Department of Ecology (Ecology). This work plan will be brought forward during the September Board meeting for approval. Susan suggested waiting to update the current HSEP three-month work plan (Attachment 4) until after the HAB Work Plan is adopted. The committee did not identify any topics that would be timely for a meeting in September. They will plan to have a September call for work planning but will not have a call in August.

Attachments

Attachment 1: Transcribed Flip Chart Notes
Attachment 2: Safety Culture Improvement: Past, Present and Future

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

Attachment 3: Hanford Emergency Preparedness Program Overview
Attachment 4: HSEP – 3 Month Work Plan

Attendees

Board Members and Alternates

Richard Bloom	Laura Hanses	Liz Mattson
Antone Brooks	Rebecca Holland	Margery Swint
Sam Dechter	Steve Hudson	
Dirk Dunning	Pam Larsen	

Others

Tom Fletcher, DOE-ORP	Philip Gent, Ecology	Alex Nazarali, CTUIR
Kevin Sandgren, DOE-ORP	Erika Holmes, Ecology (phone)	Nicole Addington, EnviroIssues
Michelle Searls, DOE-ORP	Dennis Faulk, EPA	Susan Hayman, EnviroIssues
DaBrisha Smith, DOE-ORP		LB Sandy Rock, HPMC
Steve Pfaff, DOE-ORP		Sharon Braswell, MSA
Kim Ballinger, DOE-RL		Michael Turner, MSA
Steve Sanders, DOE-RL		Reid Peterson, PNNL