

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
HEALTH SAFETY AND ENVIRONMENTAL PROTECTION MEETING
March 10, 2010
Richland, WA**

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

Welcome and Introductions

Mike Korenko welcomed everyone and introductions were made. The committee adopted the October meeting summary.

C-104 Tank Incident

Fred Beranek, Washington River Protection Solutions (WRPS), presented the results of the Industrial Hygiene (IH) Technical Basis for the tank farms. He said more than 1,800 possible chemicals were reviewed to generate the chemicals of concern. He said approximately 1,500 chemicals were detected in tank headspaces. He said of the chemicals of potential concern, 59 measured above 10% Occupational Exposure Limit (OEL) in headspace or at an emission source. He said each tank farm’s characterization determines the farm specific Chemicals of Potential Concern (COPC), which is signified by 50% OEL at the source.

Fred said Acceptable Occupational Exposure Limits (AOELs) were developed for each chemical that did not have an established Occupational Safety and Health Administration or American Conference of Governmental Industrial Hygienists limit. He said the evaluation of chemicals included reviewing foreign country exposure limits, chemical properties, available literature and databases, surrogate chemicals, toxicity, as well as laboratory analytical and field measurement capabilities. The Pacific Northwest National Laboratory was involved in the AOEL development and the process has been published.

Fred went over the improvements on the IH procedures, practices, and quality assurance since 2004. He said there was a technical basis and characterization strategy established. There were sampling and analysis methods and equipment maintenance processes developed. He said WRPS evaluated and purchased upgraded equipment and developed operating procedures for equipment. He said WRPS also increased staff by a factor of four, training and response, as well as the development of a tank farm industrial hygiene database. He said currently the tank farm sampling strategy review is being conducted by the Hanford Concerns Council Independent Review Team. He also said WRPS is looking into new instrumentation such as a proton transfer reaction (PTR)-MS at Washington State University. They purchased a Fourier Transform Infrared (FTIR), which is being tested on site. This new instrumentation will measure all 59 CPOC in real-time.

Fred presented some of the lessons learned from the C-106 tank retrieval. WRPS learned that chemical releases will occur when sluicing breaks through the waste surface and to be better prepared in terms of stack sampling. He said the main changes made after C-106 were an increase in stack height (currently at 13 feet), removal of the cap on stacks, new sluicing technique with less water and the development of response procedures.

Fred referenced a photograph of the C-104 to AN-101 transfer and noted that in the C Farm there are berms that will come into play when material is pumped out of C-104. He explained different forms of sampling and real-time monitoring and their locations. He stated that there are no alarms in the field because they have a history of falsely alerting workers. There is a sense alarm in the trailer and workers can evacuate if need be.

Fred explained the C Farm chemicals of concern summary. He said there was personal sampling done in which 153 samples were taken with 85 sample results received and 307 data points. From these 307 data points, 97% were less than the detectable limit and were less than 2% of the OEL. He said there were 726 samples taken for each area sampling with 277 sampling results and 806 data points with 98% less than the detectable limit and less than 3% of OEL. He said source sampling was done in the stack and 42 samples were taken with 22 results and 61 data points with 66% less than the detectable limit. Fred said during grab sampling, 49 samples were taken at the source and area locations and the results were consistent with the sample results. He said WRPS is tracking these samples and does not have all the results back from the lab.

Fred said it is possible to smell chemicals below harmful levels, and he said the two most odorous are ammonia and butanal, which are both below the OEL. He said the sense of smell is your body telling you there is something that could potentially harm you.

Fred said voluntary respirator use is always encouraged and is based on training; however, it is only required in vapor control zones which have been expanded. He said respirators are also required when 50% of OEL is exceeded and if a worker has a medical restriction.

Fred presented a bar graph displaying the Self-Contained Breathing Apparatus (SCBA) injuries that occurred from 2004-2010. He said there have been issues regarding working

with SCBAs and the injury levels from wearing them are very high, introducing additional risk.

Fred provided a list of implemented As Low As is Reasonably Achievable (ALARA) actions that have taken place in the tank farm. He said vapor reduction zones have been established and WRPS has encouraged use of filtering face pieces. He said remote reading and alarming area monitoring capabilities have been installed, and grab sampling has been increased to make sure nothing changes during sluicing.

Fred said WRPS is exploring engineering controls and accelerated initiatives. He said an increase in stack height of 20-40 feet above the berm and a reduction in stack diameter to increase discharge velocity will help the problem. He said they are also investigating routing stack discharge to remote locations via ductwork and booster fans and using new exhausters for future retrievals are actions to move exhaust away from people.

Rich Urie, Department of Energy Office of River Protection (DOE-ORP), provided an ORP health and safety update for C-Farm vapor issues. He said surveillance activities have come up due to an integrated project team with a nationally recognized industrial hygienist that has developed upgrades and acquired the concurrence of DOE-ORP, WRPS and the Hanford Concerns Council. He said DOE-ORP initiated pre-start reviews which include talking to workers and doctors, IH sampling plans, reviewing past data, DOE-ORP IH assessments and air operating permit response improvements. He said in terms of operational surveillance there will be interaction between AdvancedMed Hanford (AMH) and WRPS, field surveillance, pre-job brief attendance, 222-S lab IH support and 27 worker interviews.

Rich said DOE-ORP had to determine the compliance of the health and safety program. He said the IH data that has been reviewed began with historical data which was compared to the baseline. He said the real time data and source samples were also reviewed. Personal exposure and area samples lag behind the operation, which is confirmation of the baseline. DOE-ORP is working to improve upon this turnaround time.

Rich said the real challenge is going beyond compliance. He acknowledged that tank waste is potentially dangerous. He said sluicing generates vapor and DOE-ORP is doing what they can to exhaust it away from the point source. He said conditions have resulted in workers being exposed to vapors at trace levels that are still capable of creating discomfort or subclinical effects at C-Farm.

Rich went over the tank farm procedures. He said if a worker reports odors and gets sick, the worker is sent to the clinic. He said an area is secured and isolated if odor or symptoms are reported. He said this is the same protocol as the National Aeronautics and Space Administration, and there is consensus that these procedures are necessary. He stated that the most commonly reported symptoms of 27 AMH visits by 25 workers over a five-week period were bad metallic tastes, mucous membrane irritation and headaches.

Rich said the primary questions of the workers are “why am I feeling symptoms if all the readings are ‘normal’?” and “is working here making me sick?” He said as a first step

DOE-ORP has recently reviewed nearly 30 peer-reviewed publications on odorant chemical exposures below OEL for possible explanations. He said DOE-ORP does not have all the answers. Workers are breathing vapors that are a mix of low level chemicals, and Shirley Olinger, DOE-ORP, has taken the initiative to have a teleconference with the National Institute of Occupational Safety and Health (NIOSH) in order to share data and symptom ideas which will allow them to determine the risk. He said these workers are working very hard and reported impacts are being taken very seriously.

Rich said he is surprised that he has not been asked if he would allow himself or his wife to work at the tank farms. He stated that he would agree to work at the tank farms as long as masks and sampling apparatus were used coupled with the assurance that DOE-ORP is moving forward with improvements for engineering controls.

Rich said the path forward includes minimizing concerns, operational impacts and discomfort. He said DOE-ORP plans to optimize monitoring for availability of representative exposure data and acquire best available toxicity and worker health data. He said DOE-ORP plans to build a progressive chemical ALARA program with the primary goal being the development and implementation of vapor and odor reducing engineering controls. He said these engineering controls include an extended stack with larger exhaust fan at C-111, long term exploring scrubbers with activated carbon, extended vent systems and continued assessment and utilization of interim controls such as filtering masks.

Regulator Perspectives

- Jeff Lyon, Washington State Department of Ecology (Ecology), said he is in support of moving the stack outside the fence. He said besides all this work being done to protect workers there are still tank chemicals with unknown toxic effects. He said workers are working in an environment with undetectable levels of some chemicals, which is a challenge. He said putting the stack outside the farm is expensive and there are downsides, but there are injuries and downsides from the safety equipment being used as well. He said there are some things that NIOSH will not be able to answer. He said due to unknowns, he encourages reevaluation; and he favors moving the vapors away from workers.

Committee Discussion

- Larry Lockrem said there are many tools for dealing with vapors, all of which can take a snap shot of the vapors at a certain time. He said when the workers smell something and get sick, there should be data being collected at the same time the workers are there. He said getting real time monitoring will enhance perceptions. He said there are carcinogenetic compounds that the nose is not sensitive to, and there are technologies that might help detect these. Fred said WRPS is continuing to look at technologies as he mentioned in his

presentation. Larry said the nose is an excellent tool; however, there are 1800 compounds that are odorless and in the future there should be real time monitoring that can detect these compounds. Larry also mentioned the FTIR instrumentation technology being currently tested on-site which he said may help this situation.

- Jeff Luke asked what is meant by subclinical effects in Rich's presentation. Rich said the term subclinical is a NIOSH term which means the symptom cannot be clinically confirmed, such as a headache or metallic taste. Jeff asked if mucus can be seen and confirmed. Rich said if there is inflammation it should be observable. Jeff asked if there have been any clinical findings linked to odors that are observable. Rich said not since he has worked in the tank farms. Fred said this would be a good question to ask AMH. Jeff said it is important to know if there were clinical links that are identifiable and could be demonstrated. Shirley said AMH has not told DOE-ORP about past issues resulting from odors, but there has not been an independent review.
- Tom Carpenter said there have been a number of cases at the tank farms where people have received long term medical disabilities in the past decade due to chemical vapor exposure. He said there is clinical evidence and cause for concern on past exposure cases. He said he would be happy to work with the committee to get these documents together. Jeff said it would be useful to the HSEP committee if he gathered these documents on medical disabilities associated with tank farms.
- Jeff asked about the sampling results from Fred's presentation and said there are inaccuracies in the percentages. Fred said these discrepancies are due to samples that have been taken and have not come back from the lab with results yet. He said WRPS is working on making this process move faster than the current six weeks.
- Keith Smith said there was a previous program with a panel of experts which helped to set exposure limits. Fred said all of these ideas were in place before, but he is not sure why progress was stopped in the past. Keith asked if DOE-ORP knows why these efforts stopped. Steve Pfaff, DOE-ORP, said he would have to look into this.
- Keith said C-106 had similar vapor problems, and DOE-ORP should have applied lessons learned to C-104 and taken extra steps to have more protection until more knowledge was gained. Fred said C-104 is a particularly noxious tank which is why there were extra steps taken in this case.
- Shirley said DOE should place importance on AOELs. She said the focus in the past has been on if the chemicals are detectable and now the ALARA approach is needed to improve upon this and to prevent the legacy worker of tomorrow
- Shirley said DOE is required to learn as they go and this issue does not affect a big enough population to be of big interest.

- Shirley said another issue is that people cannot differentiate from chemicals at home and work. She said DOE is trying to do the best they can and handle workers who are clearly affected. People are sensitized to different chemicals at different times which changes over time
- Shirley said she is pleased that WRPS is willing to help on the ALARA approach to balance risk in order to get to the best solution in the Consent Decree. She said there are 40 more years of workers being exposed, and these issues need to be figured out. She said it used to be correct to assume that if the chemicals cannot be detected it is safe; however, there is still a percentage of workers who are getting sick.
- Mike Korenko said he was impressed with the presentations. He asked why there is not a filter on the exhauster when the technology works on the masks. Fred said the use of this technology is a long term concept. He said there was a carbon bed, but moisture would be an issue. He said this can be done on stacks, but it is a more complicated solution. However, he is aware of the technology. Mike said there must be commercial availability of this technology. Fred said WRPS is looking into these possibilities now.
- Mike said at the top level DOE is doing a good job of assessing risk; however, people are still getting hurt so there needs to be changes that effect daily operations. He said workers have to make a decision on whether or not to wear a mask. Factors such as weather might also be considered. He said the issue surrounding wearing respirators is a failure of Integrated Safety Management System (ISMS) on a daily basis, which may provide an opportunity for the HSEP committee to draft advice. Fred said the plan of the day does take into consideration weather ; however, this is mainly in the winter season. He said there does need to be ways to combat the weather inversions which could be a lesson learned.
- Shirley said there is a culture of not caring about exposure at Hanford. She said DOE is attempting to change this culture with input from the Chemical Solutions Team. She said it is comparable to the issues with radiation 20-30 years ago. She said workers even avoid wearing masks so they do not get made fun of. Mike said the workers have to be involved with the hazards of an incident.
- Jeff Lyon said DOE-ORP does make a daily effort for safety. He said there are still opportunities to be exposed even with filters, and he thinks getting what is potentially harmful away from the workers is worth the money.
- Mike asked if in the plan of the day weather is considered. Fred said DOE-ORP does consider weather conditions, yet vapor elements could be better addressed with the plan of the day.
- Keith said he is asthmatic and used respirators to avoid vapors when other workers did not. He said pressing the issue of workers wearing respirators is important. He said people need to understand that there are consequences. Fred said DOE-ORP has looked into determining worker sensitivity by asking

questions when people are hired; however, this has to be kept voluntary. He said if the worker goes to AMH several times, it is possible to place medical restrictions on the individual and require a respirator. Maynard asked if there is a test to measure a worker's sensitivity to a chemical. Fred said no, this is not like other allergies.

- Lou Alcala, WRPS, said the symptoms are real and do happen in the tank farm. He said the main concern is what is happening now because there is no science for what is going to happen in 20 years. He said the biggest challenge is how to protect the workers. Rick Ennis, WRPS, said it comes down to accountability with the masks and peer pressure. Shirley agreed and said there are cultural barriers associated with the masks.
- Tom said he agrees with having engineering controls in place to get the vapors out of the tank farms. He said it is difficult to know what people have inhaled and what the long term impacts are. He appreciates that the ALARA program is considering the risks and dangers, and he knows there have been many cultural issues and is glad there is an effort to look at this situation.
- Liz Mattson said trust is a part of the cultural issues and messaging about the uncertainty is important. She said talking about these issues can be challenging, and she thought there was a process in place to get a consultant to assist on these topics.
- Ginger Wiremen, Ecology, said there might be a way to have a questioner on sensitivity to chemicals. She said there is a trend called community based social marketing that could be looked into for additional techniques. She said self evaluation is important.
- Keith said there were some issues discussed that might produce advice. Mike said sometimes the purpose of advice is to make people listen, and this has been a good dialogue with good listening. Fred said this has been a good discussion and DOE-ORP can come back and give updates on the tank vapor program.

Beryllium

- Keith said DOE-Headquarters (HQ) initiated a conference call with the Board about the recently adopted Be advice and letter. He said DOE-HQ took the advice literally and stated that they were going to follow the advice to the letter. DOE-HQ brought in people to review the Beryllium (Be) program and hopes the advice from the Board will further strengthen the program and help with flaws in the program. He said paying attention to ISMS principles will mitigate these problems since much of the program is not getting down to the worker level.
- Mike said there are failures and unknowns coupled with hazards with the Be program. In some facilities, it is not known where the hazards are located and very few people are tracking the data. He said there should be better

communication. He said there is training for Be workers; however, certain workers might run into Be dust on a light bulb without having had proper training.

- Keith said he heard about a worker complaining about not having access to respirators due to regulations being outdated. He said a safety program is not good unless the workers are well trained and the program works for them. Mike said right now DOE-HQ is responding, and HSEP should actively monitor the current actions in terms of Be.
- Maynard asked if there was a written response to the last advice. Keith said not yet. DOE-HQ will respond, but did not want to wait to take action on the issues raised which is why they held the conference call.
- Mike said DOE-HQ is trying to move more quickly with the overarching objective to keep people from getting hurt. He also thought some tweaking of the safety program should occur to prevent implement failure. He said DOE-HQ has to work with the Department of Labor and local field offices to move forward, and HSEP will help in advising the process as needed.
- Harold said the first Be conference call with DOE-HQ was very positive, but on the second call there seemed to be less commitment.
- Gerry said HSEP should look at producing advice on the Be program review. He met with John Martini and the review will last three weeks or more. He said the review is being done in waves and it will take a while to see results. He said Glenn Pedonski was informed that past advice has been ignored, and there was discussion of actions that could be taken now. He said DOE was already given money to send out letters to workers about risks and reasons for getting tested, but it was never done. He said HSEP should produce advice regarding the characterization of all buildings at a minimum detection level.
- Mike said most of the past research done by DOE was historical data not in person interviews.
- Keith said there are known cases of Be sensitization in areas said to not have Be.
- Gerry said the worker claims of Be exposure from soil have been disproven, and it is extremely unlikely with coal. He said there could be a possibility of exposure with fly ash.
- Sharon asked if the buildings where people were sensitized were in the 300 Area. Gerry said all the buildings should have been characterized, and the workers should have been interviewed regarding where they were working. Mike said that information has shown that Be has had a widespread exposure.
- Gerry said another advice policy point is that buildings should not be falsely divided. Keith said parts of buildings have been said to have Be and other parts of the same building are said to not have Be, yet the duct work is connected.

- Mike said the question that should be asked before generating advice is if HSEP has a wish list of actions; a list to DOE would be quicker than the advice process.
- Margery Swint said to include what is above the duct work when characterizing the buildings.
- Mike said providing a free physical for workers might be useful. Gerry said if workers are not tested now and have a lung problem in the future, those workers will not know if Be is to blame and will not get diagnosed properly.
- John Britton, WRPS, said WRPS is working actively on items that can be started prior to the review process.
- Gerry said one examination from National Jewish should suffice as a diagnosis. Mike said the issue with diagnosis is something that would have to be addressed at the DOE-HQ level. Gerry said other sites only require one diagnosis for medical and worker compensation. Hanford did not implement this policy. He said this has been raised repeatedly and could be changed tomorrow. He said the building issue with false division is related to medical removal and if workers are sensitized they should not be assigned to a building that has potential exposure to Be.
- Keith said the 300 Area workers avoid getting tested because they will get sent out further on site with a longer commute.
- Gerry said workers should have the right to a safe job, and there is a right to have a different job.
- Mike suggested making the face masks more inviting with decals so the workers would wear them.
- Maynard asked about Be material going out to Environmental Restoration Disposal Facility (ERDF). Gerry said there might be complaints about exposure with regards to ERDF. Keith said the bins that are contaminated with Be are marked. He said there is concern that people do not utilize masks at ERDF. Margery asked why there are not regulations on wearing masks for Be if there are for other contaminants. Gerry said Be is a dangerous waste that should not be going to ERDF. He said encapsulation and treatment of Be needs to be looked at. He said hazardous waste does not go to ERDF. He said how Be is getting disposed is heightening exposure risks. Mike said he will look at past advice and look at questions to ask regarding the disposal of Be.

Committee Input on Be Program Review

1. Do full characterization (whole structure) of all buildings including above (ventilation systems) and below the structure, the entire capacity of a building.
 - Do not falsely divide buildings.

2. DOE should direct AMH to do one-on-one interviews for the last two dozen employees who have been beryllium sensitized.
 - o Do not use a questionnaire.
 - o Have a map available of where workers work/worked to determine
 - o Assist in determining the root cause analysis.
3. Do/Implement past beryllium program review recommendations including risk communication letters. These should be individualized based on where the employee works.
4. Have Be technology company (Paradigm Laser) give a presentation to DOE management.
5. Travel expenses should be pre-paid for medical evaluation.
6. One diagnosis for National Jewish should suffice (independent medical exam) – do not need multiple medical exams.
7. Medical removal of sensitive workers should not be assigned to a job that has any potential for future exposure.
8. ERDF – workers should be using respirators when working with bins of contaminated Be soil.
 - o By 10 CFR 850 rule, workers should be wearing respirators.
 - o Encapsulation and treatment of Be bins should it be going to ERDF since it is a hazardous waste.

Committee Business

Susan Leckband said the meeting with Glenn Podonsky regarding the Be program review will be a half hour and time is limited, it will be a high level conversation.

Keith said he will request a meeting on April 15th to discuss the Hanford Site Biological Controls Program. DOE-Richland Operations will be available to discuss the program. He also noted that Dr. Larry . Jecca is available to come that day to talk about the West Nile virus and what Benton and Franklin County are doing to address the possible West Nile threat. Additionally, Keith will work on confirming the affected lab worker who contracted West Nile virus is available to come to the meeting.

Keith also recommended a brief committee discussion on beryllium and debrief of the meetings held in March with HSS officials.

Keith said HSEP should continue tracking the tank vapors program and receive an update on the program changes implemented this summer. He said Mission Support Alliance will have integrated the safety management to the contractors, he said CHPRC and WRPS are updating their program.

Mike said a DOE presentation on the roles and responsibilities of facility reps would be good to see how they interact and do their plan of the day.

Action Items / Commitments

- Keith will request a half-day meeting on Thursday, April 15 in the afternoon focused on the Hanford Site Biological Controls Program and committee discussion on beryllium.
- Be Issue managers will use the flip chart notes as reference with the meeting with Mr. Ponosky later in March
- Insert action items or commitments.

Handouts

NOTE: Copies of meeting handouts can be obtained through the Hanford Advisory Board Administrator at (509) 942-1906, or tgilley@enviroissues.com

- Hanford Advisory Board March 2010, Fred Beranek.
- ORP Health and Safety Update: C-Farm Vapor Issues and Update of Efforts, Rich Urie, March 10, 2010.

Attendees

HAB Members and Alternates

Tom Carpenter (phone)	Jeff Luke	Maynard Plahuta
Harold Heacock	Liz Mattson (phone)	Keith Smith
Mike Korenko	Gerry Pollet	Margery Swint
Larry Lockrem		

Others

Jodi Manley, DOE-RL	Jeff Lyon, Ecology	Cathy McCague, EnviroIssues
	Beth Rochette, Ecology	Blair Scott, EnviroIssues
Jeff Cheadle, DOE-ORP	Nancy Uziemblo, Ecology	Sharon Braswell, MSA
Lori Gamache, DOE-ORP	Ginger Wireman, Ecology	Mike Priddy, WDOH
Brian Harkins, DOE-ORP		Lou Alcalá, WRPS
Shirley Olinger, DOE-ORP		Fred Beranek, WRPS
Steve Pfaff, DOE-ORP		John Britton, WRPS
Jeff Rambo, DOE-ORP		Rick Ennis, WRPS
Bill Taylor, DOE-ORP		Dennis Tuckness, WRPS
Rich Urie, DOE-ORP		