

FINAL MEETING SUMMARY
HANFORD ADVISORY BOARD
RIVER AND PLATEAU COMMITTEE MEETING
December 7, 2011
Richland, WA

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<p><i>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.</i></p>
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Welcome and Introductions

Dale Engstrom, Oregon Department of Energy and River and Plateau Committee (RAP) vice-chair, welcomed everyone to the meeting and led a round of introductions.

Susan Hayman, facilitator, said changes were submitted to the October meeting summary in order to improve readability. She noted that a few changes were substantive in terms of technical language, and one change was not accepted as it was inconsistent with what was in the meeting notes. The committee adopted the October meeting summary. Susan welcomed any further comments relating to the new summary format. Pam Larson, City of Richland and RAP chair, said she thought the new format was very readable.

Pam announced that Hanford Advisory Board (HAB or Board) member Gerry Pollet was recently appointed by the King County Commissioners to the Washington State House. He will

serve at least a one-year term. Additionally, Pam announced that the Washington State Department of Ecology (Ecology) grants were recently awarded to 14 out of 40 interest groups. Liz Mattson, Hanford Challenge, noted that nothing is official until there are signed agreements, and the groups will only be funded until funding runs out.

Issue Manager Table Update

Introduction

Susan Hayman reviewed the handout River and Plateau Committee Preliminary FY2012 Issues Table (Attachment 1), originally drafted by RAP member Bob Suyama. She noted that the table uses broad categories to identify issue managers for the topics, as well as other interested committee members who may support the issue managers. Susan said the committee priorities (based on the 2012 TPA agencies and Board priorities) will be used to help fill in the focus of the categories. She encouraged new people to volunteer to be issue managers.

Susan said anyone can volunteer to be an issue manager at any point during the year. Responsibilities include tracking the issue and helping to draft any necessary advice.

The committee updated the Issue Manager Table based on committee priorities, topic timeliness, and interest level. Framing questions were updated as necessary, and will be continually updated with issue managers throughout the fiscal year (FY). The committee identified issue managers and other interested members, as well as topics that are cross-cutting with other committees. EnviroIssues will work with the topic's identified issue manager(s) to fill in the remaining framing questions. Susan will provide the committee with the updated Issue Manager Table after the meeting.

PW-1, 3, 6 and CW-5 ROD (Joint with PIC)

Issue Manager perspectives

Shelley Cimon, Public-at-Large, provided a presentation on the HAB perspectives on the Plutonium Waste Sites 1, 3, 6 (PW-1,3,6) and Cooling Water Site 5 (CW-5) record of decision (ROD) (Attachment 2) and distributed a handout detailing the Board's concerns with subsequent agency responses (Attachment 3). The presentation featured excerpts from Board Advice 207 and 247 that addressed the Board's concerns with PW-1,3,6 and CW-5.

Shelley noted that the purpose for today's conversation is to determine steps forward for the Board, given that the ROD did not address many of the advice points set forward in HAB advice. The ROD was signed on September 30, 2011, and the U.S. Department of Energy (DOE) says that the ROD is compliant under all relevant regulations. Shelley noted that groundwater

contamination is addressed in a separate operating unit (OU), but that the soil vapor extraction work that has been ongoing on site has been incorporated into this ROD.

Agency perspective

J.D. Dowell, DOE-Richland Operations Office (DOE-RL), said the ROD addresses many complex issues, and he would like to clarify the major points of the decision. He said he knows the Board has concerns about leaving too much plutonium in the ground, but that DOE made a risk-informed/performance-based decision on how much plutonium to remove. J.D. said DOE has worked extensively with the State of Oregon in the past month to address technical concerns, and he intends to provide the same amount of detail to the Board.

J.D. provided a presentation on the impact of public and Board impact on the ROD for PW-1,3,6 and CW-5 OUs (Attachment 4). J.D.'s presentation addressed the background on the decision process, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) process, what agencies heard during the comment period (from the public and the Board), how the input impacted the ROD, and details of the ROD. Specifically, J.D. noted:

- DOE understands it is important to provide information to the public as early as possible in order to receive substantive comments in return.
- In 2011, DOE determined, through public input, to remove plutonium in high-salt waste sites to an additional two feet, which increased the project cost by 200 percent. From J.D.'s perspective, this additional two feet does not reduce the risk to the public enough to balance the additional cost.
- Based on available data from DOE staff and outside sources, DOE believes the plutonium on the Hanford site to be stable (i.e. insignificant degree of movement in the soil), which is how the contaminant is characterized in the Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS). Modeling looks at plutonium over a 10,000 year timeframe.
- Remedial Design/Remedial Action Work Plans for PW-1,3,6 and CW-5 are not expected to be complete until September 2015, with another four years before the plans are implemented.
- DOE is committed to a higher cleanup level across the site, using exposure scenarios that reduce risk by two-thirds. Remaining risk is to a co-located worker, not the public. DOE can present to RAP on specific exposure scenario figures at a later date.

J.D. said that those who believe plutonium is stable are satisfied with the decision, but that those who do not believe plutonium is stable will likely remain unsatisfied with the decision. He said cleanup levels for Hanford should not be compared to other Superfund sites, as soil and other environmental factors vary among sites. J.D. said that as long as there is risk on site, the government will mitigate the risk. He encouraged the committee to ask any questions, and said

copies of the letter DOE provided to the State of Oregon is available for committee review. EnviroIssues will distribute a link to the letter to the committee.

Regulator perspective

Dennis Faulk, U.S. Environmental Protection Agency (EPA), asked RAP to remember how far the decision on plutonium has come, as the initial decision was a capping remedy. Dennis said the decision provides the agencies with flexibility to determine how much to remove from a site when they determine where the contamination actually lies, noting that there may be some areas with no plutonium and some areas with a lot. Dennis noted that carbon tetrachloride is also an issue in the area, and the focus shouldn't be on only plutonium.

Committee Questions and Response

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

C. The committee would like to review the technical support for the statement that plutonium at Hanford is not mobile. The issue of plutonium mobility effects decisions at Hanford for the next 10-20 years in many different areas of the site.

R. DOE will provide plutonium studies to those who request it.

C. Clarifications need to be made about types of soil and assumptions about acid in the ground, as different soil types, including dirt, gravel, and rock have different acid levels and provide different reactions for plutonium in the ground in regards to contaminant mobility.

R. Soils are associated with a macroscopic transport phenomenon, and it is an important factor check to make sure DOE has balanced the sampling data and characterized the soil of the plutonium sites.

C. Historically at Hanford, plutonium has moved to the groundwater, and the ROD fails to acknowledge the historical phenomenon.

R. The ROD only addresses current plutonium conditions and acknowledges that plutonium has reached groundwater in the past.

Q. How does DOE define "stable?"

R. Stable is defined by research that characterizes the material through modeling. Stable means the contaminant is not moving significantly enough to increase the risk. Studies do not say that the plutonium is not moving, as from a scientific standpoint, everything is moving all the time.

Q. What is the process for excavation as the bottom of the cribs are reached?

R. Structures will be taken out in order to reach the bottom of the high-salt waste sites. Two feet of contamination will be removed, at which point the need for remaining

characterization will be evaluated. Sampling will be done at this point. CERCLA criteria (nine points) will be evaluated, as it is a good framework for how to balance any additional exhumation. RAP is encouraged to review work plans that will look at the specifics of digging deeper.

C. A later review may find the flaws in this ROD, and the Board has issued advice saying the CERCLA Five-Year Review may not reflect this. DOE and EPA have told the Board to examine the ROD if there are concerns about the protectiveness of the remedy, but it sounds like DOE and EPA are now saying that the Five-Year Review is the place to find this information. It is confusing. There is a scientific contradiction to mobility that will affect all of the decisions. Reaching a final decision now without resolving the scientific dilemma seems wrong..

R. The ROD stands on its own. The CERCLA Five-year Review process validates the decision process and cleanup points of that decision. The CERCLA Five-Year Review will not do a holistic review of issues related to plutonium mobility.

C. DOE does not have any data between 9 and 50 feet at Z9. I suggest you insert a bore hole into one of the cribs to below 60 feet to find out what is actually present. I haven't seen a calculation that looks at long-term transport through an acidic soil column.

R. There is a gap in our information, but based on other borings nearby, we have a good idea of how we can extrapolate this information. The nearby bore hole is slanted and goes to 60 feet; it shows levels of acidity in the soil. We want to look at technologies that will eliminate water completely, and we will carry that through to the work plan.

C. Lateral transport of water has not been addressed in any of the relevant documents for the ROD. Lateral movement needs to be eliminated, and DOE should address this in the performance assessments (PAs) site-wide.

R. The addition of the rapid transportation barriers is something we're doing to be conservative. Lateral transport for these areas is not a huge concern for this decision, given that 6.8 inches of rain on the Central Plateau is not significant substantial amount of moisture. The responsiveness summary addresses these concerns.

C. Why issue a ROD now when work will not be done for 10 years? The TC&WM EIS clearly states that characterization is inadequate. The new exposure levels are better, but still do not equate. At the public meetings, it was misleading for DOE to say that it will be removing the majority of the plutonium, as it calculates out at 51 percent. Digging another 10 feet would result in getting 90 percent of the remaining plutonium.

R. The purpose for issuing the ROD now is based on many factors, including ensuring that the Waste Isolation Pilot Plant (WIPP) is on notice that we will be shipping waste to them in the near future. In terms of work schedule, when the Plutonium Finishing Plant (PFP) is finished, we will have a trained crew available to begin the plutonium work. DOE is committed to detailing the exposure scenarios and assumptions made with RAP at a later date. Characterizing the remediation as removing most of the contaminant was overstated, but we will be remediating completely in some areas.

C. The observational approach is encouraging, as it allows for more waste to be removed if additional waste is found, but it depends on the decision maker, which makes the committee nervous – it means the decision to go further is subjective. I understand that cost is a driver, but most of this committee does not care about how much remediation costs, as plutonium is forever.

C. It will be important for the Board to address the use of institutional controls (ICs) as the agencies move forward with the work plans.

Q. Do you intend to excavate anything from the Z9 crib?

R. *There is very little incentive to remove an additional amount, and mitigating the whole risk would mean removing all of the contamination. We can't look at the site and predict that we won't take more out. If it's a balanced decision (risk versus cost), we will remove the additional amount. Cost is a driver, and the biggest cost driver is waste characterization and transport to WIPP. If we can get those costs down, we will have more money for remediation. It would be valuable for the Board to look at waste acceptance criteria.*

The committee discussed next steps for the issue, including the writing of letters and advice. They determined to provide a letter to the Tri-Party Agreement (TPA) agencies as soon as possible to voice their issues with advice not being taken into account for the ROD, as well as their concerns about the decision, including ICs and barriers. The letter will address that the committee hopes to be more involved with the direction of the work plans. The letter will be prepared in time for the February Board meeting; the first draft will be available for the January RAP meeting. Shelley will collect comments from the committee to be compiled for the letter, and Vince Panesko, City of Richland, will discuss plutonium mobility in groundwater under the cribs and report back to the committee. The committee agreed to draft advice on the work plan and future RODs at a later date.

Dennis commended the Board's process in following up with their advice. He noted that it may be important for the agencies to provide a tutorial on the plutonium mobility studies.

Update: 618-10 and 11

Agency presentation

Mark French, DOE-RL, provided an update on the 618-10 and 11 Burial Grounds; his presentation is provided as Attachment 5. Remediation on the 618-10 Burial Ground began in early 2011. DOE has unearthed over 100 drums so far and expects between 2,000 and 4,000 total drums to be buried in the trenches. Mark noted that 221 bottles containing liquid were dumped in the trenches; the plan for remediating the bottles is to crush them into a grout mixture using a mixing tray before shipping the grout to the Environmental Restoration Disposal Facility (ERDF). Mark noted that remediation of the vertical pipe units (VPUs) will begin in 2012 for the

618-10 Burial Ground, while trench remediation and other efforts for 618-11 will begin in 2013. Mark said DOE intends to take lessons learned from 618-10 into effect for 618-11.

Dave Martin, DOE-RL, detailed the remediation process for the 221 liquid bottles, saying that the bottles will be crushed on top of a bedding box filled with grout that will be placed in the bottom of a trench for safety. The liquid in the crushed bottles will mix with the grout within 15 to 30 minutes, at which time another set of bottles will be added to the mixture. Dave noted that up to a gallon of liquid will be added at one time. No hands on work will be required for the process. Dave said the grout will be tested to make sure it has mixed appropriately and will meet ERDF waste acceptance criteria. Historic data of what might be in the bottles has provided the adequate background to ensure that the chemicals will respond to the remediation and treatment method. Any chemical reactions will be controlled by the absorbing grout and will be safe for workers as the work is being done at the bottom of a trench. If there is a bottle that contains more than a gallon of liquid, it will be dealt with individually.

Regulator perspective

Larry Gadbois, EPA, said the burial grounds are a classic example of how much characterization is needed to make a decision, as the historical data provided enough information for steps forward. He said the observational approach was successful in this case, as DOE could not have forecasted everything that has been found in the trenches and is dealing with it along the way.

Committee Questions and Response

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

Q. Is there potential for pyrophoric waste to be contained in the 221 bottles?

R. There is potential, but we haven't seen any of those reactions yet. We expect the liquid to be radiological waste, acids, and metals, all in a water solution. The treatment for all of contaminants is to mix with grout.

Q. Why is it important to crush the bottles? Why not mix them as they are?

R. ERDF will not accept free liquid.

Q. You said there was a chemical air release - do you know what it was?

R. The airborne was low-level plutonium. The release occurred at the boundary of our work excavation, and we expect that it was one of the bottles that broke open.

Q. When is a volume of plutonium waste okay to send to ERDF and when is it not?

R. *There is a statutory limit on what is considered Transuranic (TRU) waste. If the waste becomes more than TRU, it has to be shipped to WIPP. 100 nanocuries per gram of TRU may be shipped to ERDF.*

Q. Does DOE anticipate any difficulties with the Nuclear Regulatory Commission (NRC) licensing process?

R. *Licensing processes take a year according to the NRC regulations; that is what we have based our schedule on.*

Q. Are the VPUs made of stainless steel?

R. *No, and we do not know about the integrity of the drums.*

Q. How will you lift the drums from the ground?

R. *We do not count on the drums being intact. Our removal process includes containing the drums that are in VPUs (vertical pipe units) within an over-casing that is pounded into the ground. The VPU waste within the over-casing will be ground up using an auger. Each over-casing with a ground up VPU inside may be removed as a monolith. DOE has demonstrated the use of this augering method to successfully grind up waste. Once removed, we will deal with the residuals left beneath the VPUs, but we do not expect to have to chase leaks very deep, as earlier testing showed there to be no radioactive plumes beneath the drums.*

Q. How can you be sure that auguring various chemicals in the drums will not cause a nuclear reaction?

R. *The auguring will be done at depth, so if there is a reaction, it will be contained in the soil. We anticipate there will be reactions. The reaction will be a slow burn, after which we will add grout. We are looking at putting a structure like a hood, such as is used at a vitrification site, over the drums in case there is a gas leak. There are pros and cons to enclosing the excavation area, including protection from weather conditions, but operating equipment inside a tent introduces problems. DOE will be happy to provide a remediation technology presentation to RAP.*

Q. Did you excavate around the entire VPU in order to place the cylinder around it?

R. *No, we pounded it into place; it's just an over-casing. The over-casing is big enough to deal with varying integrities of the VPUs. Over-casings are 48 inches in diameter, which is double the size of the VPUs.*

C. DOE did not include the over-casing and auguring treatment method in the design presentation to RAP. How you're dealing with the VPUs and liquid bottles is a surprise to us. RAP should consider voicing concerns that we were not included in these discussions and decisions. We would like to know about remediation technology before it is implemented.

R. Auguring is still being decided on by both EPA and DOE. It is an idea we are presenting to the NRC and it is still being developed.

C. Auguring and encapsulating the VPUs might be a good public involvement opportunity to high school students, as the concept is easy to get one's head around (chemistry, mixing liquids and grout, capturing bottles, etc.). There are varying layers of complexity but the basic levels are not complicated.

Q. Where does the grout go around the VPU, and how much grout is needed to create a stable monolith?

R. Grout is mixed with soil around the drum and inside the over-casing. The grout is a liquid cement that will form concrete. The monolith does not have to be structurally sound, but we need enough grout to stabilize the contaminants.

Q. How long is the over-casing?

R. We have it designed at 31 feet long in order to drive it five to six feet below the VPU and have room for soil displacement at the top.

Q. Is this design for VPU remediation the only one you are suggesting to the NRC?

R. There are a few variations of remediation, but they all involve auguring.

Q. Will DOE take a top to bottom sample of the VPU?

R. Yes, we need top to bottom information.

DOE agreed to come back to RAP to further discuss VPU remediation technology, as well as provide an overview of when waste is considered TRU and when it is not.

Update: Building 324 B-Cell

Agency presentation

Don McBride, Washington Closure Hanford, provided an update on cleanup efforts at the 324 Building; his presentation is included in Attachment 5. In addition to information on the building's background, soil contamination, remediation plans, and timeline, Don noted specifically:

- Remediation has been designed based on soil tests from varying depths beneath the building, results of which were received in fall 2011.
- Contamination from the 324 Building does not reach groundwater.

- Because of the leak at the bottom of the B-Cell, WCH is working on different technologies and down selects for feasible remediation, given the high dose rates at the corners of the bottom of the cell. A technical team is working with the regulators on how to reduce the dose rate and remove the contamination.

Regulator perspective

Rick Bond, Ecology, said DOE is keeping Ecology informed on their progress. Ecology supports the chosen RTD methods. Rick noted that physical work will not begin for another year, but he hopes DOE will keep the ball rolling.

Committee Questions and Response

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

Q. Is the down gradient well to the south of the 324 Building?

R. The well is located southeast of the building, but is considerably far away. We will depend on our groundwater experts to look at potential sources. A map of wells in the vicinity was provided to the RAP at a previous briefing.

Q. Please further explain the remediation methods and exposures.

R. The dose rate recorded at the bottom of the B-Cell is based on contact. It does not take very much cesium to cause a high dose rate upon contact. Remediation is designed around a low enough dose rate for safe removal of the material. We located the contaminated material when we were scraping the side of the cell using a robotic chisel and vacuum system. We will remove the material robotically and remotely. The material is contaminated enough that we will stabilize it with grout and may place it in a hot cell to be disposed of when the rest of the building is ready for disposal.

Q. How is remediation in the B-Cell tied to the RCRA permit for the 324 Building. Does it require a closure plan since it is mixed waste?

R. Closure of the radioactive chemical engineering complex must be satisfied under TPA Milestone 89. The closure plan has already been out for public comment.

River Corridor – 100 K Draft Proposed Plan (Joint with PIC)

Draft Document Review

Issue Manager perspective

Dale said it is an appropriate time for the Board to provide policy-level suggestions on the 100 K Draft Proposed Plan and Remedial Investigation and Feasibility Study (RI/FS), as the agencies

have provided an opportunity to review the documents early in the process. This is also an opportunity to influence the direction of the rest of the proposed plans and RI/FSs for the River Corridor. Dale noted that advice may not be appropriate at this time. He said he believes, as do others, that the documents need more development.

Dale provided a handout with general comments on the Proposed Plan and RI/FS (Attachment 6) that he believes can be further developed by the committee. He noted that it will be important to comment on the remediation alternatives, two of which are compared in Attachment 7. Dale said that from his point of view, Alternative 3 seems to be more implementable immediately. He said the new technologies provided in Alternative 2 will have to go through many steps before they can be implemented. Alternative 3 also removed more waste than Alternative 2 by 2037.

Agency Perspective

James Hansen, DOE-RL, said DOE has received comments from EPA and Ecology, and they are working with EPA to resolve the comments. He noted that the agencies agree on the majority of the comments, including suggestions that will make the documents easier to understand. James said decisions need to be made for every waste site, and that was not made clear in the Proposed Plan. Significant changes will be noticeable in the next version of the documents. James said that some of Dale's comments point to the lack of transparency on DOE's part, and they hope to resolve some of the misconceptions. James said DOE will be working with EPA to better their transparency before public comment and Board review.

Chris Guzzetti, EPA, said EPA provided their comments on November 14, and are working with DOE to resolve them. He said he looks forward to seeing the changes.

Dennis said he is happy to share EPA's comments with the Board. He said that through discussions with DOE, he better understands the remediation methods outlined in the RI/FS and Proposed Plan. He said the general remedy will be to remove, treat, and dispose (RTD) of the waste, but that sites directly adjacent to reactor buildings will be capped in the interim until the reactor is removed. Dennis noted that treatment components will be put on some of the wells where carbon 14 is present, but that was not clear in the Proposed Plan. Dennis said there are some persistent chromium plumes on site where the exact source has not been located, so DOE would like to try some different technologies to find and remove the chromium source. Dennis said he hopes RAP members leave the conversation with a better understanding of the remediation methods that have been proposed.

Brenda Jantzen, Ecology, noted that EPA is the lead regulator for this RI/FS and Proposed Plan, so Ecology will work through EPA to have their concerns resolved.

Committee Questions and Response

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

C. It is hard to locate topics in the attachments; it requires a real search and better organization would be appreciated. Also, there is nothing in the Proposed Plan that addresses the old Hanford orchard sites, and exposure scenarios are not well explained.

R. Those are outstanding issues for EPA as well, and we hope to see those resolved.

C. There are other contaminants of potential concern present on the site, which are not addressed in the documents, and cannot be treated with the existing pump and treat systems that have been built for chromium plumes. There is a big gap between DOE saying they will treat the other contaminants and explaining how they will do so.

C. More extensive monitoring should be built in Alternative 2, as injection wells should not be used as compliance monitoring wells because it results in diluted measurement.

R. We will restore to drinking water standards and ambient water standards where necessary.

Q. Will DOE monitor the upwelling of nitrates into the river? Amphibians are sensitive to nitrates below the drinking water standard.

R. We will monitor contaminant levels at the wells closest to the Columbia River.

In Situ Technologies

Agency presentation

Mike Thompson, DOE-RL, provided a brief overview of the differences between Alternatives 2 and 3 as outlined in the Proposed Plan. He said that in both alternatives, the main objective is restoration of the aquifer and human and environmental health. Both alternatives have pump and treat systems and are designed to keep chromium plumes out of the Columbia River, along with other contaminants. Mike said contractors are looking at the existing pump and treat systems to determine how to operate them better and faster.

Jim Hanson, DOE-RL, said the major difference between alternatives in regards to the pump and treat systems, is that in Alternative 2, the existing pump and treat system will be used with the aid of additional technologies, while in Alternative 3, the pump and treat system will be increased in capacity by 1,000 gallons per minute. In Alternative 2, the number of wells is increased by 30. In Alternative 3, the number of wells is only slightly increased and places with more contamination will be sought more aggressively. In Alternative 2, the additional wells increase the ability to go after plumes, pump more contamination, and capture plumes more quickly. Jim noted that there are areas of cultural sensitivity that will have to be balanced with the addition of more wells. He said Alternative 2 will not stop at 15 feet with RTD, but continue to chase the contaminants to meet the preliminary remediation goals (PRGs). However, DOE will not go below 15 feet if not necessary.

Mike noted that in Alternative 3, only one tool is available to go after chromium and other contaminants, while in Alternative 2, a variety of tools will be available to use in conjunction with RTD technologies. He said the additional technologies will be extremely valuable in locating the sources of the plumes. He said DOE's goal is to work with EPA to succinctly state the decisions for which remediation technologies will be used on which site in the ROD.

James noted that Alternative 2 has changed through the internal review process to dig until the PRGs are met, not just stop at 15 feet. He said that without the use of additional technologies, the RTD under Alternative 3 will be to dig deeper, which may cause larger excavations and additional soil displacement. Dale noted that it sounds like Alternative 2 is becoming a hybrid between the two alternatives that will allow the agencies to dig when they need to dig and used other tools when they need them. Mike noted that the differences will be explained in the ROD, which is a living document and can be changed (through agreement with the regulators) if it appears that the chosen alternative is no longer appropriate.

Mike provided a brief overview of the potential technologies to be used under Alternative 2, explaining:

- Land farming is bringing contaminated soils to the surface to let contaminants evaporate. This technique has been used on several other projects on site.
- Air stripping is removing carbon dioxide from carbon 14, and then capturing the remaining carbon.
- Soil flushing is seen frequently during dust suppression activities. It would only be used if there is a demonstrated capture zone close to the contamination source. This process is basically just speeding up nature, as with time, remaining contaminants will be soil flushed naturally. Water is put on the outer edge of a contamination to capture the contamination. Flushing will not be conducted outside of a pump and treat system capture zone.

Mike said the agencies need to be bolder in their technology selections, unless the technologies cause more harm than good. Dennis noted that DOE has been challenged to select the technologies and detail where they will be using them with a high amount of confidence. EPA wants treatability testing to be concluded before the ROD is issued. Mike said he has complete confidence in air stripping, soil flushing, land farming, and bio injection into the aquifers. He has a little uncertainty with using bio injection in the vadose zone, but said it is still worth a try. Dennis said he would like to see more robustness for the capture zones before soil flushing is implemented.

Committee Questions and Response

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

C. It seems that many of RAP's concerns with the RI/FS and Proposed Plan are already being addressed by the regulators. It is encouraging, and we may not need to provide input at this point.

Q. Are these technologies in the pilot work plan also set for the rest of the reactor sites? If you find the technologies do not work as anticipated, will you make a change to the ROD?

R. There will be similarities in what technologies we use in different areas, but the 300 Area will be fundamentally different. If a technology fails, we will analyze why it failed, and if we determine it is no longer appropriate or implementable, we will change the decision.

Q. Can the technologies be used simultaneously at the same site?

R. It depends on the available budget.

C. Please keep RAP informed when you change technologies.

HAB Next Steps

Issue Manager perspective

Dale said the Draft A version of the Proposed Plan is still being changed, and Revision 0 will not be released for public comment.

Agency perspectives

Dennis suggested that the committee wait to determine next steps with the Proposed Plan until Ecology and EPA comments have been incorporated. He also suggested RAP review the agencies' comments. He said that at a policy level, the agencies are in disagreement over exposure scenarios and land use, particularly relating to what "unrestricted" means. Dennis asked the Board to weigh in should those disputes not be resolved through comment resolution. He said the next draft of the Proposed Plan cannot be released before March, which is when it will be sent to the EPA Review Board. He said he hopes the formal public comment period will be in April or early May, so that the plan can be completed by September 30. Dennis noted that if the Board continues to think Alternative 3 is the best solution, the agencies will need to be made aware of as soon as possible.

Committee discussion

The committee determined to revisit the issue in January, after regulator comments have been incorporated and the committee understands the outcomes of the negotiations. Dale asked that anyone reviewing the document send comments to EnviroIssues to be compiled with his list. Advice may be developed for the February Board meeting if the committee is not satisfied with the outcomes of the agency negotiations. Liz suggested that changes between the two revisions and comparisons between the two alternatives would be helpful in graphic/visual form.

Committee Business

Review follow up items

Susan Hayman reviewed RAP follow up items:

1. Susan Hayman will follow up with Laura Hanses on the EPA Sampling Program.
2. EnviroIssues will send an electronic copy of the Oregon/DOE letter regarding PW-1/3/6 and CW-5 to RAP.
3. DOE will come to RAP to discuss risk (10^{-4}) and exposure scenarios.
4. PIC to discuss: Public involvement opportunities following final decisions (RODs)
5. For the January agenda, provide time for a discussion about what Vince learned about plutonium mobility and appropriate next steps.
 - a. Bin- technical discussion of plutonium mobility.
6. Bring the draft HAB ROD response letter to the January RAP meeting (Shelley to lead, with Steve, Liz, and Dan).
7. Provide input on the draft letter to Susan Hayman by 12/16.
8. DOE will return to RAP for a briefing on remediation technology for 618-10 and 11 VPUs (potential January agenda item).
9. VPU remediation may be a good way to bring high school kids into this issue (discrete, straight forward, design issues, PI opportunity) – Liz will discuss with Ericka Holmes, Ecology.
10. At what point is TRU mixed into soil no longer TRU? – Liz to help develop for a tutorial in Jan/Feb.
11. 324 Building update in February – remediation technology.
12. January- update on 100-K agency resolution.

January Meeting Topics Table

The committee updated the January Meeting Topics Table (Attachment 8). The committee discussed the need for a date in the near future to discuss in detail the many issues that committee is concerned with, as there is never enough time to have in-depth conversations during RAP meetings. The committee will look for a day to meet with the agencies concurrently with an existing meeting. The additional meeting will be used to ask questions and discuss topics like plutonium mobility, contaminant mobility along the Columbia River, CERLCA cumulative risk, and TRU waste disposal.

The January meeting will be held on January 10 at the Ecology office.

Attachments

Attachment 1: RAP Preliminary FY2012 Issues Table

Attachment 2: HAB Perspectives: PW-1,3,6 and CW-5 ROD

Attachment 3: PW-1,3,6 and CW-5 ROD Response to Comments

Attachment 4: DOE: Impact of HAB and Public Input on ROD for Remediation of PW-1,3,6 and CW-5 Operable Units

Attachment 5: DOE: 618-10/11 Burial Grounds and 324 Building Update

Attachment 6: General Comments on the 100 K Area RI/FS and Draft Proposed Plan (D. Engstrom)

Attachment 7: 100 K Area Brief Comparison of Remediation Alternatives

Attachment 8: RAP January Meeting Topics Table

Attendees

Board Members and Alternates

Allyn Boldt	Susan Leckband	Dan Serres
Shelley Cimon	Liz Mattson	Dick Smith
Dirk Dunning (phone)	Sarah McCalmont	John Stanfill
Dale Engstrom	Ken Niles	Bob Suyama
John Howieson	Vince Panesko	Gene Van Liew
Steve Hudson	Jerry Peltier	Jean Vanni
Pam Larsen	Gary Peterson	Steve White
	Maynard Plahuta	

Others

Paula Call, DOE-RL	Chris Gazzetti, EPA	Jeff Lerch, WCH
Brian Charbonneau, DOE-RL	Emy Laija, EPA	David Martin, WCH
Jonathan Dowell, DOE-RL	Rick Bond, Ecology	Don McBride, WCH
Mark French, DOE-RL	Alicia Boyd, Ecology	Mark McKenna, WCH
James Hansen, DOE-RL	Madeleine Brown, Ecology	George Klinger, CTUIR
Jim Hanson, DOE-RL	Dib Goswami, Ecology	Alex Nazarali, CTUIR
Cathy Louie, DOE-RL	Brenda Jentzen, Ecology	Nick Ceto, Ceto Environmental Consulting
John Neath, DOE-RL	Nina Menard, Ecology	Tom Rogers, Washington State Department of Health
Tiffany Nguyen, DOE-RL	John Price, Ecology	Wade Riggsbee, Yakama Nation

Greg Sinton, DOE-RL	Cheryl Whalen, Ecology	Shannon Cram, Public
Alex Teimouri, DOE-RL	Barb Wise, MSA	Susan Hayman, EnviroIssues
Michael Thompson, DOE-RL	Alan Aly, CHPRC	Melissa Thom, EnviroIssues
Jamie Zeisloff, DOE-RL	Sonja Johnson, CHPRC	
Larry Gadbois, EPA	Joy Shoemake, CHPRC	
Dennis Faulk, EPA	Peter Bengston, WCH	
	Warren Bryan, WCH	