

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
RIVER AND PLATEAU COMMITTEE MEETING
December 9, 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

Dale Engstrom, River and Plateau (RAP) Committee vice-chair, welcomed everyone and introductions were made. The RAP committee approved the November meeting summary.

Maynard Plahuta recommended that the committee consider sponsoring advice regarding the protection of Hanford historical artifacts. The committee agreed, and asked Maynard to begin drafting advice for the February Hanford Advisory Board (HAB or Board) meeting. Pam Larsen agreed to help with the advice development.

Radioactive Solid Waste Burial Grounds

Liz Mattson provided background on the Solid Waste Burial Ground (SWBG) issue managers’ meeting on December 8, and listed the different topics discussed. She said the issue managers are hoping that advice points will be developed at this committee meeting. She mentioned that Matt McCormick, Department of Energy - Richland Operations Office (DOE-RL), made a commitment to return to Seattle in order to keep the public engaged in this topic.

Gerry Pollet said that advice for the SWBG is in development. He said information was combined from a University of Washington Masters student's research and HAB notes to provide an outline for advice.

Gerry reviewed the draft advice development document. He said the goal is to get a sense of the amount and types of contamination that are in the burial grounds.

Gerry said there will be a section in the advice regarding pre- and post-1970 waste. He suggested that language on uses of Resource Conservation and Recovery Act (RCRA) be added.

Gerry said there is an "open and examine" solution on the table for classifying what is contained in the burial grounds.

Susan Hayman recorded flip chart notes for specific suggestions for advice points (see Attachment 1).

Regulator Perspective

- Deborah Singleton, Washington State Department of Ecology (Ecology), said the document states there are up to 40 miles of burial ground trenches, but this can be subjective when width is being considered. Gerry said square footage does not mean as much to the public. Pam said language suggesting varying widths could be added.
- Dennis Faulk, EPA, said he is an advocate of the observational approach. He said not all trenches are created equal, and there are some that pose more of a risk. He said EPA approves the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Record of Decision (ROD). He said in the SWBGs there were trenches opened up, which was a way to validate what was there. It changed the conceptual model.

Committee Discussion

- Shelley Cimon said that some of the burial grounds are on top of old, effluent ponds and suggested that prior practices be considered. Pam asked the extent of the ponds. Shelley said there are two likely effluent ponds. Deborah said the effluent ponds are in the west side of the Site.
- Dale said the State of Oregon has been trying to push careful characterization to gain confidence that what is being left in the burial grounds will not be impactful. He said this would be a big cost saver. The caveat with this method is that the characterization has to be done very carefully, which can be time consuming. Maynard said there needs to be more discussion on risk when contaminants are left. Gerry said there is not a risk assessment or an impact statement, and the environmental impact statement (EIS) did not adequately examine the risks in the burial grounds with regards to groundwater and soil. He said these concepts will be incorporated into the advice.
- Dick Smith suggested that there be criteria on what can be left behind.

- Phil Burke, CH2M HILL Plateau Remediation Company (CHPRC) said there was a risk assessment done roughly 15 years ago and it is a requirement under DOE Order 435.1. DOE intends to do another risk assessment.
- Dan Serres asked how the observational approach would affect the application of a cap. Dick Smith said the point is to dig up and classify the waste.
- Liz reminded everyone that the draft advice document is just an example.
- Pam Larsen said this advice is being prepared for the February Board meeting, and this discussion is just to get consensus on the key issues.
- Shelley said that the trenches are different structurally, which should be defined.
- Gerry said the advice will need to be refined. He said that capping is the easiest solution, but remove, treat, and dispose (RTD) is also feasible. The issue with RTD is cost, and the cost of disposal at the Waste Isolation Pilot Plant (WIPP) is probably the largest difference between the two methods. He said the advice should suggest not skewing the information so that capping seems to be the preferred solution.
- Pam asked if WIPP costs are in the Hanford budget. Deborah said WIPP costs are associated with Carlsbad, New Mexico (the location of WIPP). Dennis said the WIPP costs are incorporated in the cleanup and the feasibility studies, but it has not been fully determined. He said there is a good understanding of costs from lessons learned in Idaho. Deborah said there is characterization as well as shipment cost.
- Maynard said a lump sum cost should be provided for WIPP operations. Dick asked if the cost estimates include the amortization of the WIPP plant. Maynard said there has not been enough done to determine the cost of long term monitoring. Gerry said there was an attempt to capture this in the long term cost section of the draft advice.
- Gerry said the community acceptance portion of the draft advice is based on CERCLA and will have to be modified to reflect the Board's values. He said it is important to have transparency in the proposed remedies and asked how they will meet standards. He added that there has not been information on human health and environmental factors caused by chemical waste.
- Gerry said there are some new monitoring details based on a review, and a lot of questions have come up from the workshop regarding releases from the burial grounds. He said there are vast areas that do not have groundwater monitoring, and the areas that do have monitoring are not adequate. The burial grounds do not have leachate collection systems, and there should be soil column monitoring.
- Pam asked if the agencies have a comment on the lack of groundwater monitoring. Deborah said there are areas that require more monitoring, and Ecology hopes that there will be more work done for the vadose zone.
- Dennis suggested changing soil column monitoring to vadose zone monitoring in the draft advice document.

- Deborah said there are areas with limited monitoring, and Ecology is looking at ways to get better data.
- Dick said the desiccation process might be useful in the future.
- Shelley asked how subsidence affects characterization. Maynard said subsidence is an issue for capping as well. Dennis said the burial grounds would have to be settled prior to capping, which will be done in the remedy selection process.
- Gerry said characterization needs to be done for the releases and for what is in the trenches. He said under Hazardous Waste Management Act (HWMA) and RCRA you have to characterize the contamination sources.
- Gerry asked the RAP Committee if there is anything that would be in the way of getting consensus for the burial ground advice.
- Dale said characterization would have to be done in such a way as to create a threshold with regard to risk. Maynard said this concept should be captured in the heading of the advice.
- Dennis said the worker safety section of the draft advice should be cleaned up with regard to language.
- Gerry said there is a temptation to declare waste as Transuranic (TRU) based on concentration, and advice should state that concentrations of constituents should not be averaged. Dennis said WIPP blending is used to get the correct concentrations. Gerry suggested examining the waste acceptance criteria as part of the solution. Dennis said it comes down to practicalities, and it is hard to surgically remove areas of contamination.
- Gerry said the advice will address risk and impact assessment needs. He said certain information is needed to do a risk assessment and proceed with remedies. Phil said the baseline risk assessment is due by 2013, which is before the feasibility studies. He said it will be a baseline from the data that is currently available.
- Gerry asked why the Tank Closure and Waste Management (TC&WM) EIS does not address the burial grounds.
- Pam said the RAP Committee has tracked the need for an M-91 facility for quite some time, and there is not a place for remote handled TRU to go. She said that a lot of the characterization is focused on the trenches, and this issue should be discussed.
- Gerry said there was a commitment to have a second round of public meetings on the investigation plan after it is proposed. Deborah said the follow up meeting should occur before the document is completed.
- Dick said there needs to be information in order to know what should be done for the risk assessment. Gerry said this issue is related to defining a standard for decision making. He said data is needed, and then there needs to be a standard to hold decisions against.

- Dennis said information is needed to take action, which is why the risk assessment is needed. He said actions are defined based on how constituents are behaving in the soils, but the baseline risk assessment provides information on the actions needed. Gerry asked when standards are defined. Phil said this is defined in the feasibility study.
- Dick said you need a basis for decisions in order to conduct the observational approach for the burial grounds. Dennis said from his experiences, there are criteria for risk management decisions based on the amount of material which defines if it will be taken out and characterized. Shelley asked if there are trenches at Idaho with no historical information. Dennis said no. Shelley said there are trenches that have a huge lack of information at Hanford.
- Liz reviewed her notes on the proposed advice points and asked the RAP Committee for feedback. Shelley suggested adding the implementation of multiple technologies to the list of advice points.
- Gerry said there should be language in the advice to suggest that much of these issues need to be in the RCRA permit to provide an enforceable requirement.
- Deborah said some of the trenches will have groundwater monitoring plans and the others will be in the SW-2 Operable Unit. She said the language of RCRA/CERCLA integration is being worked on to make it clearer. Gerry said this information should be in the RCRA permit because it is more than a remediation issue.
- Dennis said there should be a paragraph to show what stage this process is in.
- Pam announced that the City of Richland wrote a letter to have the opportunity in the review of remedies in the 300 Area, and the response was yes.

618-10 report

Jamie Zeisloft, DOE-RL, provided an introduction and said that the characterization report will be available in late December. He said that 618-10 trench remediation starts in March 2011 on the 618-10 and 11 burial grounds.

Nelson Little, Washington Closure Hanford (WCH), discussed the nonintrusive characterization at 618-10. He said this work is done externally to prevent exposures. He said WCH initiated the activities by using geophysical radar to determine where the Vertical Pipe Units (VPUs) are located. He said 94 VPUs were collected along with data on 100 trench locations. He said records indicate that some VPUs are open at the bottom and some have concrete bottoms. He said the VPUs are designed to prevent exposure of contents to personnel or the environment.

Nelson said the cone penetrometers are installed and multi-detector probes are used to survey contents of the VPUs. He said 376 cone penetrometers have been installed around 94 VPUs, and 100 were installed in the trenches. He said this testing will be complete in June 2010.

Nelson presented the results from the nonintrusive characterization at 618-10. He said WCH identified 94 VPUs and found that the primary radionuclides were cesium and cobalt. He said the average cesium content was 1.3 curies in the VPUs and even lower in the trenches. He said that "hot spot" locations in the VPUs averaged at 13 feet in depth. He added that soil samples revealed no measurable contamination and that this characterization is factored into the decision making process at 618-11.

Nelson discussed VPU remediation technologies and said that 6 potential technologies were evaluated. He said in-situ vitrification, conventional remediation, overcasing and in-situ mixing were the 3 technologies selected for potential demonstration.

John Darby, WCH, presented on the 618-10 intrusive characterization conducted during August of 2010. He said the objectives of this characterization were to demonstrate methodologies for remediation and material handling, provide information for trench remediation planning, investigate geophysical features, and identify any new waste forms.

John provided a graphic depicting where the test trenches are located and said that they encountered drums in fairly bad shape. He said in 1983 there was a report of oil contamination, and it was found that these drums were the reason why. He said there was not any significant contamination found in the beginning of these characterization activities. He said in the 618-10-20 trench many drums were in pretty good shape. He said survey records were incorrect in some cases. There were some drums with uranium oxide that have created fires in the past. The records indicate about 150 similar drums. He said that most of the records are survey records, not disposal records.

John reviewed the lessons learned from intrusive characterization at 618-10. He said that the presence of depleted uranium chips in oil, uranium oxide, and concrete drums was confirmed. He said the radiological contamination was successfully controlled with remediation efforts. He said WCH learned that trench locations are not easily identified and that wind presents an issue. Layers of gravel were used to stabilize the site, but a sand dune has built up in the north corner of the site.

John discussed potential impacts to groundwater and said WCH stays aware of groundwater monitoring activities. He said dust suppression is critical, and the operators are trained to apply fixative.

Jamie presented on 618-11 nonintrusive characterization and said that lessons learned from 618-10 will be applied. He said they received Nuclear Regulatory Commission (NRC) and Energy Northwest approval to conduct nonintrusive characterization activities. He said DOE conducted a data quality objectives process and will make adjustments to the sampling analysis plan.

Jamie presented a schedule for nonintrusive characterization and said there will be a report from these characterization efforts. He said the next steps include having the RAP Committee look at the documents to let them know if further discussion is needed. He said the characterization report will be available in late December on CD for 618-10, and trench remediation will begin in March 2011. He said nonintrusive characterization for 618-11 is to begin in spring 2011.

Regulator Perspective

- Dennis Faulk said things are going great. He pointed out that actions similar to these could be done with the burial grounds. He said there were questions about what the monitoring wells were showing, but this is not yet clear.

Committee Discussion

- Dan asked what kinds of measurements are taken for the VPUs. Nelson said gamma readings were taken. Gerry asked if the measurements were taken outside the VPU, and Nelson replied yes. Dick asked if only gamma readings were taken. Nelson said that other readings were taken, but the information presented today was taken from the gamma readings.
- Liz asked if the purpose of the readings was to look for leaking and potential dose rates. Nelson said the soil samples did not show leaking.
- Gerry asked if the hottest readings were at the bottom of the VPUs. Nelson said the average was 13 feet in depth for the hotspot.
- Pam asked if the thorium that was detected is Thorium 126. John said WCH has not found any yet so he is not sure. Pam suggested that they talk to Pacific Northwest National Laboratory (PNNL) if they do find it.
- Pam asked about 'gunk catchers'. Nelson said that a 'gunk catcher' is a term used in original records for waste collection from the laboratories. He said it is miscellaneous waste, and the term originated from the original records.
- Shelley asked if there are disposal records for the different contaminants present. Nelson said the records indicate that truckloads of certain contaminants were offloaded in the trenches, so the records are not very detailed.
- Shelley asked if there is anything unusual anticipated based on records. John said the surprise was that there have not been any surprises found so far.
- Dale said he used to be concerned with the amount of groundwater monitoring, but he is pleased that there is more groundwater monitoring planned. He then suggested more frequent monitoring while characterization is being done.
- Dick asked where the material goes once it is excavated. John said once the material is excavated, an open trench is created for the waste. The trench is below grade to prevent windblown contamination, which is then covered with material. This soil is then put in containers and sent to Environmental Restoration Disposal Facility (ERDF). He added that there are some exceptions, but it depends on the types of waste.
- Dick asked were VPUs will go. Nelson said depending on the technology that is chosen, the VPUs will be sampled and monitored, and the disposal decisions will be made based on information collected. He said the best option is for the waste to meet ERDF requirements, but these decisions will be made with the technology

decisions. Warren said these types of decisions could be made on a load by load basis. Nelson said the VPUs will be completely removed and remediated along with adjacent soils.

- Dick asked how long it takes to get NRC approval. Nelson said there is a year allocated to the approval process and WCH meets with Energy Northwest frequently. He added that the nonintrusive characterization activities have a similar timeline. He said WCH is working toward making this process move faster.
- Susan Leckband asked if there are preparations for dealing with Beryllium (Be) contamination. She asked if local governments are involved with public safety drills since the burial grounds are close to communities.
- John said WCH anticipates that Be will be found, but if precautions are taken for radiation, Be is also controlled. He added that tests are done to the drums to prevent releases. Mark French, DOE-RL, said the drills are all in the site-wide emergency plan, and this work would be no different from the other work. He said if conditions change there will be more coordination. Pam said this project is unique, and there should be more conversation on emergency preparedness.
- Pam asked where the barrels of oil and uranium chips were sent. John said these barrels were incinerated.
- Pam said the M-91 facility is needed for characterization.
- Dan asked what “over casing” means. Nelson said the “over casing” is a pipe that encapsulates the contents for remediation purposes.
- Shelley said the RAP Committee will look for the report at the end of the month.

Update on contamination found at Building 324 – B cell (Radiochemical Engineering complex)

Shelley said the 324 Building is one of the most hazardous buildings in the 300 Area. She said two hot cell facilities are located within this building and were used for high-level radiological activities. She said the Radiochemical Engineering Complex (REC) and the Shielded Materials Facility were built with shields and equipment for remote operations. There were low-level analytical labs in the building, which were used for bench top or small scale experiments, technology development of radiological systems and equipment design development.

Shelley said there are also non-radioactive labs within the building, and a high bay addition to the building was used to create simulated high-level waste for development of full-scale equipment mock ups. The plan was to use some of these labs for preparation of deactivation and decommissioning (D&D) activities.

Shelley said the three-story building covers 102,000 square feet and from 1965-1996 was a research facility. She said the two-story REC facility houses B-Cell where recent D&D activities removed approximately 20,000 curies of material from an associated sump and trench. Grout was used to stabilize approximately 8,500 curies of material remaining on

the floor of the cell. A visible breach was identified in the stainless steel liner of the floor of the sump that during past operations reached the concrete floor – probably through corrosion –and material followed an expansion joint or crack in the concrete floor slab.

Shelley said that a 1993 PNNL report identified a large spill of concentrated cesium and strontium in the cell. Historically there were other, smaller spills as well. She said at the last RAP meeting it was said that geoprobe readings were done with 2.75 inch diameter stainless steel tubes pushed 65 feet horizontally approximately 12 feet beneath ground level, reaching several feet under the sump for B-Cell, and read 6,700 Roentgens per hour (R/hr). She said additional probes indicate localized high level material under B-cell with readings up to 8,900 R/hr.

Shelley said initial plans were to remove the cells in their entirety and place them in ERDF. The RAP committee is waiting to hear “Plan B” given that contamination from the cell has breached containment and poses a significant threat to the environment.

Mark French presented on the 324 building and stated that the plan is to remove the hot cells. He then showed pictures of where groundwater monitoring wells are located in the 300 Area. He said the main concern with a breach in the liner is the material reaching groundwater, but past monitoring has not shown evidence of contamination.

Mark showed a diagram of the 324 building and where the B-Cell is located within it. He said closed end tubes were pushed approximately 60 feet under the 324 building and radiological instruments discovered the presence of contaminated material below B-Cell. He said readings peaked at 8,900 R/hr directly below concrete joints in the slab floor of B-Cell. He showed a diagram of where the geoprobes were placed and reiterated that the spikes in dose align with the joints of the corner of the buildings. Don McBride, WCH, said there is not contamination detected until the probe reaches the wall of the B-cell. He said probes were then deployed at a steeper angle to see how far the contamination goes down. However, there is native cobble under the sand that the probes could not penetrate. He said it has not been determined how much migration of contamination exists at the cobble interface. He added that the cobble interface in the middle of the building did not have high readings, which is promising because it does not indicate pooling of contaminants.

Mark said DOE feels that the material has been there for 20 years or more and is fairly stable. WCH is just starting to plan the path forward, and the D&D efforts for the 324 building have been abandoned for now and going through the regulatory requirements will take time. He said this is the beginning of a process that will proceed slowly and cautiously.

Regulator Perspective

- Rick Bond, Ecology, said the milestone for the 324 building will be in jeopardy.
- Dennis said the EPA hopes there will be a solution so the milestone can still be met. He said hot cells are being removed at Idaho, and there might be some lessons learned from there.

Committee Discussion

- Maynard asked what isotopes are present. The historical evidence indicates cesium and strontium, but DOE will go in with non destructive acetates to verify. He said it is important to find out for sure what constituents are there.
- Dale recalled that cesium was added to the German waste and was boiled off as a vapor, which was then caught in the carbon filters. He added that he would like to see more groundwater action with more monitoring downstream of the contamination plume.
- Susan Leckband said she does not see the 2012 milestone being met. She said the WCH contract is up in 2015, and she wanted to caution that there could be an exchange of contractors during this cleanup.
- Gerry said he feels that there are not monitoring wells in a place that would detect contamination from the 324 building when looking at the groundwater monitoring map. Don said DOE is engaging with groundwater experts at PNNL and that wells near the river would have picked up contamination within months of the spill, and there is no contamination detected.
- Gerry asked where the dissolved fuel waste will be disposed. Mark said there is more characterization needed, and until that happens, disposal locations cannot be determined. Gerry said the RAP Committee should follow up on the acceptance criteria and how it can affect decisions.
- Liz asked when the release at the 324 building was documented. Don said the release was documented in 1986 and sometime in the 1990s grout was put in B-Cell. This means the discharge would have happened between 1986 and sometime in the 1990s. He added that the grout layer was removed last year.
- Liz said she is surprised this contamination was not found until now. She then asked if there are other examples of similar releases to get an idea of how the contamination acts. Mark said there are only a few of these types of facilities, and samples have been taken to ensure that contamination has not spilled. He added that fuel storage basins have similar issues. Maynard said historical buildings should be looked at for lessons learned.
- Shelley said this is a cautionary tale for well decommissioning and that wells may be needed in the future. She then suggested that the 324 building issues be examined from a budget standpoint. Mark said there is a monetary allowance for unexpected events such as this.
- Shelley asked how soon a plan will be out. Mark said presumably within the next six months or so, but it will be a lengthy process.

The RAP committee noted the importance of continuing to receive updates on the 324 building as plans progress.

RCRA Permit

Pam said the RCRA permit is a large document that has been in discussion for a long time. She said the entire document will not be available until March and provided a list of what is included in the RCRA permit. She said there are discussions going on with Ecology to see if portions of the document can be made available. She said the HAB will likely request an extension for the public comment period due to the size of the document. She said there are two parts of the permit, and she read off the conditions under part two. She said since the section of the document that addresses these conditions is nearing completion, there should be an issue manager discussion on the part two of the conditions in the RCRA permit.

Gerry discussed the process of analyzing the RCRA permit and said that the issue managers will begin with the part two conditions. He said there will be two hour discussion sessions scheduled to delve into part two of the conditions. He added that some of the conditions could be grouped together into one work session, such as closure plans and corrective actions. The main issues of concern have to do with offsite waste, groundwater, and the role of the EIS. He said a RCRA permit is usually accompanied by an EIS to provide multiple mitigation methods that can be assessed. He said it is imperative that the permit conditions be properly assessed. He said these issues will be developed and brought to the RAP Committee or to a COTW meeting for potential advice development.

Liz presented a diagram representing what the issue manager's process will be on the RCRA permit. She said the process helps to get a handle on a document prior to its release. She said the issue managers would then be able to present at the COTW before it goes back to the RAP and Public Involvement and Communications (PIC) committees for advice, and then a public meeting would be generated. Susan Leckband suggested adding Tank Waster (TWC) and Health Safety and Environmental Protection (HSEP) committees into the process. Liz said these committees will be integrated into the issue managers meetings.

Madeleine Brown, Ecology, presented on how the public will see the permit. She said the public will have a disk or online access and will see the RCRA permit units on one axis, and the other axis will be the different parts of the permit. For example, one can see the groundwater conditions for a particular unit. She added that there are attachments, maps, and fact sheets in the introduction section.

Committee Discussion

- Susan Leckband provided clarification that the point of starting from the top is to determine whether the permit meets HAB values, and due to the size of the document, it needs to be divided into sections. Gerry added that there are certain areas of the permit that might be lacking, such as health and safety plans, institutional controls, and Long Term Stewardship (LTS).
- Dan asked how this relates to the Tri-Party Agreement and the TC&WM EIS. He said the consequences should be clear.

- Pam asked for the next steps in this process. She asked how the issue manager meetings will these be scheduled. Gerry said discussions with Ecology will have to happen in order to organize when different parts can be discussed during the 2 hour discussions.
- Pam suggested that the issue managers talk with Ecology in January to discuss what could happen for committee week in February. Gerry said the existing permit is online at Ecology's web site, and then said that the Los Alamos permit is also online, which serves as an interesting comparison.
- Dan asked if HAB commented on the last permit. Madeleine said the HAB did not comment on the original RCRA permit. It depends on the size of the permit changes whether or not the HAB provides comment.
- Gerry said that all the burial ground units were supposed to be in the permit. It was said today that only some of the burial grounds are going to be included in the permit and there should be follow-up on this.

River Corridor Baseline Risk Assessment Plan

Dale Engstrom, Issue Manager and Vice-chair of RAP introduced the discussion, saying that the document has been a long time coming and there will be much to discuss.

John Sands, DOE-RL, introduced Draft C of the River Corridor Baseline Risk Assessment Plan (RCBRA). He said a lot has changed in this iteration. Originally DOE was going to go from risk assessment to the record of decision (ROD) and look at the ecological aspects. He said things have progressed since then, and there are now six decision areas. He said DOE is also conducting remedial investigations that develop remediation goals for proposed contamination levels. He said the RCBRA is not final, and there can be meetings with the issue managers to discuss the details of risk and risk communication.

John said the purpose of the RCBRA is to provide a basis for the remedial actions. He said sites that have not been cleaned up have a basis for action, and cleanup levels have to be determined.

Regulator Perspective

- Rod Lobos, EPA, said he could not comment, as he has not yet seen the document.
- Beth Rochette, Ecology, said Ecology hopes the document will address issues that have been raised in previous drafts. She said the preliminary remediation goals will be new, and Ecology is excited to look at this.

Committee Discussion

- Dale asked if there is a plan for how the RAP Committee and DOE will go about

the review of this document. John said there is a formal DOE process. Dale asked how the RAP Committee can interact with this process. John said DOE will provide the document for review, tentatively by the end of December.

- Pam Larsen, RAP Chair, suggested that someone from the HSEP Committee serve as issue manager for the human health aspect and Dale serve as issue manager for the ecological aspect.
- Susan Leckband said the RAP Committee could also decide that this is not a priority document and not spend time on it. The Committee felt it important to proceed with review and comment.
- Pam asked when the document will be complete. John said the document will be out in two weeks, and the 45 day review time will likely be extended. He said DOE will be pushing hard to get the document finalized.
- Dale said he does not see this topic being ready for committee until February, and getting HSEP involved will help with some of the review.
- Shelley said there needs to be understanding of how the RCBRA will be used as a tool. John said most of the cleanup is based on Model Toxics Control Act (MTCA), which is soil-based, and assumptions are based on plant consumption. He said this document is also used to reduce uncertainty for decision makers.
- Dale said an RCBRA presentation to RAP in January would be helpful. John mentioned that the executive summary had a lot of work put into it and might be useful for an overview.
- Gerry Pollet said there were early workshops on the RCBRA, and the reason it is important is because it is an underpinning tool for cleanup decisions. He said a key question that has been raised is how to get the information to the public and how to assess the document's validity. Aside from going to the HAB with this information, Gerry asked who else is being solicited for review and comment. Rod said he was not in the conversations initially, but the risk assessment relates to other decision documents that the public has the opportunity to comment on. Gerry said, in some cases, the assumptions made in the baseline risk assessment are referenced in comment responses. Rob said the risk assessment is not going to provide the risk management decisions. The substantial information is in the following documents, not the risk assessment.
- Craig Cameron, EPA, said this document will most likely not be opened up to public comments. Gerry said there has been interest in this topic for a public workshop.
- Pam said it is an assessment, not a policy document. Craig agreed to some degree, but there are cleanup levels that include assumptions from this risk assessment document.
- Gerry said exposure scenarios should be discussed with the public, and it is important for the public to understand them.
- Liz said the PIC Committee might get involved with how risk is portrayed to the

public. She said there should be a workshop on risk in general. She said cleanup is confusing to the public, and this document could be used for to make it clearer. John said DOE could work with issue managers on this concept.

- Shelley suggested having an issue manager meeting on the concept of risk.
- Susan Leckband asked if the document identifies the scenarios through the assumptions. John said this document does not make decisions, it provides scenarios. He said the decisions are made with this information, and it is important because of how it is used in the Remedial Investigation and Feasibility Study (RI/FS) process.
- Susan Leckband asked about the breadth of the scenarios. Craig said the RCBRA takes into account the basis for action.
- Briant Charbonneau, DOE-RL said, in his opinion, DOE did cover the types of scenarios necessary, and the factors are representative of activities.
- Pam asked how this baseline risk assessment relates to the Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS) and the Resource Conservation and Recovery Act (RCRA) permit. Briant said this document deals with a different part of the site. Pam said the RCRA permit is site-wide. Briant agreed, but said the RCRA permit is focused on certain areas of the site. Nina Menard, Ecology, said that because most of the units are among Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) units, they will be tied together with groundwater treatment. She said the baseline risk assessment impacts the RCRA treatment, storage and disposal units (TSD) when groundwater is affected.
- Dale said the RAP Committee would like to talk about this in an issue manager meeting and then in committee in January. He said from this process, questions can be developed and the RAP Committee can receive the answers in January. He said risk provides a tool for cleanup by defining “how clean is clean”. He added that there is an idea that risk can limit choices in the cleanup process, which should also be discussed.
- Jonathan Beckstrom does not fully understand if the scenarios are mutually exclusive; for example, if a tribal member is also a worker. John said there is data to look at that scenario.
- Jonathan asked if there is an accumulation of risk. John said there is a broad area and a local area included in the scenarios.
- Dale said the RCBRA will be distributed to the issue managers and committee members, when available, and he asked for questions on this topic to be sent to him.

Deep Vadose Zone Work Plan

Dale said there should be a lot of interest in the Deep Vadose Zone work plan, and today’s presentation will provide an update.

John Morse, DOE-RL, said the deep vadose zone workplan is out and ready for review.

Dawn Wellman, PNNL, presented on the deep vadose zone work plan. She showed a diagram of the process the work plan goes through and said that the plan is in the applied research phase. She said this is the technical underpinning of the deep vadose zone strategies. She then showed the organizational structure of the work plan and said the program is a jointly funded effort. There is a DOE management team, steering committee, management and integration team, and a control process for the program. She presented the deep vadose zone scope and discussed the treatments of metals and radionuclides. She said there is a foam delivery technology which is used as a vehicle for delivering treatment methods into low permeability zones. She said foam transport simulations are used to predict foam transport, high performance geophysical modeling and inversion, and natural monitoring.

Regulator Perspective

- Dib Goswami, Ecology, said there was a presentation in July and it is a great thing to see that the vadose zone field research is going well. He said Ecology has a question on how long things will take to come to a conclusion. He said there needs to be a technology to address constituents in the deep vadose zone. He said there are good things happening, and Ecology would like to see a clear picture for short and long term actions from DOE. Ecology would like a time range for the long term testing, as well. He is glad that steps are being taken, regardless of the uncertainty.
- Craig said it is nice that EPA and Ecology can work together on the deep vadose zone. He said there is not yet the technology to protect groundwater, so that is why the deep vadose zone needs attention. EPA hopes there will be technologies developed to address the problems, as the risks to groundwater from waste sites have been a challenge. He said there is also confusion with the regulatory regime. He said there is promising testing going on, such as being able to pull technetium out of the ground.
- Rod said the BC Cribs and trenches are attempting soil desiccation and there is hope that it works well. He said velocity testing is being done, and hopefully these types of technologies will be useful for the deep vadose zone. He said Ecology has been in conversation with DOE to use the foam to mobilize contaminants and pull them out of the ground.

Committee Discussion

- Pam asked what the foam is doing. Dawn said it is a delivery mechanism to treat contaminants.
- Susan asked if for LTS and the storage of information, if the samples are being tracked in the library electronically. Dawn said yes, and that radiation samples are also taken. Susan asked if the information from the samples is available. Dawn said the electronic library will be set up and be available on a SharePoint site. Roy Gaphart, PNNL, said the information will be available to everyone.
- Bob Suyama said the foam delivery system was used for uranium and technetium, and asked if there was something to stabilize or to convert the constituents. Dawn said the foam is used to deliver amendments and make stable solids, so the foam penetrates with the remedial amendment. She said the contamination is stabilized in place and left.
- Dick said he is concerned about these amendments and if there is good data on their half-lives. Craig said this information is in the treatability test. John said a stressful experiment is done to gain this type of information. The point is to slow the rate of movement down and its hazard.
- Pam asked where the library of information is. Dawn said the information is kept in the Research Technology Laboratory Building.
- Pam asked if the technology used for technetium can be used for other contaminants.
- Pam asked if there are any implementation plans for other DOE sites. Dawn said not yet, but there are discussions going on for Los Alamos for the use of foam.
- Maynard asked if the foam could be injected again after a certain amount of time. Dawn said yes, repeat injections are already used and the amendment can be reapplied.
- Shelley said surfactants that can bring contaminants up to the surface should be focused on. She asked how success is measured with technologies. John said near term is 5 years, and long term is 15-20 years. He said improving the ability to deal with remedial actions is considered a success.
- Dan asked if there is any concern with fixation closing off other treatment options. John said this is not fully known, however, based on what is known he does not think so. He said there will be a screening of all the technologies for the deep vadose zone and this will help to gain information on how things are going.
- Dale said the next steps for the deep vadose zone are to provide input and see if advice is needed. He said many things are happening and he is encouraged that there is a sediment library being kept. He suggested moving forward and said he needs advice points from the RAP Committee by December 24.

- Maynard asked when it would be appropriate to discuss progress of the program. John said there will be a workshop, but DOE can come and present.
- Shelley said she would like to understand the development of the deep vadose zone program. She then suggested that the site technology coordination groups should be revisited. John said DOE is trying to achieve the same things this site technology coordination groups program was trying to do, but the resources are not there to create another program. Shelley said transparency is essential. Dawn said the implementation plan will be out in the spring and ready for discussion.
- Susan Leckband suggested considering that the technology coordination groups program be attempted with today's technology using virtual capabilities.
- Pam thinks incremental interaction could be good with the deep vadose zone, and said advice might not be needed.
- Susan Leckband said a congratulatory letter should be written regarding the deep vadose zone work. The RAP Committee requested that Dale and Susan Leckband draft a congratulatory letter.

EM-SSAB Meeting: Long-term Stewardship Presentation

Bob said he attended the long term stewardship conference in Grand Junction Colorado in November. He said it was sponsored by legacy management and most of the focus was on sites that have been closed. He said his presentation was on where Hanford is in the cleanup process and that it is a long way before from being closed. He said Boyd Hathaway gave a presentation on the long term stewardship program. He read off the presenters from the conference and said there was discussion about how the Federal Advisory Committee Act (FACA) committees interface.

Bob said his presentation started on FACA advisory boards, and how the HAB is different because it was created prior to FACA. He noticed from other presentations that other sites are much smaller than Hanford, and he discussed in his presentation that Hanford is trying to shrink the site. He said the Hanford site is very diverse. He said he used a lot of the presentations from DOE to fill in the blanks on what the HAB has been working on. He said he discussed the goals that lead to shrinking the site, and that there is waste that will be left, which is where legacy management comes into play. He said at Hanford the future and long term management is being shaped with decisions made now and there is a long path forward.

Bob said there was a presentation from a representative at Grand Junction that was very good. He said Mother Nature is going to be around longer than humans and caps should be designed accordingly. The man also said to help Mother Nature heal and understand the long term natural processes. He recommended using brute force science and to turn off the computer models and resort to doing samples in the ground. Bob said his presentation was about being patient and that these processes take a long time. The man ended his presentation by saying that nobody knows what this all means for perpetuity. Bob said many things that he discussed are the types of questions the HAB should be asking about LTS.

Pam asked if Bob got to take a tour. Bob said he got to see Grand Junction and the rifle site and it was completely different than the Los Alamos site he previously visited. He said Hanford was fairly well represented and many people asked about how the consensus process with the Board works.

Keith Grindstaff, DOE-RL, introduced himself to the RAP Committee. He will be replacing Boyd as the contact for the LTS plan.

Committee Business

The RAP committee discussed the topics for January.

Pam asked what DOE is ready to talk about in January.

Jonathan Beckstrom said Greater than Class C is the first EIS that the tribes were involved in. Paula Call, DOE-RL, said the Greater than Class C EIS will be out in January or February.

Pam asked about the U-Canyon. Craig said the U-Canyon is tied in with the sand filter waste site exploration, and he did not think it will be ready for discussion by January.

Pam asked if TRU waste packaging is ready to be discussed in January. Craig suggested February or March.

Nina asked if the RAP committee wanted more of a primer on the River Corridor baseline risk assessment, and that the agencies would not be able to delve into details in January.

The RAP committee discussed having a baseline risk assessment COTW, and decided to have an issue manager meeting, instead, and invite PIC and HSEP to join.

Action Items / Commitments

- Why doesn't TC&WM EIS address burial grounds?
- Copies of SWBG advice framework to RAP (Liz>Susan>RAP)
- Follow up on disposal of waste hotter than Greater than Class C (e.g. 324 Building)
- 6 months out > 324 Building work plan
- Question for Ecology regarding which burial grounds will be included in RCRA permit>is this different than what the HAB was told earlier
- John S. to provide link on RCBRA Draft C to Susan H. to distribute to RAP
- Follow up with Keith Smith (HSEP) regarding Margery Swint as issue manager for RCBRA human health section
- HSEP/RAP/PIC Issue Managers for RCBRA review draft C and Identify framing questions for January joint topic meeting (Issue Managers the day before RAP meeting)
- Committee members feed questions on RCBRA to Issue Managers
 - E.g. how will RCRA/CERCLA be "tied together" in RCBRA?
- Committee members! Get any advice points to Dale by December 24

- Return to RAP > DVZ plan update
 - Status of development of plan
- DVZ congratulatory letter? Dale

Handouts

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

- Burial Grounds Advice Development draft GP to Issue Managers and RAP, PIC for 12-8-10.
- RCRA permit Part Two Conditions, Ecology.
- 324 Building, Mark French, December 9, 2010.
- 618-10 & 11 Burial Grounds Status/Update, WCH, December 9, 2010.

Attendees

HAB Members and Alternates

John Beckstrom	Susan Leckband	Dan Serres
Shelley Cimon	Liz Mattson	Dick Smith
Dale Engstrom	Maynard Plahuta	Bob Suyama
Pam Larsen	Gerry Pollet	

Others

Paula Call, DOE-RL	Dieter Bohrmann, Ecology	Andre Armstrong, CHPRC
Briant Charbonneau, DOE-RL	Rick Bond, Ecology	Sonya Johnson, CHPRC
Mark French, DOE-RL	Madeleine Brown, Ecology	Kavin Nickola, CHPRC
Keith Grindstaff, DOE-RL	Elis Eberlein, Ecology	Janice Williams, CHPRC
James Hansen, DOE-RL	Dib Goswami, Ecology	Susan Hayman, EnviroIssues
Tony McKarns, DOE-RL	Nina Menard, Ecology	Blair Scott, EnviroIssues
John Morse, DOE-RL	Beth Rochette, Ecology	Barb Wise, MSA
John Sands, DOE-RL	Deborah Singleton, Ecology	Jon Mathews, NPT
Chris Smith, DOE-RL	Craig Cameron, EPA	Mark Freshley
Jamie Zeisloft, DOE-RL	Dennis Faulk, EPA	Roy Gaphart, PNNL
	Rod Lobos, EPA	Tim Johnson, PNNL
		Mark Triplet, PNNL
		Dawn Wellman, PNNL
		Phil Burke, PRC
		Peter Bengtson, WCH
		Warren Bryan, WCH
		John Darby, WCH
		Jeff Lerch, WCH
		Nelson Little, WCH
		Don McBride, WCH
		Mark McKenna, WCH
		John Martell, WCH
		Todd Nelson, WCH
		Mike Priddy, WDOHA

**December 9, 2010 RAP Committee Meeting -
Transcribed Flip Chart Notes**

Additional Input on SWBG Advice

1. Speak to Burial Grounds over old ponds
2. Note that width of burial grounds/trenches vary over their length (“varying widths and depths” “the volume of which appears to be...”)
3. Characterize to the point that people are comfortable with any materials chosen to leave in place

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Additional Input on SWBG Advice

4. Note that it may be easier/cost effective to just dig it up, rather than characterize extensively
5. Address risk of leaving materials in place (missing NEPA/SEPA)
 - a. Describe up front in advice
6. Some trenches pose greater risks than others, based on inventory
7. “comprehensive” RTD... maybe remove “comprehensively”
8. Use “regulatory agencies” rather than “EPA” or “Ecology”

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Additional Input on SWBG Advice

9. Add a paragraph to RTD on uranium
10. Capture and define the structural differences in the burial grounds (trenches, caissons, etc)
11. Reflect cost of disposal at WIPP compared with RTD - Ultimate cost to taxpayers
 - a. Include cost of long-term monitoring, etc > very transparent

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Additional Input on SWBG Advice

12. “community acceptance” section will reflect and be consistent with HAB values
13. Refer to “soil column monitoring” as “vadose zone” monitoring
14. Address issuance of subsidence if capping (e.g. “dynamic compaction”)
 - a. Addressed in remedy selection
15. “Characterization” in concert with risk. Don’t use “thoroughly”

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Additional Input on SWBG Advice

16. Speak to the issue of blending
 - a. What makes sense to situation
 - b. Build in flexibility
 - c. [HAB >needs more thought]
17. Need for an M-91 facility (also a safety issue)
 - a. Check with HSEP for interest in this topic
18. Also commitment to public meetings on the investigation plans (before documents completed – e.g. ¾ completed)

19. Address burial grounds that are without any information/inventory
20. Some bullets need to be addressed in RCRA permit
21. Have a paragraph about where agencies are at in the process

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RCRA next steps

1. Issue Managers work with ecology on availability of information for overview meeting (issue managers and others)
2. Issue Managers meeting with Ecology in January to flesh out overview meeting

Online reference: WA Ecology, Los Alamos NM Environment Department
RCRA permit Nov 30.

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Follow Up

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 - a. Status of development of plan
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