

FINAL MEETING SUMMARY

**HANFORD ADVISORY BOARD
RIVER AND PLATEAU COMMITTEE MEETING
October 8, 2008
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

Maynard Plahuta, River and Plateau Committee (RAP) Chair, welcomed everyone and introductions were made. The committee approved the September meeting summary.

Paula Call, Department of Energy – Richland Operations Office (DOE-RL), introduced herself as the new Hanford Advisory Board (HAB or Board) liaison for DOE-RL.

Groundwater Metrics Briefing

Mark Triplett, Pacific Northwest National Laboratories (PNNL), provided a presentation on the groundwater metrics. The metrics are meant to provide a visual summary of the major groundwater plumes and trends over time. Mark said they just updated the metrics with the 2007 monitoring data. Mark displayed the metrics and distributed copies for the committee. Mark said he hopes the metrics will encourage dialogue about focus areas. Mark said the metrics include plume contours that show what the level of contamination is relative to the drinking water standards; there is now a common color code and the colors consistently show the concentrations above drinking water standards. Mark said the metrics can show trends over time for the key wells. Mark said they tried to show where the extraction wells are that are used for the pump and treats. The metrics required an expert to evaluate the sparse data in some areas and make a judgment. Mark said the

metrics report the mass and volume reduced through the pump and treat activities. Mark briefly reviewed each groundwater metric. Mark said the metrics are not just a snapshot, but show change over time across the site. Mark asked the committee to provide input on how the metrics are useful.

Regulator Perspectives

- Dib Goswami, Washington State Department of Ecology (Ecology), said Ecology worked with DOE to come up with these metrics. Dib said Ecology's nuclear waste program reports quarterly on performance measures to their director which ultimately goes to the Governor. The public and stakeholders want to learn about progress in simple terms. Ecology and DOE struggled to develop easily understandable information. Dib distributed a handout with some basic groundwater facts that Ecology is thinking about using to show the groundwater progress to date. The handout outlines target and actual removal rates of chromium and provides statistics on the monitoring well progress. Dib said chromium going to the river is a big concern to the public because of salmon. Dib said they have installed 22 monitoring wells, which is ahead of the milestone schedule. Ecology also reports on the total number of wells decommissioned; this year they planned to decommission 100 wells and completed 46 so far. Dib said they would like to be able to trace contaminants back ten years to show how the plume size has been reduced for key constituents. Ecology's emphasis is on accelerated groundwater cleanup operations along the River Corridor, so they want to portray those stories to the public.
- Craig Cameron, Environmental Protection Agency (EPA), agreed the purpose of the metrics is to improve communication. Craig thought it is helpful to have all of this information in one place, and even the people working with the data can learn from these metrics. In terms of tracking performance, EPA looks at the work plans vs. actual efforts to guide the work under each record of decision (ROD). Craig said they have the flexibility to report on what they feel is adequate.

Committee Discussion

- Susan Leckband said it looks like the metrics show there is another source term in 2007 that was found with the new wells. Susan asked if the wells will help identify source terms for future planning and cleanup. Mark said finding the source of the plume is one of the goals of this work. Matt McCormick, DOE-RL, said one of the uses of the wells is to determine where the source is. DOE-RL is working with River Corridor team to figure out where to focus efforts.
- Susan asked if there is real time mitigation and planning associated with the metrics. Matt said the groundwater program includes contingency planning to address new issues. DOE-RL is working with remediation contractors in the vadose zone. They have identified waste sites where the remediation did not address the contamination in the vadose zone.
- Sandra Lilligren asked why similar metrics are not created for the vadose zone. Sandra thought it would be useful to see a cross section of vadose zone

contamination. Mark said individual cleanup plans include something similar to the metrics. Mark thought it would be reasonable to compile those for this purpose as well. Matt said this information will be part of the remedial investigation feasibility study (RIFS) process, and DOE will look at vadose zone with groundwater underneath to see if areas are protected and determine if more needs to be done. Matt agreed it would be good to show the vadose zone in pictures like this. Sandra asked who is working on vadose zone characterization. Matt said DOE River Corridor is responsible and has WCH as a contractor.

- Maynard asked how the target removal rates are set. Mark said some of them are set by the Tri Party Agreement (TPA). Dib said some of the removal rates are based on five year ROD evaluations and commitments. Maynard asked if this is true also for the proposed elements in the chart. Dib said the annual report includes the levels from 2000 to current; the levels are agreed upon levels.
- Sandra said she is dismayed that the groundwater problem continues to be looked at in terms of area instead of volume because the area measurement does not convey the risk. Sandra said she understands the limitations of the data, but thought the new wells should be able to provide more information. Mark thought this was a good point. He said for carbon tetrachloride the two dimensional and three dimensional pictures tell different stories. Matt said the ZP-1 treatment system will be pumping from the entire thickness of the unit. Sandra thought this might be the unit that is most important to show. She said the area of a plume might be reduced, but it may not have improved the environment if the volume is the same.
- Dick Smith thought that the information on the number of wells that have been drilled and decommissioned is not particularly useful. Dick thought the number alone does not tell you anything and it takes a lot of explanation about why the additional wells are helpful. Dib said this is a good point and Ecology is planning to have more conversations with DOE about that. Dick asked if the wells are being decommissioned because they have gone dry. Dib confirmed that most of the wells that are being decommissioned have gone dry.
- Dirk Dunning said the 200 BP5 Area has uranium and technetium contamination. Dirk said the water table has dropped below the basalt in this area and information on the geology would be helpful to see where the confined and unconfined aquifers are and how they overlap. Mark agreed; he said this area is a confusing and hard to show graphically. Dirk said there was data that showed technetium was in the confined aquifer and thought this should be looked at further. Dirk said the old tritium plume should show where the flow channel is in the subsurface geology. Dirk thought that the open areas of basalt need to be looked at closer to see if there is a relationship between the two aquifers with upwelling. Mark said they had a geology meeting recently to discuss the issues Dirk is talking about. He said they plan to hold another meeting soon and will invite Dirk to discuss how they combine all of the subsurface geology information.
- Wade Riggsbee agreed with Sandra that the discussion should be focused on volume. He said the data needs to show the volume and contaminants that are getting into the river. Mark said the information on the flux to the river was proposed when they were

brainstorming these metrics, but that information would require judgment and assumptions that they were not sure they were ready to report on yet. Wade said as more information is learned from the monitoring wells, an attempt should be made to report on this. Sandra thought that uncertainty should be recognized when reporting on the flux to the river. Sandra thought that most people with a science background understand uncertainty and want to hear something; not saying anything is worse. Matt said they have this information and can work with the Wade and Sandra on that metric. Wade agreed that this information needs to be shared because the current metric leaves the impression that everything is being captured. Dick said uncertainty is fine as long as you use the same methodology year after year to arrive at an estimate.

- Dirk said the volume of the BP-5 uranium plume is 300 micrograms per liter. Dirk thought the area might grow as the plume moves. Mark suggested looking at this issue during the November 18 workshop. Dirk said another area that would be useful to look at is the carbon tetrachloride plume in ZP1. Dirk thought the boundary of the plume is important for the Natural Resource Damage Assessment (NRDA) so both volume and area metrics should continue to be reported. Dirk also said that the solvent data is misleading related to drinking water standards because the dose rate has three times the impact you would expect because the impact is based on ingestion. Dirk said boiling water with solvents on the stove or using it in the shower would result in three times the exposure limit; so the drinking water standard is inadequate.
- Shelley Cimon thought it was important to capture the interface between groundwater and the vadose zone, particularly in the south plume. She said a lot more is known about the river flow and impacts and it is not captured in the metrics. Shelley said these metrics need to balance how much information can be useful.
- Susan said that various contractors are responsible for elements of cleanup, and these plumes do not recognize the artificial boundaries placed on cleanup jurisdictions. Susan thought that with the transition of the new contracts, there is an opportunity to miss areas of the site, and if it is not included in a contractor work scope then they will not do the work. Susan also said she thought the public could understand the information in the metrics if it is transmitted appropriately.
- Bob Suyama said he received a copy of these metrics during the last committee meeting and found that they answered 80 percent of his questions. They also raised new questions. Bob felt the metrics were very valuable. Bob asked if he could see a copy of the report that includes more information on the metrics. Mark said the information is available in the groundwater report and the index is included in the handout. Mark said the report is organized well and includes a chapter for each metric.
- Dirk also thought the metrics are useful. Dirk also said the department needs to decide how to display and deal with areas where there is not much data. Mark said this is a good point, and in some areas the plumes have dotted lines because they do not have enough information to define the boundary.

Bob suggested that the committee compare the results in these metrics a year from now to track the progress. Mark said he noted the suggestions made during today's meeting and would welcome additional suggestions if anyone has more ideas in the future. Maynard said the metrics are a living document and may bring up new issues in the future that the committee will be interested in. Dirk thought it would be valuable for the committee to receive an update on the data software used to develop these metrics. Mark said he would be happy to talk with the committee about that. Susan thought the groundwater protection issues would be a good topic for a Thursday night tutorial at an upcoming Board meeting. Wade said the groundwater team has areas of responsibility divided among the site and it would be good to see who has what areas and what types of things they are working on. Matt said there is now one groundwater team that meets regularly and they could come to the committee to report on their work.

Hanford Barrier – Burn Plan

Kevin Leary, DOE-RL, provided a presentation on the burn plan. Kevin said the burn was something he has wanted to do for quite some time. Kevin said it has always been an unknown what will happen when there is a fire and there are no people around to replant an area. Kevin said a prototype barrier was built over the 216-B-57 Crib in 1994. The crib is in the PW5 operable unit and cesium is the primary contaminant of concern. Laura Buelow is the agency representative from EPA taking the lead on this project. The objectives of the prototype barrier were to evaluate surface barrier physical and hydrologic performance constructability and construction costs.

Kevin said the barrier was meant to be self sealing and mitigate intrusion by preventing precipitation from percolating into the buried waste and transporting contamination to the underlying groundwater. The two meter layer is considered an evapotranspiration (ET) barrier. Kevin said the barrier is like a giant sponge that holds onto the water. They had to make it thick enough to allow evaporation during the summer while accommodating the snow melt in the winter. Kevin said DOE does not understand how ET barriers will function when there are not people around to maintain them. Kevin said an objective of the burn was to determine what will happen with water and wind erosion, runoff, soil impacts, plant recovery, and animal recovery after a fire. Kevin said he thinks they will be surprised by what comes back to this area and reseeds naturally after the fire.

Kevin said they received the money for the burn in August and conducted the fire in September. The burn took a lot of planning in a short amount of time. Kevin said they used fire shelters and other mechanisms to protect high-tech monitoring equipment during the burn. Kevin explained the three tiered post site closure barrier monitoring process being used. DOE plans to: 1. Evaluate the responses real time with on the ground monitoring (soil, water and plants); 2. Conduct aerial over flights and; 3. Use remote sensing satellite imagery (in coordination with National Aeronautics and Space Administration (NASA)).

Kevin said the burn was conducted on September 27, at 3:15 p.m. and lasted approximately seven minutes. The burn mimicked a large scale fire. Thermocouples were used above and below ground to measure temperatures. The fire reached temperatures of 1300 degrees F. Kevin showed some pictures of the area pre and post burn. Kevin discussed the post fire studies that they intend to conduct and the future application of data generated from the research projects.

Regulator Perspectives

- Craig said Laura was involved in this project and pushed to make sure DOE was committed to monitoring this area for a long time afterwards. EPA is interested in knowing how the barrier performs.
- Ginger Wireman, Ecology, said one of the Ecology engineers participated in this work and hopes to see more burns in the future. Ginger asked if DOE is asking for NASA's imagery to monitor the area. Kevin said NASA is interested in working with DOE on this project. He said they have suggested using remote sensing satellite technologies, but it could involve other types of data as well. Dirk said the state of Oregon asked DOE to make that request to NASA and is something that should be done site-wide. Kevin agreed. He said there was a radiological survey of the site done in 1998 and was not published until last year. Kevin thought this type of data was useful to the site and the public.

Committee Discussion

- Wade said he helped design this barrier. Wade said he sees a need to look at analogue sites as well; there have been fires over the site in the past and it could be possible to establish control plots to correlate the data on re-establishment of plants across the plateau. Steven Link, Washington State University (WSU) said there are three sites around McGee Ranch that could be good areas to do this correlation work. Wade said the areas would require restrictions on access. Kevin said he thought this was a great idea, not just for plants but for erosion too.
- Dick asked if the long term performance monitoring costs of barriers have been reviewed and if they have changed over the years. Kevin said he is always looking for new and better ways to do things. Kevin said they expect to get the same quality of data with the three tiered system that they would if they were to send people out on site. Dick said DOE used to do an on the ground survey. Matt said DOE is still working out the details of Kevin's monitoring plan. DOE's baseline still includes the old costs for monitoring in order to be conservative. Kevin said the remote sensing technology might take ten years to develop. Dick thought that the economics of barriers needs to include these costs.
- Susan asked if underground monitoring is done to see if movement takes place under the barrier. Kevin said there is underground monitoring and that the barrier is monitored thoroughly. Kevin described some of the technology used to monitor the barrier. Susan asked if the presumption is that anything that would move the contaminants under the barrier would be water coming from the surface. Kevin

confirmed this. Susan asked if DOE is confident that they know what is in these waste sites and do not think another plume will come from the side and move the material in the crib. Kevin confirmed that they do not anticipate effects from another plume in the area.

- Dirk asked how much of the monitoring is below land surface under the barrier. Kevin said there is monitoring within, but not under, the barrier. The monitoring wells evaluate if anything breaks through the barrier into the vadose zone. Dirk said the wells do not address what is under the barrier. The barrier can perform perfectly but that has no relationship to what happens in the crib. Dirk also said that habitat can be reduced by fires and warned Kevin to be careful of this when looking for burn analogues.
- Paul Shaffer asked what the historic management was on site prior to the burn. Steven said soils were brought in from McGee ranch. Those soils were scraped in 1994 and sub-soils were taken to the barrier cap. Steven said he grew sagebrush seedlings and seeded grasses on the surface of the barrier. Steven said the summer after they planted, the only thing you could see on the surface was tumble weed. When the tumble weed died and blew off, what remained were the plants that Steve put in. Three years after planting there were 45 species recorded; additional species continued to propagate. Last year the barrier was down to 10 species.
- Paul asked how long DOE plans to monitor the burn area. Kevin said they do not have a set timeframe yet and will wait to see how things go. Kevin said right now the monitoring is funded every year. Paul asked if there are plans to write a report on the monitoring so the committee can track this work. Kevin said they used to do an annual report for the barrier, but now have additional things to study while using the same budget. Kevin said he is proposing to do a letter report once a year and a full report every three years.
- Paul said the Trustee Council was disappointed that they were not given an opportunity to comment before the burn was done. Paul also said that institutional controls (ICs) should be used in this area even if there are not people around to re-plant. Kevin said there would be ICs in deeds which would restrict excavation or drilling. Kevin also said he tried to get on the agenda for the Trustee Council to talk about this work, but the timeframe was really short and the council did not have time on their agenda.
- Shelley said she would like to see DOE commit to evaluating the cost of barriers long term. Kevin said he overlooked this item when preparing the presentation. Kevin said this is one motivation for working with NASA because NASA would pay for the technology which would save the project money.
- Shelley asked if DOE has looked at using exclosures to keep deer and elk out of this area. Craig said that deer can affect reseeding in an area. Maynard thought that DOE might want to know more what the natural process is vs. an excluded process. Kevin said DOE has agreed to put up a wind fence around the tank farm to keep tumble weed out but has not discussed animal exclosures.

Institutional Controls

Craig said he was not sure what the committee was hoping to address with the IC issue, but said he understood the committee previously talked with the lead representative from headquarters (HQ) who deals with ICs nationally. Craig said there was an Exposure Scenarios Task Force workshop in Richland in 2002. Craig said one of the important things that came out of that workshop was the concept that it makes sense to have people together on the site that have institutional knowledge, instead of just assuming all of the areas will be fenced off in the core zone. The Exposure Scenarios Task Force participants looked at how to allow access but have someone monitor access.

Craig said over the last few years there has been an emphasis on brownfields work and an interest in redeveloping these areas across the country to be used for industrial purposes or even as a baseball field or golf course. There are issues of how easy it is to follow ICs and land use controls in an area where sites are scattered like on the Central Plateau vs. in the canyons or tank farms. In ZP-1 there is a land use limit because of the groundwater plume. Craig said that while EPA cannot advocate such a thing, there are questions about whether a bond is needed to make people feel comfortable about the long term care of these areas. Craig said it also needs to be determined who will do the work of legacy management. Craig said he has heard people say they do not believe in ICs for more than a few years. Craig said the effectiveness of ICs depends on where the site is located. If it is an area where people would move in and redevelop, that would present a different pressure than the Hanford Central Plateau might see.

Matt clarified that DOE is not going to walk away from the site. The near-term focus will be to look at River Corridor cleanup because that will be happening soon and there will be some ICs involved in the final decisions. Matt said there will be a legacy management plan for the River Corridor and it would be useful for the committee to consider what they would like to see in the plan that will provide the confidence that the ICs will be carried out. Matt said Rocky Flats and Fernald have developed agreements between the state and DOE on the type of controls that will be used.

Regulator Perspectives

- John Price, Ecology, said the 100 Area is within a few years of RODs and cleanup is supposed to be unrestricted surface. John said the main issue is what ICs should be used for areas where contamination is left in the ground below 15 feet. EPA and Ecology have both asked DOE to look at achieving better than industrial use in the 300 Area. If that area does get industrial or unrestricted, then there could be policy level advice that the Board may want to consider issuing to DOE about how good cleanup could be in that area and what ICs would make sense.
- John said the HAB issued Advice #132 on the 200 Area, but at that time there was only one final decision for the Environmental Restoration Disposal Facility (ERDF). Since then, two more decisions (integrated disposal facility and containment disposal) have been made and a decision is pending on Z Plant waste site where there may be waste left in the ground. John said these four decisions will provide a better picture of

the 200 Area in its end state. John suggested looking at this advice again to see if it needs to be changed or updated. John said the agencies refer to that advice a lot, so it would be worthwhile to look at it again.

Committee Discussion

- Shelley said Tennessee used state funded bonds for ICs. Wade said that has been talked about locally as well. John said there are other places around the country that have a monument and a trust fund to maintain ICs.
- Harold said at the Rocky Mountain Arsenal there is an area with contaminated groundwater. They have used ICs and restrictions to groundwater on 10,000 – 15,000 acres of prime development land next to Denver. Harold said the site has been there for fifty years and is working and has more development pressure than Hanford will probably see. Harold thought that if you use the right combination of ICs they will work. Craig said during a national meeting for project managers he attended recently, he sat in on a session on ICs. Craig said he heard from mining sites in the southwest that were having trouble managing ICs because the sites were located so far away from any towns. Craig thought that it can be hard to manage areas where there are not people around to notice breaches of ICs.
- Gerry Pollet said DOE conducted a state review on the successes of ICs that the committee should look at. It led the legislature and Ecology to reject ICs because the record is dismal. If you look to the most high profile superfund site in the northwest, Harbor Island in Seattle, within five years ICs failed, workers were exposed and waste ended up in the river and in the air. They assumed people would not be digging and redeveloping (as is being assumed in the Hanford River Corridor), and in five years the ICs failed and EPA had to take control. Gerry said DOE and regulators are talking about leaving waste at fifteen feet and deeper. Any developer will tell you that when they do a mixed use development they will be digging deeper than fifteen feet. Also, Gerry said that every burial ground has had surprises that the RIFS and field investigations failed to identify. Gerry said the risk assessment (RA) has not addressed the real risk because it failed to address the spent nuclear fuel in the burial grounds. Gerry said the proposal is that ICs be used instead of pulling all the waste out. The Board has said they prefer the removal, treatment and disposal (RTD) of waste as much as possible over ICs. Gerry said the DOE needs to consider what risks would be imposed on use under an IC decision vs. an RTD scenario. DOE can use real life data from other sites like Harbor Island to compare the two scenarios.
- Wade agreed the committee needs to look at what works, what is in place currently, and what the controls are at other sites. Wade said Rocky Flats has gone through an extensive program and it would be helpful to look at their examples. Wade also said that the ICs do not address cultural areas, and there are federal laws about cultural areas. Wade said there are hundreds of sites that are federally protected in the 100 Area. Wade said people often suggest unrestricted use as a goal, but it is not unrestricted, it is limited. Wade said Grant County has an active program that the Wanapum people participates in to capture grave robbers along the river. Wade said tools like this need to be integrated into the programs at Hanford. Wade said in the

300 Area there are sensitive areas where cemeteries are located. The City has proposed putting in walkways and bike paths through the 300 Area without talking with the tribes about this area and the sensitivity.

- Susan said definitions are often a sticking point on this issue because unrestricted use is a cleanup standard rather than a land use designation, and does not mean that anyone can access the area. Susan said she had not considered the cultural resource aspect, and thought the committee should consider this when providing advice along the river. Susan said this site's cleanup mission will go on for a long time whereas other sites have a firm cleanup date. The department struggles with how the site cleanup goes to legacy management when it is done. Matt said DOE's land use designation is preservation along the river and includes cultural resources. The Central Plateau is designated as conservation and that is the land use DOE is cleaning up to. Matt said when he talks about legacy management, he does not think of DOE handing off the site; Environmental Management (EM) will manage the site for a long time.
- Harold said the Department of Fish and Wildlife has said they will not accept any sites with contamination, but they are designated to manage the sites under the monument.
- Dirk thought there is a distinction that needs to be made between intended use and cleanup standards. Dirk thought it would be useful to look at what ICs have been effective and proven when considering what to include in a decision at Hanford. Dirk said there are too many examples where land use restrictions fail. Dirk said there is a site in Portland that was designated as industrial, and within ten years someone built residences on top of it. Dirk thought controls can become a big problem.
- Sandra said the Nez Perce have an end state vision which includes a value statement that says the tribe does not have much faith in ICs. Sandra said she thinks ICs have a place, but they need to be considered as an interim decision, not a final action. Craig said EPA has a preference to have a robust remedy from an engineering standpoint and generally the policy and guidance in the region is not to rely on ICs but cleanup the best you can. ICs are one tool necessary to maintain exposure assumptions in the RA. The RA is looked at every five years and the review is supposed to evaluate the consistency. Shelley asked if the EPA ever determines that there is no longer a need for ICs. Craig said in some cases they have where a contaminant has gone down enough to meet the cleanup requirements for unrestricted use and unlimited exposure. Often in these cases EPA gives the site over to the state prior to reaching this level.
- Maynard said he did not feel comfortable that when a remedy selection is made there is an adequate amount of money given for ICs. Maynard thought the Board has a responsibility to look at that. Maynard said he did not think the costs associated with the ICs include all of the long term monitoring. Paul said anytime there are ICs in place it is a de-facto statement that there is a natural resource injury. Paul said those injuries have dollar values and also need to be recognized in the evaluation of decisions.

The committee listed potential policy questions and opportunities to weigh in on ICs.

Policy questions:

1. In final RODs, what ICs should be in place, given that contamination will be left 15 feet deep?
2. Is there potential to be above industrial cleanup in 300 Area?
3. Look at Advice #132, would Board revise/update this advice given four new RODs?
4. What risks are imposed from IC decision vs. remove/treat?

Opportunities to weigh in on ICs:

1. How to maintain institutional knowledge of site by organized entities
2. How to address controls spread over large areas vs. condensed area
3. How to assure monetary support – bonds, etc?
4. Who will do this work?
5. What should be included in legacy management plan?
6. Look at how comparable ICs proposed at Hanford are working in other Superfund areas (e.g. Harbor Island).
7. How do ICs address cultural properties? Protections?
8. Need to clarify difference between cleanup standard and land use?
9. Appropriate use of ICs – interim vs. permanent? Durability of ICs, cost?

Bob Suyama and Pam Larsen are serving as the issue managers on this topic. Vince Panesco and Susan Kreid also would like to work on this topic. The committee will have a follow up discussion on ICs in November. They will also schedule a presentation for the Board with Jay Pendergrass sometime early next year.

2009 Work Plan Final Review

Maynard asked committee members to review the final draft of the 2009 work plan and identify issue managers for each topic. Sandra was added as an interested person to the 100 Area Groundwater topic. Wade was added as an interested person to the Deep Vadoze Zone topic. CW5 and the Z ditches were added to the Central Plateau waste sites topic. 618-1 was combined with the 300 Area Soils and Buildings topic and Pam was assigned as the issue manager. Wade was added as an interested person to the BC Controlled Area topic. Vince and Susan were added to the Institutional Controls topic as interested persons. Other changes were submitted to committee leadership for incorporation into the final work plan.

Maynard said the committee should consider how to prioritize their work plan this year and identify time sensitive issues. Larry asked that the agencies make an effort to distribute presentations electronically for individuals that call into meetings. Larry said Lori Gamache has been doing that on the ORP side and it works well.

Site Visit of 300 Area

Several RAP committee members and support staff participated in the site visit organized by Peter Bengston, WCH. The purpose of the visit was to receive an update on the North end activities, the close-out and lessons learned at 618-7, and to review current site conditions and logistical challenges as cleanup activities begin at 618-1. Committee members received a safety and project management and progress briefing on-site before driving by bus to different points of interest. It was noted that safety and project management procedures successfully implemented at 618-7 were being applied at 618-1.

Committee members commented on the significant change in appearance in the areas visited from the time of their previous visit about a year ago. Some committee members were concerned about the amount of fill material being brought in for 618-7 from outside the site, and wondered about the potential for more contouring and less filling. Tour participants had the opportunity to see some of the equipment in action, and to view and discuss building demolition and disposal.

K-Basin Sludge

Tom Teynor, DOE-RL, is the federal Project Director for K Basins. Tom said he is working on decontamination and decommissioning (D&D) of K Area, and Roger Quintero, DOE-RL, will oversee the K Basin sludge work. Tom said he would like to talk with issues managers from the committee more about this project because he will not be able to cover all of the details in fifteen minutes.

Tom reviewed the details of the Knock-out Pot (KOP) four phase inspection approach. He said the goal of the KOP inspection is to remove material, ship the bulk density material to Yucca Mountain, and all other material to the Waste Isolation Pilot Plant (WIPP). Tom said originally the KOP sludge was permitted to go to WIPP, since then it has been taken off the list and does not have a place to go. Tom said he just found this out a couple weeks ago. Tom said if they do separation, the material could be considered spent nuclear fuel and would be accepted. Tom said they are working on redefining KOP material based on size properties. In the meantime, they will move ahead with the separation until a path forward is identified. Tom said to get the KOP material into the permit initially was a tradeoff; the New Mexico environmentalists did not want it to be accepted. HQ did and made an agreement to put it on the permit, but apparently WIPP never intended to take it. Tom said DOE-RL had no information on what the KOP contained, so they decided to do this inspection to find out.

The first phase of the inspection is to go in and do a radiation dose on the KOPs. Tom said dose rates varied in preselected canisters. They know the waste is stratified and there is no consistency in the sludge so there is probably metal in the KOPs. Phase two will take a more in-depth look at stratification, temperature readings, strainer basket material, and will identify the gas observed in bubbles. Tom said phase two has been ongoing; it was supposed to be finished this week but probably will not be complete until next week. Phases three will include taking material from open containers and putting it through

devices to determine particle size and metal content. Phase four will actually open up a KOP itself and do the same process as phase three.

Tom said an independent expert review team will do an alternatives analysis and make a recommendations to CH and then to DOE for review and approval. The Defense Nuclear Security Board asked DOE-RL to include this additional independent review. Tom said there will be issues with trying to transport hot material to Savannah, so DOE is looking at the Idaho steam plant as an alternative. Tom said the Waste Treatment Plant (WTP) flow rate acceptance criteria cannot be met. They would have to dissolve and precipitate the material so it is a similar waste form, which would be very costly. Tom thought that all of the waste needs to be disposed of in Hanford tank farms. Tom said there are three options DOE is considering seriously: 1. Treat, send the slurry to the plateau and package, 2. Send the slurry to the plateau, treat, and package, or 3. Send the slurry to the plateau, package, and treat. Tom said they are exploring time savings to ship to the plateau for treatment, or build a new facility at K Basins. If it saves a year or more, DOE would consider moving the sludge off the river. Tom said if they did move the material off the river, it would free the basins up for D&D. Tom said there are TPA milestones DOE will miss for sludge treatment this year and removal of K Basins next year. Tom said DOE is in dispute with EPA about the milestones. EPA recognizes that DOE cannot meet those milestones and the two are working together on a path forward. Craig agreed that DOE is not going to meet the milestones and thought the regulators will need to figure out what to do about that as far as what new dates make sense.

Committee Discussion

- Maynard asked if the money is a big issue for this project. Craig said the issues are mostly technical. Tom said DOE does not think they can get the sludge out in time to do D&D. This project is the highest priority for funding on the site. Tom said they have to have a high level of confidence to move forward.
- Harold asked what is happening with the material at T Plant. Tom said he is aware that some material was sent there, but does not know any more than that.
- Bob said it sounds like DOE is in the middle of the process to determine what the next step is in terms of how to dispose of this waste. Bob asked when DOE expects to have a decision. Tom said they hope to get the down select path forward by mid November. DOE will review it and resolve differences in design in December. Tom said this is not just a local decision and will involve members from HQ. Tom said DOE-RL has involved HQ in the process during workshops so they will not be coming in cold in the final steps.
- Bob asked how the Defense Board has been involved. Tom said they provide guidance on moving forward. In the down select process, the contract will go from seven to three options. They are only looking at a technical path forward, but need to do a safety check and a lifecycle cost as well. This will help the independent review committee make a decision.
- Dirk asked Tom to provide more information about why the KOP cannot go to WIPP. Tom explained that the current reapplication for renewing the permit left KOP off the

acceptance list. Dirk asked what the path is to get them back on the permit list. Tom said the size and density separation work could allow the material to be reclassified as spent nuclear fuel and then it could go to WIPP. Tom said the separation system failed previously because the strainers bind too quickly; they plan to wash the sludge this time to avoid this issue.

- Dirk said when the sludge in the basin first started being processed, canisters were shipped to T Plant. The canisters that went to T Plant ended up generating hydrogen gas and shut the plant down. Dirk asked what happened to that material, and what is different now that will avoid the hydrogen gas issues. Tom said there is an oxidation effort that treats the canisters with warm water to rid them of hydrogen by activating the metal.
- Shelley asked what the timeframe is for a decision on where to treat the waste at K basin. Tom said the contractor will make a recommendation to DOE in November and DOE will approve or disapprove that decision in December. Shelley asked for additional information on the technical issues that are holding up the project. Tom said the down select process will look at technical maturity and whether DOE is ready to move beyond testing to a mock-up design. The containers used last time to transport had a bad filtration system and caused problems. This project was changed from a final design back to a pre-conceptual design phase because the technical maturity was not there last year.
- Dick asked how the sort will work for the KOPs. Tom said they plan to invert the KOP on top of the stack and agitate it. Dick asked where the separated material will go. Tom said the heavy material will go to bottom and the light material will go to top and to settling tubes. The material will go back in its original container and will not be taken out of the basins for security reasons. Dick asked if the large particles get caught first. Tom said the larger diameter screens are in the top and they get finer as you go down. Tom said this process will provide more information to continue with design. Tom said they hope to start processing the waste in 2010 but they have to look at safety and transportation issues before they can do that. Tom said they have already done some of the safety analysis and proven they can do this work safely; they are now testing feasibility of the approach. Tom said if they do move the sludge, they are looking at the feasibility of sending it to T Plant or some other facility.

Maynard said the committee would like to take Tom up on his offer to follow up with issue managers and provide additional information. Harold, Bob and Dirk will serve as the issue managers on this topic and will follow up with Tom. Maynard suggested scheduling a follow up presentation for the committee sometime after December when DOE knows more about a path forward. Harold said he would like to hear more about what has come out of basins, where has it gone, and what is still in the basins. Tom said he would be happy to brief the committee on that and has a graphic that conveys this information.

T-Plant and WRAP Briefing

Larry Romine, DOE-RL, said based on 2009 funding and site priorities, DOE-RL had to make decisions on what resources could be freed up in order to keep the focus on making the River Corridor whole. DOE-RL decided to scale back the RL40 and RL30 facilities. Larry said the budget decisions have driven uncertainty at T Plant and WRAP. Workers are concerned about whether they have a job or not. Larry reiterated that reductions at these plants are driven by budget and DOE-RL is trying to figure out how to stretch the dollars that have been allocated.

Larry said T Plant will continue repackaging of waste. T Plant is also being considered as a possible K Basin sludge path forward. Larry said if T Plant is selected for K Basin sludge, they will make the appropriate changes to accommodate those operations. Larry said there is an outage at WIPP which provides a window of opportunity for Hanford to use a fleet that is available at Idaho for shipment. Currently, WRAP is working to prepare a set of drums to ship to Idaho during their outage. DOE-RL is preparing up to 1000 drums, but is not sure if they will allow that many to be shipped. Larry said they are hoping to take advantage of money that is allocated for sending waste that currently no body else can use. Larry said this is their near term focus even though their funding profile did not plan to do any shipments to WIPP. If DOE-RL gets additional appropriations, they will work on prioritizing additional waste for shipment but in the mean time they will do limited repackaging.

Regulator Perspectives

- Deborah Singleton, Ecology, said Ecology was not aware of this plan until it went public recently. Deborah said Ecology would like to know what the impacts are to the other units. Currently WRAP is the only facility permitted to WIPP and Ecology is concerned that DOE will not meet the other requirements for treatment. If the activity is occurring in T Plant, Ecology would like to discuss impacts because they are not sure the allowance will support this. Deborah said she is unhappy that she was left on the outside of these discussions since she is responsible for permitting. Deborah said if DOE-RL is considering closed storage at WRAP, Ecology needs to know about that and discuss that closure option. The cost of doing cold storage is huge and the cost of having staff come back later and restart work is huge. Deborah said Ecology needs to look at how DOE plans to meet M91 for closure under this plan.

Committee Discussion

- Dick said he thought that the budget required DOE-RL to shut down T and WRAP but material would be moved out as possible in the meantime. Larry said they are scaling back at T Plant and WRAP. Unfortunately, information was shared outside of normal channels before DOE-RL had really evaluated what the next steps are. Larry said they have not thought through these processes yet and things are evolving on a weekly basis to figure out what the best option is. The supplemental ROD went through review for shipment of material to Idaho. Larry said DOE-RL has not come to any decisions on where to focus money and effort for shipping additional waste and does not yet know what the scale back will look like. DOE-RL is required to

package to WIPP criteria and will continue to do that. The Plutonium Finishing Plant (PFP) will generate new transuranic (TRU) waste that will be packaged the same way waste has been packaged at T Plant. Larry thought that the staff working at T could work at PFP too.

- Deborah asked if DOE has considered storage capacity at T if WRAP is no longer sending out waste. Larry said they have. Jennifer Ollero, Ecology, said Ecology would also like to make sure that DOE-RL keeps Ecology in the loop on future decisions. Jennifer said the duration of the cold standby continues to come up but Ecology has not heard an official timeframe from DOE. Larry said the only thing DOE can share at this point are priorities for work; their priorities include River Corridor, K Basins and groundwater. Larry said waste stabilization will be scaled back and shipment WIPP will be picked back up in 2013. Deborah said Ecology is in the process of permitting and if DOE is considering any amount of storage time, that needs to be in the permit. Larry said he could not comment on that at this time.
- Shelley said she was told at the RAD waste summit that she recently attended that the only way Hanford will get remote handled waste offsite is to send it to Idaho. Shelly said she also found out that WIPP has been backfilling tunnels where the remote waste should go because they are not receiving any. Shelley said Hanford is losing capacity for the remote handled TRU at WIPP which is concerning given the amount of waste that Hanford has. Larry said Hanford sends contact handled material to Idaho; the remote handled material does not go through Idaho. Larry said Carlsbad is the only certified program in the country for remote handled waste. Remote handled waste packaging is not supposed to start for many years at Hanford, but other sites are shipping remote handled waste now. Deborah asked why WIPP is backfilling the remote areas. Shelley said they have a schedule and are not receiving any waste and have contact handled waste that they need to put it in.
- Bob Parazin said he received a call about this issue from a member of the public. Bob said the person was concerned about jobs being transferred to Idaho. Bob said he thinks there is a lot of concern from labor workers about this, and it may not be based on fact, but should be addressed. Larry said Dave Brockman is the person that is addressing those questions currently. Larry said the only jobs that would be displaced at Hanford would be due to budget issues and would not be driven by the certification program at Carlsbad. Larry also said that PFP is very close to starting a program that would utilize the same skills of the people doing the retrieval currently. Larry said they need to develop a backlog in order to get full value for the investment of getting a certification program going at Hanford, and currently the site does not even come close to providing that level of throughput. Larry thought it would be very inefficient to continue the certification step at Hanford.
- Susan said she did not understand the logic in shipping material to Idaho if it can be compacted here. Larry said that contact-handled waste cannot be compacted at Hanford. Idaho has the only facility for compaction and Carlsbad recently went through a lengthy process to get it certified.
- Dick asked if the material that comes out of PFP will be packaged at Hanford. Larry said it will be packaged at Hanford in accordance with WIPP acceptance criteria.

Dick asked how long it would be stored at Hanford. Larry said it would be stored until there is a sufficient quantity to ship. Shelley asked what a sufficient quantity is. Larry said they need to provide 90 drums per week for shipment. Larry explained that there needs to be a sufficient quantity to make it a worthwhile investment for the people doing the work. Dick asked if all of the material coming out of PFP would meet the specifications today. Larry confirmed that it would.

- Deborah asked if under the M91 milestone DOE will deal with remote handled waste at Hanford. Larry said DOE will not deal with remote handled waste onsite and will have to do something to prepare it to be transported. During the budget process last spring, DOE-RL identified that the M91 milestone did not have the dollars to support that activity. Larry said they will need to look at alternatives to do that work while not wasting money. Deborah said Ecology would consider that a missed milestone.
- Shelley asked when DOE and the committee will have a conversation about pre 1970's TRU. Shelley thought that if pre 70's TRU was included in the waste considerations it would provide the volume needed for shipment. Shelley said if DOE and the regulators looked at the whole picture, they may have a different view of what is needed to deal with the waste.
- Bob Suyama asked how much money was cut from Larry's budget. Larry said for 2009 they are starting out the year with borrowed money because the appropriations budget did not include their allocation. They will be working on a continuing resolution through March. At this point, the program is at least \$50 -75 million down from last year. Larry said last years budget was a 230-240 million dollar activity.

Maynard asked that Larry come back to the committee when he has more information on a path forward. Shelley asked if the committee would be interested in issuing advice on this topic to the Board. Dick did not think advice could be issued soon enough to influence the decision. Susan said this work is one part of M91 for processing waste. The Board has consistently said DOE should characterize waste sites and RTD as much as possible. Susan thought that there was a possibility to provide advice on prioritization needs. Harold thought that the issue boils down to how much money is available and how it should be spent most effectively. Maynard agreed and suggested that this is more of a budget advice issue. Susan suggested that the committee look at the M91 advice and stay true to it in order to help the department prioritize. Harold is the issue manager on this topic.

Paula said that she will follow up with Bob Parazin about how to address questions from the public regarding jobs on site. Paula said if other Board members receive questions from the public, she would like to know about it and will help as much as possible.

Action Items / Commitments

Future topics:

1. Thursday night tutorial on groundwater – February?
2. Groundwater integration (Board) – February?
3. Follow up for K basin sludge – December/January

4. Treatment of chromium stained areas (on hold)
5. CW5 – November?
6. Plutonium toxicity – November
7. Institutional Controls – November
8. ZP1 ROD for groundwater – November
9. Overview of roadmap needs and funding (Mark Triplett and Terry Stewart) – November
 - o 300 Area Groundwater Integrated Field Challenge – uranium plume
10. River Corridor aquifer tubes and sampling wells (Laura Buelow) – November
11. ROD strategy for River Corridor – November

The committee discussed potential topics for a Thursday night tutorial during the December Board meeting. Barb Wise, CH2M Hill Plateau Remediation Company (CHPRC), said the tutorials take a lot of time to develop, and the new contractors will probably not be ready to do one in December. Barb suggested that the committee talk about goals and refine topics for the tutorials before the contractors spend time working on it. Shelley said that in the past, the public has not attended the tutorials and she would hate to have the contractors prepare a tutorial and then not have anyone attend.

The committee will have a conference call on Tuesday, October 15.

Handouts

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

- River and Plateau Committee FY 2009 Work Planning Table (working draft – September 2008).
- Hanford Site Groundwater Metrics, Matt McCormick, DOE-RL, October 8, 2008.
- NWP Performance Measures on Groundwater (draft) Report June 30, 2008.
- Sludge Treatment Project, DOE-RL, October 8, 2008.
- Overview of Controlled Burn at the Hanford Prototype Barrier (BP-1) Conducted on September 27, 2008, Kevin Leary, DOE-RL, October 2008.

Attendees

HAB Members and Alternates

Shelley Cimon	Larry Lockrem (phone)	Gerry Pollet
Dirk Dunning	Jeff Luke	Mike Priddy
Harold Heacock	Wade Riggsbee	Paul Schaffer (phone)
Susan Kreid	Vince Panesko	Dick Smith
Susan Leckband	Bob Parazin	Bob Suyama
Sandra Lilligren	Maynard Plahuta	Steve White

Others

Paula Call, DOE-RL	Rick Bond, Ecology	Greg Berlin, CHPRC
Kevin Leary, DOE-RL	Dib Goswami, Ecology	Dale Black, CHPRC
Matt McCormick, DOE-RL	Jennifer Ollero, Ecology	Barb Wise, CHPRC
Larry Romine, DOE-RL	John Price, Ecology	Susan Hayman, EnviroIssues
Tom Teynor, DOE-RL	Deborah Singleton, Ecology	Emily Neff, EnviroIssues
Roger Quintero, DOE-RL	Ginger Wireman, Ecology	Peter Bengston, WCH
	Craig Cameron, EPA	Fred Mann, WRPS
		Steven Link, WSU
		Jim Rasmussen, YAHS GS