# FINAL MEETING SUMMARY

## HANFORD ADVISORY BOARD
### RIVER AND PLATEAU COMMITTEE MEETING
***August 9, 2006***
***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, Chair, welcomed the committee and introductions were made. Proposed changes to the May meeting summary were incorporated and the summary was approved.

## River Corridor Risk Assessments

The committee received a briefing from agencies and contractors on the status of risk assessment work under the River Corridor contract, including recent workshops and a draft Long-term Stewardship Plan.

John Sands, Department of Energy-Richland Operations Office (DOE-RL), provided background on how risk assessment fits into the overall River Corridor cleanup and the final remedies decision process. DOE follows the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process to proceed from interim Records of Decision (ROD[s]) to final RODs, which require a baseline risk assessment. John said DOE is still figuring out how to achieve final RODs in the River Corridor.

DOE is following past practice strategies and is obtaining characterization data as waste sites are remediated. John presented a flowchart describing the River Corridor Final Remedies Decision Process. He said the Washington Closure Hanford Group (WCH) is responsible for source operable units and is in the process of drafting an integration document outlining how to achieve final RODs. Integrating source area and groundwater work has been difficult and DOE is evaluating what actions are needed. John said the draft Integration Strategy will be ready at the end of August and the committee can be

briefed in September. John also noted an integrated strategy will set the stage for new Tri-Party Agreement (TPA) milestones.

100 Area and 300 Area Component of the River Corridor Baseline Risk Assessment (RCBRA)

Steve Weiss, WCH, presented the 100 Area and 300 Area components of RCBRA. The project scope is documented in DOE-RL-2003-61 (December 2003), *100 Area and 300 Area Component of the River Corridor Baseline Risk Assessment: Basis and Assumptions on the Project Scope.* Steve emphasized that the scope is consistent with CERCLA documents and guidance, and addresses human health and ecological risk. The geographic scope focuses on operations area, current 100 and 300 Area groundwater plumes, and related aquatic and riparian areas. The project analyzes current conditions only (and approximately five years of historical data) and post-remediation risks. They incorporate past risk assessments and data from previous studies, and WCH is maintaining active and open communications such as the website for document reviews and the document library. The website is http://www.washingtonclosure.com/Projects/EndState/risk_library.html. The Draft Risk Assessment Report is due on June 30, 2007.

The work plan, *Risk Assessment Work Plan for the 100 Area and 300 Area Component of the RCBRA* (available on the website) summarized background information including ecology, geology, operations, main contamination, remedial actions, pathways, and receptors. Steve said this portion helps identify what is already known and what has been done in the past. It identified the general approach for risk assessment and established the schedule.

Steve said the data quality objective (DQO) process is to evaluate data requirements necessary to characterize potential impacts from contamination. They began one-on-one interviews with regulators, tribes, natural resource trustees, and other stakeholders to identify issues and concerns. A series of open workshops were used to discuss various issues and identify sampling locations, receptors, media, and contaminants of concern. This research cumulated in the BHI-01757 (January 2005) *DQO Summary Report of the 100 Area and 300 Area Component of RCBRA.* It can also be found on the webpage.

Steve said the Sampling and Analysis Plan (SAP) brought things into focus. The plan was published in May 2006 and but received approval to begin sampling in the fall of 2005. The plan was based on DQO results and details media, number of samples, location, analytes, and quality assurance. The trustees' suggestions made in an August 2006 workshop to adopt more aquatic sampling led to its revision. Amphibians, more fish, bioassays, histopathology (on clams and fish to identify physical manifestations), and additional locations were added to achieve as many lines of evidence as possible. The sampling is currently nearing completion.

Risk assessment is the next step. They are gathering historical data and lab results to organize in order to meet the June 30, 2007 deadline. Introductory meetings were held in

July 2006 and future workshops are planned to maintain regulator, trustee, tribal, and Hanford Advisory Board involvement during development. This will occur monthly in person or via teleconference. Dates are posted on the DOE public involvement webpage www.hanford.gov/public/calendar/. The first workshop will be held on August 16, 2006 to address human health and ecological risk assessment methodology. The rest of the dates Steve presented are tentative and should be verified on the webpage as they near.

***Committee Discussion***

- *Will risk both before and after the risk assessment be analyzed?* John Sands said the final decision will let them know if more analysis is necessary.
- *How large were the fish samples?* Steve said they started with 115 sculpin and there were thousands of entries. There were approximately 10 clams per locations, and there were 26 locations. Sculpin was identified as an ideal species to study because they are year-round bottom-dwelling residents that live close to the shoreline, giving them the potential for high exposure. He said the liver and kidney are both studied because they pick up different contaminants – the uranium accumulates in the liver and chromium goes into the kidneys.
- *If the scope only includes current conditions, how will the baseline risk assessment document feed into the integrated strategy?* Susan Leckband questioned if it misses the future possibility of non-300 Area contamination flowing into the 300 Area. Steve said groundwater units are supposed to model the future; groundwater plumes from the 200 Area, for example, will have separate studies.
- *What models will be used?* Rob Davis said they should be consistent with what the Washington State Department of Ecology (Ecology) uses. Steve said they are directly looking at the results so there isn't specific software; he said it is a different approach.

100 Area and 300 Area Component of RCBRA: Sampling Effort

Jackie Queen, WCH, presented the sampling effort for the 100 Area and 300 Area Component of RCBRA. They sampled 13 riparian sites, 32 aquatic sites, 32 upland sites, and 63 wells; the data has not been analyzed yet. Samples were taken of multiple media including, water (344 samples), soil (356), sediment (111), aquatic biota (120), terrestrial biota (149), histology (115 fish, 234 clams), and dosimeters (199).

Water samples included groundwater, pore (aquifer tube), and surface water. Pore and surface water analyses were received in April and groundwater analysis is expected in late August.

Discrete soil sample analyses are expected in late August, river sediment sample analyses were received in April, and multi-incremental soil sample analyses are expected in October. The discrete soil sampling was a quick effort, with locations based on threatened or endangered plant species surveys. However, the presence of such species

was unconfirmed – sampling was based on potential habitat. Multi-incremental sampling took place on 45 sites (13 riparian, 32 upland), with five samples taken at each site.

Fish sampling analyses were received in April and clam and macro invertebrate sampling analyses are expected in October or November.

Terrestrial biota plant cover estimation was completed in July, and dominant plant species analyses are expected in October. Dominant plant species include both shrub and herbaceous. Two species were sampled at each site and they collected current year's growth only.

Kingbird sampling ended on August 8. Additional invertebrates were collected; analyses of both mice and upland invertebrates were received in June.

Dosimeter sampling analyses were received in June. The spring sampling status includes additional soil collected near the Vernita Bridge at a riparian site, and additional invertebrates were collected at selected sites for selected semi-volatile organics analysis (SVOA). Clams are still being processed.

***Committee Discussion***

- *Will amphibian sampling occur at a later date?* Inter-area sampling work will start next fall and will go back to locations where 100 and 300 Area work was done and they'll take additional samples.
- *How did they pick sampling sites?* Steve said it was a long process; all the upland sites were remediated waste sites and were picked because they were far enough from unremediated sites and had some vegetation. Riparian sites were picked based on previous sampling, plume location, retention basin locations, etc. Five upland reference locations were chosen, and picking them was controversial. They had to be far enough away, yet similar to the sampling sites. There were ten reference sites, five of which were undisturbed and as pristine as possible, which was difficult given the scarcity of natural shrub-steppe habitat. Old borrow pits with sufficient vegetation were also used because the vegetation would be similar. Steve noted this was discussed in the back of the SAP.
- *How far were the upland sites from the river?* Steve said you have to get away from the river to get into sagebrush and rabbit brush habitat, but they can be relatively close to the river. They didn't look at anything that hadn't been remediated yet. Steve said everything met the cleanup criteria; ones that were higher, yet still within the cleanup criteria were designated as "elevated."
- *What if someone objects that sampling didn't occur at a particular site?* Steve said all sites are supposed to be cleaned up to similar criteria, so if one waste site is clean, you assume the others are as well.
- *What about the frequency for repeating and trending samples?* Steve said they are focused on current conditions, with potentially 5-6 years of historical data.

Status of Inter-Areas Shoreline Assessment

Larry Hulstrom, WCH, presented the Inter-Areas Shoreline Assessment status. The purpose is to evaluate risks from chemicals and radionuclides between reactors and operational areas in the 100 Area and the 300 Area riparian and near-shore aquatic zones. Upland zones will be addressed through the WCH Orphan Sites investigation process. Unique features being considered include slough and backwater areas, eagle roosts and attempted nesting area, heron rookeries, salmon redd areas, special status plants, and emerging groundwater plumes. Two workshops were held in June with regulators, tribes, and stakeholders to discuss the assessment scope.

The aerial extent of investigation has been divided into six Hanford Reach segments. Seventeen (17) near-shore aquatic locations and ten riparian investigation areas have been proposed for sampling. Contaminants of concern are the same as those in the 100 Area and 300 Area Component of the RCBRA. Inter-Area spatial scope includes upstream of the reactor area, 100 Area reactors, Hanford Town Site, north of Energy Northwest, and so on down the river.

The Draft SAP for the Inter-Areas Shoreline Assessment has been made available for concurrent DOE-RL, regulator, tribal, and stakeholder review from August 1 through September 14. The draft document is written as Appendix E of the *100 Area and 300 Areas Component of the RCBRA Sampling and Analysis Plan*. The document will be reissued as Revision 1 once Appendix E is finalized. A comment resolution meeting is tentatively scheduled for September 20, 2006, and sampling is tentatively scheduled to begin in mid-October 2006 and continue into spring 2007.

***Committee Discussion***

- *The Columbia River islands aren't addressed – they are culturally sensitive areas.* Wade Riggsbee said historically the islands were contaminated with river discharges. Omitting the islands from this scope is a concern.
- *How can representative sampling occur when sampling is only in the spring and winter months?* Steve said there is 50-60 years of ecological sampling and they are pretty confident they are not missing anything. He said trends from past data are solid.
- *How does grazing impact vegetation and therefore sampling? Is setting up an exclosure valuable?* Steve said PNNL has done extensive studies on deer and elk.

Data Evaluation Summary – Columbia River Component

Chris Cearlock, WCH, presented the data evaluation summary. Data compilation began in December 2004 and a series of ten workshops were used to develop, guide, and update the data compilation task from December 2004 to September 2005. Data was compiled and evaluated by five independent subcontractors, including three universities. This

effort is summarized in *Existing Source Information Summary Report*, WCH-64, Rev.0 (January 2006).

The focus of the data evaluation was on sediment and surface water samples (abiotic), but they also gathered biotic and other data for use in future studies. The methodology was similar to other regional studies. The effort is summarized in *Columbia River Component Data Evaluation Summary Report*, WCH-91, Rev.0 (July 2006). There are 1,448 source documents entered into the database, each one classified as to the quality of its data. Chris said the process to assign QA values was similar to the Columbia River Project and the Portland Harbor Superfund Site for consistency.

A total of 15,078 samples were entered in the database, consisting of biota, surface water, sediment, and core sediment. Core sediment samples were primarily taken in high sedimentation areas such as behind dams.

Study areas were divided into segments:

- Segment 1: Grand Coulee Dam to the Vernita Bridge
- Segment 2: Vernita to the Yakima River confluence
- Segment 3: Yakima River confluence to McNary Dam
- Segment 4: McNary Dam to the Bonneville Dam
- Segment 5: Bonneville Dam to Astoria.

Methodology for historical data evaluation included reviewing bibliographic source information to verify accuracy, which was done by a subcontractor. Chris said that much of the data was originally collected for different purposes, so the data entered into the database had to be standardized.

Data were compared to benchmark values, which represent the most protective values available for human health and the environment. Concentrations above benchmark values indicate a potential adverse effect to receptors. No adverse effect was anticipated for concentrations below benchmark values. They used the lowest benchmark value for each medium and each receptor, and sediment samples were also compared to background soil concentration because there were no sediment background concentration data available.

Benchmarks have not yet been developed for the protection of human health from potential direct contact exposure to surface sediment, so multiple sources were used. Chris also said there are no specific statewide standards for freshwater sediment quality available, so marine sediment quality standards were used.

There are nonradiological and radiological benchmarks for surface water human health values. The drinking water Maximum Contaminant Loads (MCLs) derived for radiological contaminants were selected as a surrogate because surface water values have not been developed to evaluate direct exposure.

Constituents evaluated include metals, radionuclides, anions, herbicides, pesticides, polychlorinated biphenyls (PCBs), and semi-volatile organics. Exceedances of benchmarks could represent a single sample within a segment, a sample slightly above benchmark, or a real risk to be evaluated in future sampling activities.

Sediment samples were primarily from 1976 to the present. Metals exceeding benchmarks were arsenic, cadmium, and chromium. Chris noted that any sample of arsenic will exceed soil background benchmarks.

Primary radionuclides exceeding benchmarks were throrium-232, uranium-234, and uranium-238 (found around F Area). PCBs exceeded ecological benchmarks in most segments, but there was not a lot of PCB sampling at Hanford. Pesticide exceedances were primarily associated with tributaries, like the Yakima River.

Most surface water exceedances were for ecological benchmarks and not for human health. Metals exceeding benchmarks include aluminum, arsenic, barium, cadmium, chromium, iron, lead, manganese, silver, and zinc. The majority of surface water exceedances were tied to seeps located along the Columbia River within the Hanford Site.

Radionuclides exceeding benchmarks were strontium-90 and tritium. The exceedances were only found in Segment 2 near the Hanford Townsite and the known tritium plume.

Core sediment data was used to determine concentrations deposited at set points in time. They were primarily associated with six radionuclides, such as cobalt-60 and cesium-137. Chris said there was a decreasing trend seen as discharges ceased.

Biota data was collected and included in the data set but was not compared against benchmarks. Data represents samples from approximately 20 different species, including clams, fish, and invertebrates.

***Regulator Perspective***

John Price, Ecology, presented a regulatory perspective on past practice strategy, which differs from DOE's perspective. They agreed in 1990 to skip some characterization so they could quickly remove waste that obviously needed to be removed. A step in that past practice included coming back to collect more data after excavation. Ecology is glad the risk assessment itself is being done, and there will be much interest in environmental quality. He anticipates uncertainty in ecological results and said there is an EPA process to evaluate uncertainties and make informed decisions.

He said there are some issues with the risk assessment:

1. There should be integration between different risk assessments being done on the Hanford Site, like how groundwater in the 200 Area fits into the 300 Area.
2. Injury assessment to natural resources has been a subject of litigation between DOE and the Natural Resource Trustees.

3. An ecological reference site is an uncontaminated site used for comparison to contaminated sites. Reference sites at Hanford have been problematic because there are not many offsite areas similar to the site. The site has some of the last untouched shrub-steppe habitat, and the Reach is the last free-flowing stretch of the Columbia River. They are continuing to work on that issue and are bringing in an expert to analyze how Hanford's reference sites compare with other EPA reference sites.
4. The regulating agencies disagree with DOE on the timing of the Columbia River Component follow-up work; regulators want it sooner rather than later, and it is an area of concern.
5. Ecology does not want to do their responses piecemeal. All the available data is collected and will be used as the basis for any additional work that needs to be done. John wanted to note that no actual sampling was done at Hanford for the study; it was a collection of existing data. It was very large, and they intentionally collected data upstream of Hanford to compare to downstream data to identify contaminants from Hanford. John said there is a lot of interest about whether there is enough being done on the Columbia River Component, and they are focusing on external communication with interested parties, and will be coordinating with EPA and DOE.

***Committee Discussion***

- *Were baseline background levels factored out?* Chris said no, the statistics include natural sources. He said most of the uranium seen in sediments was about what was seen in background concentrations. They only saw elevated levels in the 300 Area, which was expected.
- *Is the purpose of the data to see the effect Hanford has had on the river?* Jeff Lerch, WCH, said Hanford needs to evaluate its own contaminants; the primary source in the past was direct discharges. Now contamination is mainly from groundwater and it is harder to distinguish what is caused by Hanford and what is not. Jeff said they are required by CERCLA to find out where contamination comes from and where it resides. They previously monitored downstream and the contribution from Hanford. Now they are gathering all available data for the CERCLA risk assessment. Upstream data will be used and identified.
- *The Bureau of Reclamation has a significant amount of soil quality data along the Columbia River from when the dams were built.* Chris said they sent letters to the agencies asking for advice on who to contact and where to look for data.
- *McNary dam was not flooded until 1953, so there could not have been sediment there.* Chris said he would have to look in the report to check the data.
- *The Army Corps of Engineers did some recent dredging in the Snake River and would have some useful data to help sorting out who is responsible for what.* Chris said they have captured that data.
- *Were you surprised by any of the data?* Chris said not really: they knew chromium, tritium, and strontium were problems on site and would be present in the river system.

- Debra McBaugh commented that the Washington Department of Health (DOH) should be involved in sampling quality assurance, as DOH typically has an oversight role as an outside agency. She reminded the committee that DOH has cards with document information and a general brochure about Hanford. (Gerry Pollet expressed concerns about the content of the DOH brochure. He and Debra will talk further.) She commented that there was not much monitoring downstream of McNary dam because they were not finding anything, so oversight groups stopped monitoring. Steve said it would be good to work with DOH, and his only precaution is the limited biota mass.
- *Is it customary for an independent lab to validate sampling?* Steve said they take QA samples but they are not sent to an independent lab; the cumulative data helps in QA. Rob Davis said there is a list of Washington state labs available and qualified to perform QA for DOE projects.
- *How confident is DOE that the Columbia River Component is representative and is an accurate snapshot in time? How does it fit into the overall risk assessment and how will it fit in context with future studies? DOE models and risk assessments need to be consistent with Ecology's and independent agencies.*
- *How is the data being used to integrate and predict the future?* John said a risk assessment is done to see what is currently needed and then an action is determined, followed by modeling to see what would happen with no action, with a particular action, etc. John reminded the committee there are interim RODs in place. He clarified that a final ROD means site evaluation is complete and a cleanup action can be selected; it does not mean the cleanup is completed. Debra said the sampling program will not stop because of a final ROD and the monitoring program will continue long-term.
- WCH is also tasked with creating a Long Term Stewardship Plan for the River Corridor. Susan Leckband said comments are being taken on the draft outline for the plan until the middle of August and the draft will be available late this year (2006). She said WCH should look at Board past advice regarding long term stewardship while they develop the draft.
- Gerry Pollet thought risk assessment advice would be helpful, specifically about childhood risk using the most current data available. He was disappointed it was not discussed in the handouts. Steve Weiss said they are developing the methodology for human health risk and have analyzed recreational users, children, residents, and tribal scenarios, and are not just comparing to the ROD. Steve said the September WCH workshops will be addressing those issues. It was decided that Gerry would prepare a draft and it could be discussed at the next committee meeting. Susan Leckband said titles of advice are fairly indicative of what the advice is about.

## Committee Business

Advice Reponses

The committee discussed the process for reviewing and responding to agency responses to Board advice.

- Committee members thought that advice responses should be addressed at committee meetings, and the committee should decided if it accepts the response or if it merits further discussion. The agencies should be available for response clarification discussion at committee meetings. Some committee members noted that sometimes the advice responses are poor and the Board should especially revisit those. There have been lost opportunities because committees have not recognized the importance of discussing advice responses. Other committee members noted that discussion lacked effectiveness in the past because members did not review the responses and come prepared to discuss them. There has to be energy there to make the discussion valuable. EnviroIssues will start sending out the advice and responses prior to committee meetings.
- Jerry Peltier asked if anyone ever acknowledges the advice and uses it; John Price said he does, and Dennis Faulk does as well. Pam pointed out that there are always new contractors who may not be aware of advice and it is the Board's obligation to make them aware. Old advice is often referenced in new advice.

Issue Manager Check-In

There was discussion about data presentation in technical documents and the possibility of advice on this. Dick Smith said it is irritating when statistics in a document are not referenced within the document itself. Numbers presented in a document need to be referenced and made clear how to find them. He used the specific example of the 100K Area Engineering Evaluation/Cost Analysis (EE/CA) document.

It was suggested the committee ask DOE for an overview of document criteria, how they do QA, and how expectations are communicated to contractors, using the 100K Area document as an example. There is also a questions about how to ensure information accessibility is not lost when contracts change.

Committee Leadership Selection

Maynard Plahuta is stepping down as Chair. Jerry Peltier was the only nominee for Chair and Pam Larsen the only nominee for Vice Chair. Their term beings in September.

Future Meeting Topics

Future meeting topics include:

- Draft integration strategy for groundwater and the River Corridor
- Draft Long Term Stewardship Plan
- Advice response discussions
- Document criteria discussion
- M-15 change package (possibly)
- Update on funding for groundwater improvements

Gerry Pollet said an announcement was made about the agencies examining a holistic approach to baselines and end states. He said the announcement was made without getting any input from the Board, which has specific advice that should be brought up. Pam thought the Board needed to express to the Tri-Parties that re-baselining is problematic and should ask what their timeline is. This issue will be on the agenda for the September Board meeting.

Gerry also commented on recent problems with the new DOE travel system.

HAB Budget

Todd noted the HAB budget is currently in a crisis and not having a committee meeting in September was identified as a potential money-saver. The committee decided they could wait until October to meet again, as none of the topics were very time sensitive.

Todd said the HAB budget will be discussed at the September Board meeting; the Board needs to take on more active management of the budget.

## Action Items / Commitments

- For the Draft Integration Strategy: Susan Leckband will review past advice and Shelley Cimon will ask for help from Oregon staff in reviewing the draft.
- Gerry Pollet will draft general advice "for all risk assessments" to be discussed at the next committee meeting.
- The committee decided there was no need for an August committee call.
- EnviroIssues will work with DOE to ensure John Sands and Steve Weiss are aware of applicable past advice.
- Human health and ecological risk methodology will be discussed at a WCH workshop at the CIC on August 16 at 7:30 am.
- Todd is talking to the Environmental Management Advisory Board (EMAB) about the HAB on August 24. EnviroIssues will forward the EMAB agenda to committee members.

## Handouts

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

- River Corridor Final Remedies Decision Process (Draft), from the River Corridor and Risk Assessment Information Brief by John Sands.
- 2006 Meetings and Public Comment Periods Timeline (Wednesday, August 9, 2006), D0411021.1

- 100 Area and 300 Area Component of RCBRA – HAB River and Plateau Committee Presentation. Steve Weiss (WCH).
- 100 Area and 300 Area Component of RCBRA – Sampling Effort. Jackie Queen (WCH).
- Inter-Areas Shoreline Assessment – Status. Larry Hulstrom (WCH).
- Data Evaluation Summary – Columbia River Component. Chris Cearlock (WCH).

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## Attendees

**HAB Members and Alternates**

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| Shelley Cimon | Todd Martin | Gerry Pollet |
| Rob Davis | Debra McBaugh | Mike Priddy |
| Harold Heacock | Vince Panesko | Wade Riggsbee |
| Susan Kreid | Jerry Peltier | Dick Smith |
| Pam Larsen | Gary Peterson | John Stanfill |
| Susan Leckband | Maynard Plahuta | Gene Van Liew |

**Others**

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|---|---|---|
| Joe Franco, DOE-RL | John Price, Ecology | Lynn Lefkoff, EnviroIssues |
| Karen Lutz, DOE-RL | Beth Rochette, Ecology | Hillary Johnson, EnviroIssues |
| John Sands, DOE-RL | Craig Cameron, EPA | Barbara Wise, FH |
| Dana Ward, DOE-RL | | Lynnette Bennett, WCH |
| | | Chris Cearlock, WCH |
| | | Ella Feist, WCH |
| | | Larry Hulstrom, WCH |
| | | Jeff Lerch, WCH |
| | | Emily Millikin, WCH |
| | | Pat Pettiette, WCH |
| | | Jackie Queen, WCH |
| | | Steve Weiss, WCH |