

HANFORD ADVISORY BOARD
Revised Meeting Summary, December 2-3, 1999
Portland, Washington

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.

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EXECUTIVE SUMMARY

Letter to DOE regarding Principles for Environmental Management

The HAB adopted and transmitted a letter to Dr. Carolyn Huntoon that communicated HAB support and appreciation for her recent identification of six principles for DOE Environmental Management (EM). The letter also encouraged DOE to bolster public confidence in cleanup through greater openness, stakeholder involvement, tribal consultation, and community outreach.

Updates on TPA Negotiations for Tank Waste Treatment and Off-Site Waste

Tom Fitzsimmons, Director of the Washington State Department of Ecology (Ecology), updated the Board on the Agreement In Principle (AIP) reached on the Tri-Party Agreement (TPA) schedule for the tank waste treatment between Ecology and the U.S. Department of Energy (DOE). He outlined the milestones agreed upon, while extending thanks to Dick French, DOE-Office of River Protection (ORP) manager, and Keith Klein, DOE-Richland (RL) manager for working through the grueling negotiations. He also raised concerns about the potential for Hanford to be designated as a disposal site for low-level waste (LLW) and low-level mixed waste from DOE cleanup sites across the nation. Board discussion reiterated past HAB advice stating that Hanford cleanup must not be adversely affected by acceptance of off-site waste.

100 Area Cleanup

The majority of the Board meeting focused on the cleanup of the 100 Area. A variety of agency, tribal, and HAB speakers led presentations and discussions about the many facets of this issue. Regulators from the U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and the Washington State Department of Health (WDOH) outlined their regulatory authorities and processes under Superfund laws and the Resource Conservation and Recovery Act (RCRA). They also touched briefly on cleanup standards and risk assessment. An overview of recent 100 Area workshops for the general public was provided to highlight public perspectives on the cleanup. In addition, the HAB reviewed past values and recommendations from the Future Site Uses Working Group and past HAB advice on cleanup. Representatives from the Hanford Natural Resources Trust Council and the tribes also gave perspectives on the importance of cleanup to trustees and affected tribes. The HAB held a Sounding Board to guide future work of the Environmental Restoration Committee on this issue. The common ground themes from the Sounding Board included the need to better understand the risk assessment process, concern with groundwater contamination and remediation, the unacceptability of the one-shot cleanup concept outlined in a letter from Jim Owendoff, DOE-Headquarters, and clarification of cleanup standards.

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December 2-3, 1999
Lloyd Center - Portland, Oregon

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The Hanford Advisory Board (HAB) meeting was called to order by Marilyn Reeves, Chair (Public-at-Large). This meeting was open to the public, and offered four public comment periods on Thursday, December 2nd at 11:45 am and 4:45 pm and on Friday, December 3rd at 11:45 am and 2:45 pm.

Board members in attendance are listed in Attachment 1, as are members of the public. Board seats not represented were: Rick Leaumont, Lower Columbia Basin Audubon Society and Columbia River Conservation League (Local Environmental); Charles Kilbury, City of Pasco (Local Government); Jack Yorgesen, Franklin and Grant Counties (Local Government); Jim Watts, Hanford Atomic Metal Trades Council (Hanford Workforce); Richard Berglund, Central Washington Building Trades (Hanford Workforce); and Tom Carpenter, Government Accountability Project (Hanford Workforce). In addition, Tom Carpenter, Government Accountability Project, did not attend the November 1999 Board meeting.

MEETING OVERVIEW

Marilyn Reeves welcomed everyone to the meeting, reviewed the meeting agenda and announced that Shelley Cimon, Oregon Hanford Waste Board (State of Oregon), HAB vice chair, would chair the Thursday afternoon and Friday morning portion of the meeting focusing on 100 Area cleanup.

INTRODUCTIONS

- Fred Roeck, Non-Union, Non-Management Employees (Hanford Workforce), was introduced as the new alternate for Susan Leckband, Non-Union, Non-Management Employees (Hanford Workforce).
- Carla High Eagle, Nez Perce Tribe, introduced herself as the alternate for the tribe.
- Beth Bilson, U.S. Department of Energy – Richland (DOE-RL), was introduced as the Acting Deputy Designated Federal Official (DDFO) for the meeting.
- Ruth Siguenza, EnviroIssues, introduced Diane Adams, a new EnviroIssues employee filling for Louise Dressen who was unable to attend due to a serious illness in her family.

ANNOUNCEMENTS

- Ruth Siguenza announced an Executive Committee meeting on Friday, December 3rd, at 7:30 am to finalize the HAB draft 2000 meeting calendar.
- Ruth Siguenza asked Board members to complete the committee information and request form and return it to her by the end of the Board meeting.

- Max Power, Washington State Department of Ecology (Ecology), reminded Board members of the final re-appointment process and urged all Board members to return their forms as soon as possible so that appointments can be finalized with DOE Headquarters (DOE-HQ).
- Gail McClure, DOE-RL announced that new appointment or re-appointment information would be available by January. Confirmation letters will be sent to HAB members by February.
- Marilyn Reeves announced that new Board members and alternates must attend a HAB orientation prior to sitting at the table and participating at a meeting. This is a federal requirement.
- Gail McClure announced the next new member orientation would be prior to the February HAB meeting and emphasized that all Board members and alternates must attend prior to participating in Board meetings.
- Marilyn Reeves announced that Pete Knollmeyer has officially been designated as the Acting DDFO, but that Beth Bilson was sitting in for Pete at this meeting.
- Marilyn Reeves said Dick French announced that CH2MHill had purchased the Lockheed Martin Hanford Contract (LMHC).
- Marilyn Reeves announced that Dr. Harry Boston has been named the Deputy Manager for Site Transition at Hanford.
- Marilyn Reeves announced that Karen Randolph is retiring.
- Marilyn Reeves reminded the Board of Tim Takaro's November request for feedback and comments on the Health of the Site conference.

APPROVE NOVEMBER MEETING SUMMARY

Ruth Siguenza announced that changes to the November meeting summary were given to her by the following Board members: Dan Simpson, Public At Large; Leon Swenson, Public At Large; Marilyn Reeves; Ken Bracken, Benton County; and Madeleine Brown, Non-Union, Non-Management Employees (Hanford Workforce). Marilyn suggested that future changes to draft meeting summaries be done in a strikeout/underline format in black ink, because it is difficult to read copies in which changed are shaded or in colored print.

Tim Takaro, University of Washington (University), raised concerns about the Sounding Board process at the November Board meeting. He asked Board members to comment on the process of searching for common ground that he believed was not well reflected in the draft meeting summary. Ken Niles, Oregon Office of Energy, had identified major themes in the post Sounding Board discussion and said agreement could have been reached, but Board members were not interested in taking the Sounding Board further. Paige Knight, Hanford Watch of Oregon (Regional Citizen, Environmental, and Public Interest Organization), noted that the discussion on the Sounding Board started out reflecting a desire for finding common ground, but that during the Sounding Board, issues arose that created a sense of distrust and prevented the Board from pursuing common ground. Betty Tabbutt, Washington League of Women Voters (Regional Citizen, Environmental, and Public Interest Organization), noted that there were places

where individuals, such as Ken Niles, recognized common ground, but that the facilitators should have done a better job of pulling together these issues.

Tim Takaro said the number of votes that occurred in the process of discussing possible changes in the item including the Fast Flux Test Facility (FFTF) agenda item at the November meeting was not reflected in the draft meeting summary. Tim asked that these votes be documented because voting is a rare action of the Board.

Ken Bracken announced that he would revise the tank closure meeting update section for the revised November meeting summary.

COMMITTEE UPDATES

Environmental Restoration (ER)

Gordon Rogers updated the Board on the last ER Committee meeting. ER discussed the status of 300 Area cleanup and the 618-10 and 618-11 cleanup sites located just outside of the Northwest Energy Plant office building and directly across from FFTF. At a joint session with the Health, Safety, and Waste Management (HSWM) Committee the issue of stewardship was discussed. Susan Leckband urged the HAB to be highly visible on the issue of stewardship. Greg deBruler, Columbia River United (Regional Citizen, Environmental, and Public Interest Organization), raised the issues of how stewardship would be defined and the need to create a separate stewardship funding mechanism. The HAB needs to develop its values regarding the stewardship issue. Other site-specific advisory boards (SSABs) are already dealing with the issue of stewardship.

Health, Safety & Waste Management (HSWM)

Doug Huston, Oregon Office of Energy (State of Oregon), provided an update on the last HSWM meeting. HSWM met and had its first discussions with Sandy Johnson, Assistant Manager for Engineering and Standards, DOE-RL. Other committee business included the re-election of the Chair, Pam Brown, and Vice Chair, Doug Huston. The HSWM committee reviewed and did not support draft advice from the Dollars and Sense (D&S) committee on reprogramming of funds. At a joint meeting with ER, HSWM discussed the Plutonium Finishing Plant (PFP) and agreed to draft a letter regarding work and Tri-Party Agreement (TPA) negotiations in 2000. Roger Stanley, Ecology, told the committees that discussion on PFP milestones would take place in 2000.

Tank Waste Treatment Ad Hoc (TWT)

Todd Martin announced that the TWT Committee would meet on Saturday, December 4. DOE-Office of River Protection (DOE-ORP) staff will discuss organizational budgeting and contracting authority and baseline issues. The committee will also discuss funding and financing issues and begin talking about alternatives studies.

Dollars and Sense (D&S)

Gerry Pollet, Heart of America Northwest (Regional Citizen, Environmental, and Public Interest Organization) outlined three D&S key focus areas: tank waste privatization, draft advice on reprogramming of \$10 million in additional funding originally slated for reactor cocooning, and changes in the role of the public in the budget development and prioritization process. D&S has requested the scope of the alternative studies on contracting and financing and would like information on how the studies address the questions raised in HAB Advice #101. Gerry also said that D&S would like to meet with senior TPA management to discuss improving public involvement in the budget process.

Gerry reported that Wade Ballard, DOE-RL, was hosting a meeting with TPA regulators, senior leaders of stakeholder groups, and the tribes on December 13, the same day as the D&S meeting, to discuss the budget prioritization process. Gerry Pollet and Marilyn Reeves shared their concerns about the meeting date and how the budget public involvement process would work this year. Gerry noted that one of Assistant Secretary Huntoon's six principles concerns public confidence. Betty Tabbutt noted that Hanford needs to implement Huntoon's principles and stop short-circuiting the HAB and the general public. Todd Martin pointed out that the public process on the budget has historically been well supported by DOE, but that it is completely separate from DOE's relationship with the HAB on budget issues. Marilyn has informed Wade Ballard that the D&S committee is the avenue for discussion of budget issues.

Public Involvement

Norma Jean Germond, Public-at-Large, gave an update to the Board on the TPA Quarterly meeting and the HAB Public Involvement (PI) Committee meeting, which both took place on December 1st. There were three major topics at the TPA Quarterly meeting. First, concerns were raised about the FY 2002 DOE budget meeting discussed in the D&S update. Second, PI received an update on the tank waste treatment TPA negotiations from Roger Stanley, Ecology. Stanley said the 45-60 day public comment period would be in February. It was noted that budget hearings would be taking place simultaneously, so DOE should attempt to work out dates and locations to avoid scheduling conflicts. Third, the Idaho High Level Waste (HLW) Environmental Impact Statement (EIS) was to be signed on January 4, 2000. The EIS includes an alternative to send high-level waste (HLW) to Hanford. Public meetings will be held in the Tri-Cities, Portland and other regional locations in conjunction with the public comment period for the EIS. Norma Jean said that any HAB members interested in receiving a copy of the EIS should contact Gail McClure. HSWM will be reviewing the EIS.

Norma Jean Germond reported that PI was pleased with responses from the TPA agencies to the November Board letter on responding to HAB Advice. PI also discussed the Hanford Openness Workshop (HOW). The next HAB meeting will include an update on the HOW annual report that will be included in the February meeting packet. Ken Niles is drafting advice for the February HAB meeting on meaningful public involvement. The committee is also continuing work on Board member outreach to its

constituencies, led by Susan Leckband. At the direction of PI, Susan Leckband drafted a letter to show support and appreciation to Carolyn Huntoon for her recent identification of six principles for DOE Environmental Management (EM). The letter was expanded to also encourage DOE to bolster public confidence in cleanup through greater openness, stakeholder involvement, tribal consultation, and community outreach. Through the letter, the HAB highlighted the need to provide meaningful public involvement activities on key cleanup issues. The HAB adopted and transmitted the letter to Ms. Huntoon.

Tim Takaro asked about the status of the SSAB transportation-working group. Marilyn Reeves and Ken Niles indicated that there was not strong support for the SSAB group. The point of contact on this is Martha Crosland.

TPA Negotiations for Tank Waste Treatment

Tom Fitzsimmons, Ecology, recognized the long history of the work the Board and his personal commitment to the success of the cleanup at Hanford. He recognized that the lengthy negotiations were a sore point for the Board, but he noted that the result has yielded significant accomplishments, including a schedule of milestones for the tank waste treatment. The Authorization to Proceed (ATP) date has been set for August 2000, in line with the TPA. Construction is to begin by July 2001, and two additional milestones for construction will result from the anticipated contract between DOE and BNFL. Hot commissioning of the facility will take place by 2007 when the plant will begin to receive material and treat waste. An interim milestone was added for 2009 to ensure that waste treatment is progressing toward the goal of treating 10% of the waste to meet the 2018 milestone. Fitzsimmons also noted that the U.S. Environmental Protection Agency (EPA) and Ecology are committed to exploring what is possible for exceeding this goal. These milestones eliminate the alternate path and create a single path forward for all the agencies.

Jim Trombold, Physicians for Social Responsibility (Local and Regional Public Health), urged the agencies to recognize the urgent threat to public health and the environment which is at stake for the years the waste sits in the tanks. However, Fitzsimmons noted that the 10% figure was established prior to his arrival and feels there is no leverage to renegotiate this number. George Sanders, DOE-RL, clarified that the 10% number evolved in relation to technical and affordability issues. Ken Niles asked if any outstanding issues posed a threat to meeting the TPA schedule. George Sanders said the issues that had already been negotiated were the most significant and that none of the remaining issues were insurmountable.

Fitzsimmons noted that if DOE is not able to get congressional funding, everyone loses. This is not DOE's job alone. However, the expectation for meeting milestones will not be altered if Congress does not allocate the money. Ken Bracken asked about the ATP, August 2000 milestone and the nine-month extension if financing is not achieved. Tom Fitzsimmons emphasized that the focus is clearly on the outcome, but the possibility of funding shortfalls and the possible need for the nine-month extension is recognized.

Off-Site Waste

Tom Fitzsimmons said a significant concern of Ecology is the announcement of the upcoming Record of Decision (ROD) on waste movement. Governor Locke has asked Tom to examine the state's leverage capacity to negotiate with DOE. The state's highest priority is tank waste treatment. Ecology's objective is to gain leverage in treating greater volumes of tank waste in exchange for accepting off-site waste. However, the issue of waste movement is of national magnitude encompassing cleanup at sites across the country. Secretary Richardson has expressed an interest in holding discussions with Washington State. Tom cited excerpts from past HAB advice, including Advice #13 and #98, on the acceptance of low-level waste (LLW) and mixed low-level waste (MLLW). DOE must assume the life cycle cost burden, so Hanford is not subsidizing cleanup around the nation.

Fitzsimmons said the 20-year estimated total amount of LLW produced and disposed of at Hanford is 148,500 cubic meters. The projected amount needing disposal in the same time span across the DOE complex is 490,000 cubic meters. The environmental impact statement (EIS) specified that Hanford's share of that 490,000 would be 70,000 cubic meters over 20 years. For mixed LLW, Hanford produces and disposes of 69,000 cubic meters and the total amount of mixed LLW needing disposal is 108,400 cubic meters. The EIS designates Hanford's share of the mixed LLW at 110,000 cubic meters. Fitzsimmons said actual amounts would be announced soon and would breakout the disposal slated for both Hanford and the Nevada Test Site.

Betty Tabbutt was concerned about the acceptance of off-site waste being tied to a guarantee of financing for the vitrification plant. Instead, acceptance of off-site waste must aim to guarantee an operational vitrification plant, in recognition of the 10-year time gap between financing and operation. Ken Niles added that leverage should consider the range of other issues on site, such as the Plutonium Finishing Plant (PFP).

Tim Takaro asked about Ecology's plan to engage the public on this issue and suggested that a national dialogue be held because the issue is of national importance. A comprehensive discussion would be valuable to the process. Tom Fitzsimmons said he did not believe that there was enough horsepower behind the issue to hold a successful national dialogue, although he agreed with the need for public involvement.

Gerry Pollet expressed shock at the reversal of the state's position on accepting off-site waste. He said there should be an independent investigation on what exists in the burial grounds before the site accepts off-site waste because it is unclear what is there now. Tom Fitzsimmons said the state's current mode is focused solely on exploration to see what leverage ability the state has with DOE and should not be characterized otherwise. He said waste cannot be sent to Hanford until Ecology approves a plan, which includes funding.

Todd Martin, League of Women Voters (Regional Citizen, Environmental, and Public Interest Organization), urged that no actions be taken by the State unless they are in full

compliance with all state and federal laws. Tom Fitzsimmons offered to update the Board on any potential leverage strategies that the State may pursue. He would value the Board's input.

In closing, Fitzsimmons welcomed the invitation to meet with Marilyn Reeves, Chair, Shelly Cimon and Ken Bracken, Vice Chairs, to discuss the Board's role with the TPA agencies. He said this discussion could broaden perspectives, refocus all involved, and be incredibly valuable.

TUTORIAL ON 100 AREA CLEANUP

Shelley Cimon introduced the 100 Area Cleanup Tutorial. She said three successful workshops had been held in July 1999 on 100 Area cleanup. At the September Board meeting, there was discussion on the Inspector General's report relating to 100 Area cleanup. This tutorial was developed by the Environmental Restoration committee to educate the Board on issues surrounding 100 Area cleanup. Perspectives from TPA agencies and Tribes were included, as well as a Sounding Board for the HAB to identify core values regarding 100 Area cleanup. The purpose of the Sounding Board is to look for common ground that may lead to a HAB product.

Mike Gearheard, EPA

Mike Gearheard, Director of the Superfund program for EPA Region 10 noted that the 100 Area cleanup is a Superfund cleanup, which means it is regulated under the Comprehensive Environmental Remediation Conservation and Liability Act (CERCLA). He compared the Superfund cleanup process with the Resource Conservation and Recovery Act (RCRA) cleanup process. In Washington State, RCRA is implemented by Ecology, while EPA regulates Superfund. Each of the two processes has a preliminary assessment phase. The CERCLA steps that follow are: Remedial Investigation (assesses risk and nature of risk), Feasibility Study (considers feasible responses to risks found), Proposed Plan, Public Comment Period, and ROD (a legally binding document analogous to a RCRA permit). EPA is currently developing the ROD for 100 Area cleanup.

Gordon Rogers, Public-at-Large, asked about the nature of preliminary risk assessments. Mike Gearheard replied that the risk assessment is completed before the proposed plan is written. It measures toxic chemicals combined with assumed exposures to target populations. Risk assessments consider two possible effects: estimated cancer incidence and possible non-direct cancer effects.

Carla High Eagle, Nez Perce Tribe (Tribal Government), asked when in the Superfund process the Tribes are consulted. The Tribes maintain a right to fish and gather in the 100 Area, so they are greatly invested in end results and would like to participate early on in the process. Mike Gearheard said tribal consultation is something with which EPA has a great deal of experience. Typically tribes are involved at the first stage, and formal consultation continues through the process. Tribal consultation is not constrained by the public involvement process.

J.R. Wilkinson, Confederated Tribes of the Umatilla Indian Reservation (CTUIR) (Tribal Government), asked about the role of trustees in determining risk and injury for the risk assessment process. He noted that it has been a policy of DOE to involve trustees early in the CERCLA process and that such early involvement may result in a higher cleanup standard from the beginning. This would save taxpayers money in the long run.

Robin Klein, Hanford Watch of Oregon (Regional Citizen, Environmental, and Public Interest Organization), inquired about how sampling is done for risk assessments. Mike Gearheard replied that only environmental sampling is done. For example, shellfish and bottom-fish are tested to determine contaminant levels, and groundwater, surface water, and soils are sampled as well. The remainder of the risk assessment uses models to determine toxicity. Assumptions in these models are always conservative.

Betty Tabbutt asked about CERCLA's authority over DOE. Mike Gearheard explained that the TPA recognizes EPA's CERCLA enforcement authority. Federal agencies do not have authority to fine one another.

Wayne Soper, Washington State Department of Ecology (Ecology)

Wayne Soper has done work with groundwater as a hydrologist in the 100 Area, and is currently managing the groundwater cleanup. His background is in the Washington state Model Toxics Control Act (MTCA). He presented the three methods used to set cleanup standards. They are:

- o Method A – basic, routine cleanup involving one or two contaminants
- o Method B – unrestricted, presuming residential standard
- o Method C – industrial standard

Method A cleanup is used for petroleum contamination. Method B applies to chemical contamination with a hazard quotient less than one. Cleanup extends to a depth of 15 feet. Method B lays out a remedy strategy that allows flexibility in adjusting the cleanup level. Risk pathways under MTCA consider ingestion of soil and drinking water or dermal contact with toxic chemicals.

Dick Jaquish, Washington State Department of Health (DOH)

Dick Jaquish said DOH supports Ecology in radiological aspects of Hanford cleanup. A Memorandum of Agreement (MOA) exists between Ecology and DOH that defines the roles of the two State agencies. The radiological cleanup standard that is being used for the 100 Area cleanup as specified in the 100 Area ROD is 15 millirem per year. DOH issued an interim guidance for Hanford cleanup that used 15 millirem per year as the standard and provided guidance on how to apply a dose-based standard. The DOH also participates in Hanford cleanup by providing independent sampling and analysis of environmental samples at cleanup sites. DOH also reviews Closeout Verification Packages that documents the final status of remediated sites. Susan Leckband asked if these closeout and verification packages address stewardship for contamination left in place in the 100 Area. Stewardship is not addressed.

Jim Trombold asked how passage of Washington State Initiative 695 has affected staffing and funding from the state level for Hanford. Mike Wilson, Ecology, said the nuclear program has remained unaffected. Al Conklin, DOH, said that some DOH programs in the DOH have been affected, but nothing relating to Hanford has been impacted.

Tim Takaro expressed concern that studies are not looking at all at potential synergistic effects of exposure to multiple toxics.

Gerry Pollet asked about the MTCA requirement to meet health-based standards. Wayne Soper responded that it was not possible to apply risk assessment results to MTCA, because Hanford cleanup falls under so many regulatory structures. He said the intention was to achieve the best possible end result.

JR Wilkinson, CTUIR, stated that a letter signed by then Acting Assistant Secretary of Energy Jim Owendoff indicated that DOE would not bear any costs for cleanup after the initial cleanup was completed. For this reason, the setting of initial cleanup standards is crucial.

Dennis Faulk, EPA

Dennis Faulk outlined three subjects for his update of cleanup along the Columbia River: 100 Area soil sites, decontamination and decommissioning (D&D) of 100 Area buildings, and K Basins. Dennis shared past and present images of the 100 Area to illustrate the progress that has occurred. He also outlined a few relevant TPA milestones:

- Milestone 16 – addresses soil sites for all non tank farm operable units by 2018
- Milestone 34 – completion of K Basin cleanup
- Milestone 93 –reactor disposition (cocooning and cores stored on central plateau)

Todd Martin noted that the initial risk assessments done on the 100 Area did not measure risk, but simply asked whether or not risk existed. For this reason, there is no measure of the reduction of risk as a result of cleanup. He said to have measured the reduction in risk for the 100 Area, cleanup would still be in the characterization stage.

There are 400 soil sites, 200 of which have been addressed in a signed document. A dig and haul technology is being used to remove soils and take them to the central plateau. The list of contaminants being removed from the 100 Area include strontium, cobalt, chromium, cesium, nickel, europium, uranium and plutonium. There are 45 burial sites in the 100 Area. A decision on remediation will be made by March 2000. Remove, Treat, Dispose (RTD) is the main objective.

Groundwater contamination exists throughout the 100 Area. There is a tritium plume and a strontium plume in the F area, and the H areas have chromium contamination. Remedial action objectives are to control sources of groundwater contamination for the ultimate protection of the Columbia River and to cleanup to a standard that does not limit future use.

D & D of 100 Area buildings falls under CERCLA. Current cleanup at Hanford is the first time soil cleanup standards are being applied to buildings. The reactors are being taken down so only the reactor core remains. From this point they are cocooned to decay before disposing of the reactor cores. He showed an image of C reactor before, during and after D&D.

Tim Takaro asked how the samples are taken from a building, and how soil standards are applied to buildings. Dennis explained that concrete cores are analyzed. Gerry Pollet asked if buildings that are being turned over for public use are cleaned to CERCLA standards. Dennis Faulk said that DOE has not embraced the CERCLA process, and EPA has had limited interactions with DOE to increase CERCLA compliance. Dennis said Building 314 in the 300 Area was an example of a building that was denied leasing because it posed an unacceptable exposure risk to humans.

The K Basins contain contaminated water 65 cubic yards of sludge and 2300 tons of corroding fuel. Once the spent fuel is disposed of, the basins will be removed and the reactor will go into interim safe storage. Gordon Rogers noted that the K Basins also currently contain over 65 tons of sludge.

Greg deBruler, Columbia River United

Greg deBruler gave an overview of the 100 Area technical workshops held last year. There is currently a discrepancy between figures used by MTCA and DOE-RL in determining risk. Current scenarios assume that conditions will remain static. Dam removal and climate changes were considerations that should be considered as future possibilities. Other concerns included the need to study synergistic effects of Hanford wastes and other Columbia River sources of contamination (e.g., pesticides). Under MTCA, cleanup must be for unrestricted future use, a designation that requires thorough examination of how exposure and risk are being assessed to ensure this level of cleanup. Greg said a doctor at the Hood River workshop said unrestricted use should allow Native Americans to practice their traditional lifestyle, free from risk in the 100 Area or from migration of contaminants from other areas.

Max Power, Ecology

Max Power reviewed the Future Site Uses Working Group (FSUWG) recommendations and past HAB advice relating to the 100 Area. The FSUWG report was published in December 1992. Max emphasized that the FSUWG report specified a broad base of values, extending beyond risk. One of three FSUWG visions focused on the Columbia River for Native American uses, recreational uses, wildlife habitat, and public use, including a B Reactor museum. A second vision stressed cleaning up groundwater contamination, while recognizing that the reactors would remain in place for years to come. The third vision strongly stated that all cleanup activities benefit the health of the site while continuing to protect cultural and natural resources in the 100 Area.

Max Power went on to review HAB advice issued on 100 Area cleanup. The main areas of concern were the removal of spent nuclear fuel, focus on the Columbia, acceleration of

river cleanup, interim safe storage of reactors, groundwater treatment, and institutional controls. The Board has said that institutional controls should not be a substitute for cleanup, must be consistent with regulatory standards, and should be fully funded to maintain the controls over time. Max said in May 1996, a strategic planning workshop revisited and reaffirmed the FSUWG report with strong support for unrestricted future use. Another result of this was a stress on health and safety of workers and the general public.

Max Power noted the great deal of confusion between risk scenarios and land use designations. He said that although the term "rural residential" is used in risk scenario designations, risk scenarios designations are completely separate from land use designations. Dennis Faulk said the term "unrestricted" should no longer be used for 100 Area cleanup because waste will be left in place, so future use will be restricted. Marilyn Reeves clarified that unrestricted future use is the goal of the FSUWG, and it is important for the Board to reiterate this long-term goal.

Gordon Rogers asked regulators to provide clarification on the discrepancy between CERCLA and MTCA risk numbers that were cited on a document from Heart of America Northwest indicating that cleanup is straying far from cleanup requirements. Dennis Faulk said EPA and Ecology set the CERCLA number for the site. Mike Wilson added that these figures are interim and do not meet MTCA requirements. This issue will be revisited. Dennis said the Nuclear Regulatory Commission (NRC) set the cleanup number at 25 millirem, which was a significant success, but there is an ongoing debate at EPA on whether this is restrictive enough. Al Conklin said it is very difficult to meet MTCA requirements for radionuclides.

Beth Bilson, DOE-RL

Beth Bilson, DOE-RL, responded to the Board on behalf of DOE regarding the HAB letter from the November meeting on 100 Area cleanup. DOE-RL is very proud of the 100 Area cleanup progress and is pushing forward. It is the site's most visible success. DOE has not issued their formal written response to the Board yet, but Beth shared the main points of DOE's response. Regarding the Inspector General (IG) report, DOE is committed to meeting the natural resource and treaty trust obligations spelled out in the 100 Area ROD: protection of the Columbia River, protection of on-site cultural resources, honoring of treaty rights for land use and resources, and facilitation of cleanup and waste management.

Dennis Faulk, EPA, noted that the cleanup of the 100 Area is a success EPA is also proud of. However, the regulators have not done an adequate job of looking at addressing the groundwater problem.

Mike Wilson said the cleanup method of moving dirt is simple, with easily observed results. "Dirty, dirty, dirty - Clean!" were his words to describe the process. The difference between achieving an industrial standard of cleanup and a residential standard is minimal because it is possible that the difference between the two cleanup standards could be one extra shovel full of dirt removed.

Gerry Pollet asked about DOE's commitment to meeting MTCA exposure scenarios in future strategic plans. He also asked if DOE plans to propose Remove, Treat, Dispose (RTD) as the cleanup scenario as required by MTCA because DOE has a track record of not meeting MTCA requirements. Beth Bilson responded that the 100 Area proposal plan is RTD.

Pam Brown asked for an update from senior DOE management on the September Board meeting presentation on elevated tritium levels in the 100 Area. In October, additional wells were sampled that also revealed high tritium levels. These elevated tritium levels are significantly below drinking water standards. DOE is working to identify the source, and have ruled out an earlier hypothesis that the first tests were the results of lab error.

TRUSTEE AND TRIBAL PERSPECTIVES ON 100 AREA CLEANUP

Doug Mosich, Ecology

Doug Mosich provided background information on the Hanford Natural Resource Trust Council (NRTC) composed of tribal, federal, and state organizations. NRTC members include the Nez Perce Tribe, Yakama Nation, CTUIR, DOE, U.S. Department of the Interior (Fish and Wildlife Service and the Bureau of Land Management), Oregon State, Washington State, and EPA (a non-voting member). Washington State Departments of Ecology, Health, and Fish and Wildlife also work collaboratively with the NRTC but do not vote. NRTC was formed in 1993 and addresses the protection of natural resources affected by hazardous waste. NRTC legal authority is from CERCLA. The purpose of the Council is to assess injury and related monetary damages of natural resources resulting from releases of hazardous materials and to avoid potential injuries during Hanford cleanup. This assessment is called a Natural Resource Damage Assessment (NRDA).

Current NRTC projects include the 100 Area assessment plan, salmon studies on the effects of chromium, the 1100 Area pre-assessment screen, examining DDT issues, pre-acquisition of the North Slope and ALE, and re-vegetation mitigation for the tank waste treatment privatization project. The website for the Hanford NRTC is www.hanford.gov/boards/nrtc

Jay McConnaughey, Washington State Department of Fish and Wildlife

Jay McConnaughey said that the Washington State Department of Fish and Wildlife (WDFW) consults with Ecology and serves on the Hanford NRTC representing fish and

wildlife habitats. The NRTC would assess additional injury if there were a second cleanup opportunity, but the goal is to complete a thorough cleanup the first time.

Jay presented the CERCLA Remediation Investigation/Feasibility Study (RI/FS) in order to share the overall criteria used to protect human health and the environment. The focus up to this point in the 100 Area has been human health. The RI/FS process has not included an ecological exposure and effect assessment to identify contaminants, collect biological data, and develop findings. The benefits of conducting an ecological assessment are to assess where we are and establish biotic criteria for federal trust resources.

Pam Brown asked about the salmon studies on chromium, specifically what developmental effects have been found. She also asked about the status of fishing given the known chromium contamination that exists. Jay said chromium injury results in disease, genetic mutations, deformations, physiological malfunctions, abnormal behavior, and death for fish. Preliminary results from the studies have shown that injury occurs at 120 parts per billion. The fish seen now in studies will not survive to spawn. On the status of fishing, DOH samples for radiological effects and would issue consumption warnings, if needed. Betty Tabbutt said it is important for sediment contaminant levels to be established that are protective of biota in accordance with MTCA. Greg deBruler noted there is a need for looking at biological integrity. There needs to be more study done on the synergistic effects of chemicals.

JR Wilkinson, CTUIR, made a distinction between DOE's obligation to trustees and its role working with the tribes in the CERCLA process. He asked Doug Mosich to discuss the tension between Ecology's role as a trustee and its role as a regulator at Hanford. Doug explained that his role on the NRTC is as a trustee, not a regulator.

Carol High Eagle, Nez Perce Tribe

Carol High Eagle introduced herself and said she was impressed with the dialogue occurring between such diverse points of view. Carla said the term "Native American uses" seemed to be misused and clarified what these uses meant to her as a member of the Nez Perce Tribe. She said the cultural value of hunting, fishing and camping are intended to protect the seventh generation out. It is essential to continue ceremonies and gather sacred foods to continue living within the "circle of life." She said stewardship extends far beyond a government responsibility. Carla cautioned Board members to consider what Tom Fitzsimmons had stated earlier about accepting off-site waste at Hanford and the inherent contradiction relating to stewardship. Another concern was on the modeling used to examine exposure risk. She said the use of soil and water without using plant and animal testing for contamination was problematic. The Nez Perce Tribe is concerned about the lack of explanation of the technical model used, and cited the North Slope as an example. It was declared "clean" by DOE, but WDFW said there is existing contamination on the North Slope. In closing, Carla said there must be funds and efforts focused on the issue of groundwater contamination, because water is essential to all life.

Nanci Peters, Yakama Nation

Nanci Peters, Yakama Nation, gave an overview of the factors driving 100 Area cleanup, including federal/tribal trust obligation, treaty rights and protection of cultural resources, and the environment. The Yakama Nation avoids making policy statements because any specific numbers are typically misapplied to the whole site and often are used in ways that misrepresent the tribe. The goal of the Yakama Nation is to ensure that cleanup levels are set to protect all of mankind. End goals include protection of cultural resources and the traditional way of life for seven generations. Religion is the highest value of the Yakama Nation, and all natural resources are cultural resources.

Nanci reported that the Tribal Council is greatly concerned about Hanford and eager to see change. Tribal Council members view the tribe's treaty as a guarantee that their lands will be returned to a state they can safely use. Nanci said there are cases of tribal members gathering plants and eating fish that have resulted in devastating harm from contaminant exposure.

J.R. Wilkinson, CTUIR

J.R. Wilkinson shared an early view of the Columbia River at Celilo Falls. There is currently a video project that is identifying the significance of the Falls to the Tribes. The Falls was a cultural center for regional tribes at a time when the reactors were in full production. CTUIR is looking at empirical evidence on what has happened over time and the continuing effects to the River. During the Manhattan era, \$409 billion was invested into bomb production. Costs for cleanup are a bargain compared to the funds invested in weapons production.

J.R. Wilkinson explained that the government-to-government consultation process is a significant step in setting cleanup standards. Consultation includes identification of technical and policy issues as well as identifying common ground. Consultation begins when the federal government contacts the tribes and continues throughout the process.

Agency Trust Responsibilities

DOE is obligated as the land manager to protect resources. The natural resource program works to keep resources healthy and manage contaminated resources. DOE works with other trustees in dealing with the potential impacts of toxic releases and exploring mitigation measures. Kevin Clarke is in charge of the DOE Indian Nations program, which implements tribal trust responsibilities. DOE is committed to working with tribes on a government-to-government basis. Another driver for DOE is implementing the Presidential Executive Order on government-to-government relations with tribes.

Mike Gearheard clarified that EPA is not a trustee for natural resources, but is obligated to work with trustees on decision making at all Superfund sites. EPA is committed to the government-to-government relationship with tribes. There are difficulties. However,

EPA is mindful of conflicting values in developing end state goals and works with the tribes to ensure that the conflict does not impede progress.

Mike Wilson said Ecology is familiar with walking the line between trustee and regulator. For a long-term cleanup, such as Hanford, Ecology has a dual role. Ecology must involve the tribes in decisions made about cleanup and in assessing potential damages resulting from the cleanup activities. For the NRDA, Ecology works beside the tribes, but as a regulator the relationship is very different.

Jim Trombold asked if the Tribes have the ability to sue for more funding to accelerate cleanup. He also asked if the government use of Hanford prior to World War II was preceded with an agreement with the tribes to guarantee that the land would be returned as it was after the war. Nanci Peters said the tribes interpret the Treaty of 1855 as a guarantee that the government will restore the land to a state where tribal life can be practiced safely. She said the Yakama Nation has considered using a lawsuit, but hopes it will not be necessary. In response to Jim's question on what the tribes were told before Hanford was taken for nuclear production, Dan Tanno explained that tribal members and white settlers alike shared similar assumptions about the land's use. Settlers and tribes understood that the land was to be used for the war effort and assumed that when the war was over, it would be returned.

Norma Jean Germond asked Nanci Peters about the conflict between local governments and the tribes on the endstate of lands being cleaned up. There are issues about unclaimed land because the tribes did not use certificates of ownership. Carla High Eagle, Nez Perce, said the right to fish is an example of a right the tribes expect to be preserved. Water rights is another issue that will be difficult to resolve but may be solved in courts. Carla said the Nez Perce have had greater success with negotiations before resorting to litigation. J.R. Wilkinson noted that land use is the stickiest of issues faced by all. He said most DOE sites have good relations with tribes but that conflict arises between the tribes and DOE-HQ. Any DOE-HQ level decisions made must consult Tribes on a government-to-government level, just as the sites do.

Paige Knight asked if the Tribes feel the consultation process works well at Hanford. Nanci Peters answered that for the Yakama Nation, success is not consistent and varies project by project. Carla High Eagle said consultation with the Nez Perce is an ongoing process that occurs at all levels.

100 AREA CLEANUP SOUNDING BOARD

Merilyn Reeves said the Sounding Board would focus on the question of where do we go from here on 100 Area cleanup. Greg deBruler added that Sounding Board statements should also address outstanding issues and possible future advice. The ER committee will work with the results of the Sounding Board and outline the next steps.

Dan Simpson, Public At Large

"I'd like to thank the presenters from this morning on the perspectives for constructive and enlightening comments that were helpful to me. Turning to the presentations yesterday on the 100 Area cleanup - congratulations on the impressive progress that has been made. It appears that the program will achieve a high level of environmental safety, assuming resolution of a few key issues, such as the groundwater cleanup issue. The HAB has provided cogent advice to this process, including some important societal value inputs and notably the concept of 'get on with it.' My purpose this morning is to support expanding the risk assessment technology that we heard discussed yesterday. To help assure us that in addition to safety, the taxpayer, and the public, that all of us are getting their money's worth for the resources that are in fact expended. It may be that \$400 million is a bargain for a clean river corridor, but we don't have any objective way of showing that. In my view, what we want to develop is a way to express this: societal value of all of the benefits achieved through cleanup action and compare that with the societal value of all the costs, the resources that are committed. The difficulty frequently of doing that is looking at what is the value of risk. You have that problem, not only with human morbidity risk, which is usually embedded in regulation - there is risk and damage assessment that we have talked about, cultural damage. All of this needs some sort of quantification of value, so that the pluses can be compared with the negatives. Hopefully you can get absolute value received but certainly we should get a comparison between competing needs and competing options. We need to understand the magnitude of risk reductions to be achieved through cleanup, the risk to be introduced and a measure of the societal value that we associate with all these risks and to the other benefits in cost. Risk assessment is a complex process. It's got substantial inherent uncertainties. It is a valuable tool when used with good sense in recognition of its strengths and weaknesses. It can be an objective and disciplined process. It also is a framework, you can place all of the benefits and all of costs into some logical comparative arrangement and weight them one against the other. I think the HAB's input should be toward how do you put a number, a quantitative valuation on risks and cultural benefits, rather than waiting and assigning the job to conferees at a conference consultation on each and every project. That can be applied with some consistency to evaluate competing needs and options."

Gerry Pollet, Heart of America Northwest

"Our advice talks about values and assumptions that go into the exposure scenarios. I think we need advice for all three agencies to commit to consistency in planning and in RODs with state cleanup standards, relating to the use of eco-risk, sediment standards, back to the state, groundwater protection. Our advice needs to talk about the fact that there will be no money for any of this, unless we change the budget prioritization. We're not going to change the budget prioritization, as long as the DOE, both here and at HQ, thinks that there is no risk. As long as they think there is no risk to anyone living along the river, they are not going to change that budget prioritization. Risk is what we all care about, whether it is eco-risk, or human risk. Risk is something that people have been thinking about in the future. However, it also includes risk today in the near term. This is from the Jacobs Engineering work that was never published because the Hanford

Remedial Action EIS was cancelled. It shows incremental lifetime cancer risk if there is no groundwater cleanup. Areas where the risk is greater than one in ten of a fatal cancer in 2029. Now that does not include the question of risks today. This slide shows gamma radiation, airborne survey. Steve Blush measured here 75 millirems per hour. You've all heard that Hanford's maximum exposed individual gets 0.001 millirem per year. Those people fishing along here are in an area where the dose rate was 75 millirem per hour when this was measured. Institutional controls have already failed. They have been separated from cleanup and that is inconsistent. We know the groundwater dose has been separated in the planning from the soil cleanup and that is improper and inconsistent with state law, and we need to say we know that the groundwater dose exceeds the allowable health risk under all scenarios, and you can't separate it, you can't pretend its not there. We cannot declare the area safe for unrestricted use until we clean up the groundwater. I spent three years on Ecology's MTCA Policy Advisory group, and the big issue was site specific risk assessment - to allow it or not. And the business community and Ecology and the environmental community all agreed if you ever open the door, you have to provide massive technical assistance to the public to understand it, comment on it, review it. Starting from the most basic thing. And here you are, the most sophisticated at any of the cleanup sites advising anyone, and you're asking these questions. It's expected, so don't feel like we didn't get it, it's hard to get it. Number one, the goal is a health based standard. The health based standard comparison that was put up uses EPA, Ecology, and NRC's data for what the risk is. These are health-based standards. They are the cleanup standard. They are the ultimate goal. These are EPA's numbers and NRC's numbers. If 15 millirem, you get three deaths per 10,000. To get to the health based standard, you set a numerical number for cleanup, like 37 pico-curies per gram of plutonium in the soil. To get that, you have to know what the risk is from that contaminant in the soil. To get that you have to know the dose is going to be. To do that you do the risk assessment. To do the risk assessment, you have to know what the contamination levels are. This is the big issue we have not really addressed. The exposure scenarios and other assumptions that went into it. What has happened here is that the model used for this risk assessment is unlike any other set of assumptions anywhere else in the state of Washington, and nobody had any input to it until the workshops that were discussed earlier today. The last picture used at those workshops. This is from the risk assessment model, DOE's document. We asked how many of the assumptions, when you look at the exposure model used in this assessment don't make common sense. People say the tribes are missing. Exposure to groundwater contamination is missing. There are a whole lot of things - how many fish does this person eat? - is missing. Those are the things that need to come back to be addressed, and these are common sense things that your input is necessary for."

Gordon Rogers, Public At Large

"I want to first give a very brief statement of strong support for the agencies efforts to this point on the 100 Area cleanup. I, with you, am very proud of what has been accomplished, and I think the HAB has had a significant impact on setting that direction. I want to go through a couple points very rapidly. I believe the cleanup levels are certainly protective, but I feel they may be overly conservative. I do not favor any

relaxation of the regulatory laws and requirements. I urge the agencies to continue as they are. One point I want to make in support of Dennis's (Faulk) position on we need to have strong technological development for the groundwater remediation. The bottom line I want to end with is a piece of potential advice. I think it is essential for the three parties, together with a selected group of highly interested HAB members and stakeholders to hold a focused technical evaluation and discussion to resolve these complex risk assessment issues. I understood that there were about 11 issues identified at the Portland and Hood River technical meetings in October. And to the best of my understanding, no action has been taken to proceed on resolving these."

Paige Knight, Hanford Watch

"I want to thank the Board for doing this workshop, and I want to thank Greg (deBruler) for his passion and the work he has put into this over the years. My first point is, as a value we need to fully continue CRCIA studies to determine the path forward, and that really includes revamping the groundwater/vadose zone program. Things aren't moving there well, and I think we have to push harder because it is all integrally related to the 100 Area cleanup. I believe that the scientific studies on risk assessment, we need to realize that it is not a religion. Scientific studies are not immutable. And that assumptions of the past are no longer relevant, because in the past, pregnant women, children, and other sensitive populations and heavy user populations were not considered. I think we are beyond the time of having the 25-year-old healthy male, who stands on the riverbank for eight days as the model for acceptable risk. Therefore, I also believe we need to increase our cleanup standards. Where do we get our children and ourselves by doing the bare minimum? That one of things that bothers me about all cleanup is that regulations cover the bare minimum. They don't look forward to the future generations, as we have been well reminded today. We have to do that in order to carry out our responsibilities to our children and our grandchildren and on. That's my response to the risk versus money debate, and our group would weigh in heavily. We have to think ahead to the future. We cannot continue to be a myopic society that only goes five or ten years into the future because of priorities for the war machine."

Wanda Munn, Benton Franklin Council of Governments

"I can't avoid making a comment to the effect that I hear many expressions of concern around this table with the underlying feeling that no one ever obtained any benefit at all from the operations at Hanford. I have to make some comment to the effect that that is simply not true. We have all benefited from what is there, and now we all have the responsibility of moving forward with cleaning it up. A lot of reference has been made to generational concerns, and I am well aware that the third generation of Hanford workers is now alive and well. And I think most people that have been involved on the site are concerned with moving forward toward a cleaner environment and moving as close to what we used to have as we can get. That's almost an impossibility. The Benton Franklin Regional Council of Governments has only one point they would like to make. That is they are very interested in reuse, but reuse is not the right term. The right term is continued evolving use of the land where Hanford sits, because no one ever has the same

use of any occupied land anywhere. So we are hoping that it will continue to move toward non-weapons beneficial use for the benefit of the tribes, industry, and commerce. We expect reasonable levels of chemical and radiological measurements, both specifically in reference to surface and groundwater. We are looking forward to earlier elimination of point sources and hope for long term monitoring.”

Tim Takaro, University of Washington

“I want to describe some uncertainties in the model. The issues that Nanci and many others have raised on whether or not we leave things in place or not have everything to do with how you define the various parameters in your models. This is the Columbia River, and this is a fictitious crib, this is a cartoon, and does not get into the details too much. The cleanup standard that is being used is 15 feet of soil removal replaced with clean soil, by and large, except where a point source below 15 feet or a source below 15 feet can be shown to contaminate groundwater at 100 times the Clean Water Act standards. So some of the uncertainties in dealing with this approach are what is the source term? and Where is it going to go? The next thousand years is the only horizon discussed by the risk assessors at this stage. That uncertainty has to do with the porosity of the soil. It has to do with drivers in terms of predicting climate and what is going to move. These contaminants through the soil and then things you cannot predict, such as When does the river change? How does that erosion occur? and What is really going to be there in a thousand years after you have removed the first 15 feet of soil? My point is simply that we don't know, and we are making predictions about this and spending a lot of money. If we do only have one shot, and I'm sure James Owendoff is not going to be around for a thousand years, but there will be other Owendoff, so I would suggest that it will be only a one shot deal. Whether or not its this instance or another one does not really matter, so that as we are trying to apply RESRAD, for example, we must consider that we are almost certain to be wrong on many, many occasions. There are hundreds of waste sites identified, and presumably hundreds that are not yet identified. That uncertainty alone should cause us to be very careful when we take our one shot.”

Margery Swint, Benton Franklin Public Health

“The medical community in the Tri-Cities has followed workers and the peer reviewed studies of nuclear workers since the 1940's. They raise their families and retire there without concern. Nuclear workers have been more closely studied than any other worker group. They have no unique health problems. Even those with internal depositions of 50-year durations die from the same diseases as the general population - only usually live longer. I would urge you to only believe studies that have been published in journals such as the New England Journal of Medicine, Epidemiology, Health Physics Journals, and publications with comparable reputation. Newspapers are not scientific journals, nor are they peer reviewed. Washington State epidemiology studies have also shown Tri-Cities area counties to have lower incidence of disease than other areas of the state and nation. These studies are available if you are interested from the State Department of Epidemiology. In 1942 to 1945, it took three years to build the first reactor and the bomb without regulators, public input, and DOE. The effort was only to last a few years. The

Cold War expanded to 1990, an additional 45 years. I estimate that 33 public interest groups, 25 contractors, 14 regulators at a minimum will take 120 years to clean it up and at the end an august group will sit around and criticize us and wonder what we were thinking. I do have faith that with minimal interference the job will get done. Perfectly? Not possible. New technology, unforeseen problems will change whatever course we chart. So we shouldn't become too possessive of a certain course. In 120 years I'm sure they will spend 50 times \$5 trillion, spent many times over to clean up the national waste from the Manhattan project and Cold War legacy. There have been beneficial results from the nuclear age. Nothing is all bad or all good, so we take them both and do the best we can reasonably. The government is responsible, and its wheels grind slowly. River protection is of paramount concern. But we do have more than one chance. And we'll be working this a very long time."

Todd Martin, Washington League of Women Voters

"I want to talk about the Board's ability to defend the good work that's been done in the 100 Areas, and it gets to the one part of the workshops that I'm not happy with. I've learned a lot in the last two days, but there's one part that's fallen far short for me. And that was the risk discussion. I currently do not understand, not even close, how risk has been calculated in making in these decisions. I was only confused by the presentations that were made yesterday. Some of the issues brought up by Gordon, Gerry, and the agencies, I never got a satisfactory answer. That said, I see that all models are wrong, but they can be useful tools. I have no way of determining whether the decisions made here were based on reasonable science and reasonable assumptions. Not whether I think they're perfect, but whether I think that's about right. I can't do that, and because of this, I think the Board is going to have a difficult time explaining the success to a broader constituency. Until we can explain exactly how we determine risk and what the assumptions were that were built in, it is difficult for us to talk as one voice, and if we don't talk as one voice, we don't help the public. My request is that, I don't know if it is a white paper, or the hiring of someone who can clearly communicate risk, I'm not convinced that anyone in the room really understands all aspects of what we've been talking about, primarily MTCA. I need some clarification to move on with this issue. The other two issues are one, we have in the past talked about an aggressive groundwater strategy. I don't think that has ever been implemented with the intent that the Board had when the recommendations were made. Two, the impacts of contamination left in place and at depth. I need to be sure that when we revegetate at the end that there is not the possibility that we have made a mistake, and we need to go back in. If there is one place for deliberation, it is understanding the impacts of what we leave in place."

Nanci Peters, Yakama Nation

"I want to state that the Yakama Nation is neither pro- or anti-nuclear. Again our goal is to protect the tribal sovereignty rights, people, health, values and cultural resources so they may choose a traditional way of life. It is my job to restore, protect, and enhance the environmental quality so their subsistence rights and wellness can be regained and enable

them to safely exercise treaty reserved rights in a clean, intact, and functioning ecosystem landscape.”

Ken Bracken, Benton County

“What I am about to say does not represent Benton County. I have learned tremendously from this presentation, but I leave with a troubled mind in the sense of the standards to which it is being cleaned. I don’t know what is right, and I have to have that kind of a baseline before I can go forward and make a decision on something. I would encourage the suggestion about a white paper, or something that puts this in the context that the average citizen can understand.”

Ken Niles, Oregon Office of Energy

”I appreciate the discussion of the past day and am enthused that we are looking towards modeling Board agendas in this manner to focus dedicated time to an issue. I would like to make two points. These are my impressions from what I have heard in the last day... One is that I believe that Jim Owendoff’s letter to STGWG needs to be refuted by DOE Headquarters in some manner. I believe it will hurt DOE-RL’s ability to make a convincing case that they are supportive of cleanup to the level we are seeing and the comments made yesterday. I think it is a difficult thing for them to overcome so long as that letter remains out there. I strongly believe that we need to see and perhaps we need to prompt that with a letter of our own. We need to see a refuting of that position. It goes very strongly against values and positions that have been stated for many years by the major Hanford stakeholders. I am still disturbed by that letter even though it is nine or ten months old. The other comment I’ll make is that I was stuck by the lack of focus on groundwater remediation. It was raised several times by several different people, but there was not much focus or discussion about it. Given the problems that exist with the groundwater, the concern about the future, the vadose zone and the 200 Areas possibly working its way down to the 100 Areas, I think we need to refocus our thoughts a bit towards trying to encourage and influence more priority toward groundwater remediation.”

Shelley Cimon, Oregon Hanford Waste Board

“Two things. Groundwater is a big one. We’ve got to address it. We didn’t deal with risk in this workshop. There are a number of reasons we didn’t. We need a product from the Groundwater/Vadose Zone Integration Project. I’ve been to the systems assessment capability meetings. When you start talking about risk and talking about bounding uncertainty, my eyes glaze over. I’m not sure how we could have presented anything cogent to this group that would have helped us get to a product. I think that time is still down the road. Possibly we will need technical support in the future, and I’d like to keep that avenue open.”

Dick Belsey, Physicians for Social Responsibility

“The risk-cost analysis is a muddle. The Midas man has it right, you pay me now or you pay me later. The question with these kind of things is whose health? and whose cost? and whose benefit? It’s very easy to think it’s easier to do it tomorrow than yesterday. We know the risk changes to more complex, more costly if you look at the real life cycle projections. We need better tools to get the risk analysis done and their consequent costs. It’s been a political process, and I think the National Research Council has tried to come up with tools to help us. It’s defied them. It’s defied the best people in government, and you have to ask why. It’s because they don’t want to realize and don’t want to spend that kind of money now. If there is burden, it needs to be addressed and we need better tools to address it and define the populations and the morbidity versus cost under a variety of scenarios - the widest kinds of scenarios to inform us or allow us to do informed decision making.”

James Cochran, Washington State University

“Many have spoken about the groundwater issue. I couldn’t agree more. That deserves some very aggressive effort on the part of the contractors from a strategy standpoint and from an actual cleanup point of view. Our knowledge about risk is minimal or cloudy or non-existent, depending on where you are. The technologies that are being utilized. How many times did we hear yesterday about 'dirty, dirty, dirty - clean'?. You got the feeling that these were big pieces of equipment, not sophisticated technologies, and I think the timing is going to work in our favor. As time goes on, we will know more. And there will be additional technologies that will be available to mitigate those risks about which we have little knowledge. So I think our work is going to extend for a long time, utilizing current technologies, improving our understanding our knowledge of the risk arena, and waiting for and aggressively pursuing development of new technologies to enable us to move ahead. While doing this we need real attention to our stewardship obligations, relative to the whole river corridor. I hope that will be a subject of further discussion at a later HAB meeting.”

Stan Stave, City of West Richland

“The biggest concern we have on the whole cleanup is dollars and getting the funding to do it. I think regarding the 100 Area the successes that we have had out there ought to be used effectively in talking to people back in Washington, D.C. I was impressed in working with infrastructure and things like that. I was very impressed with the two pictures of the 100 Area back in 1989 and what it looks like now. These can be effective tools in letting people who are making decisions on money that things are happening out here. I like the action. I like seeing things move ahead. I am troubled too by the fact of not knowing what the end of the race is and what a victory is. There seems to be varying degrees of what is good and what is not enough. This has to be clarified. You have to know what is going to be considered opinion of all the consensus that this is enough. One thought that I heard was that five years ago we didn’t know what we know now. Well, what do we know now, and is it enough?”

Dave Watrous, Tri-Cities Industrial Development Council

"I'm not speaking for TRIDEC. First I think the most important thing that came out of yesterday's presentations was Mike Wilson's comment of "Dirty, dirty , dirty - Clean." And that leads me to saying that there are present standards that typically end up with background levels of radiation at the bottom of the trench as being adequate for now and for the future which means also that this is most likely going to be a one time effort in the huge majority of the sites. There is always going to be ones where there is a massive amount under a crib that probably should be handled differently, which is where technology needs to come into play. Groundwater has not been treated as well in this session as it should have been, and it needs our attention into the future. One of the things that has not been touched upon is capping, and from my standpoint - never - that's absolutely the wrong thing to do, particularly in the 100 Area and also along the River in the 300 Area. Don't allow the approach from the Inspector General's report to happen here. The technology development is critical to our future as we go along in this cleanup process. I am opposing stricter standards on cleanup, primarily because it is not cost effective and that as we go along, we will find that the brochure handed out by the public interest network on the radiation effects on cancer is probably totally in error. And we will find that as we go along that low level stress by irradiation is probably going to be one of the most interesting developments in cancer prevention. Not cancer development. And so with the healthy worker syndrome and Professor Cohen from Pittsburgh and his comments on radon, I believe that our future knowledge will establish that today's radiation risk analysis have been wrong, and we will have a new venture in the future."

Robin Klein, Hanford Action of Oregon

"I am also concerned with our modeling and risk assessment. I think it's always going to be flawed. I think there's always going to be difficulties with it. It's inherent that model's are limited. I want to emphasize that we really need to take real samples to validate any model. And that real sampling should be comprehensive in the sense that we are looking everywhere we need to be, and its been demonstrated over and over again that we often aren't and are surprised later. I really want to encourage a comprehensive sampling plan, as well as verification methods. How do we know that we have gotten to where we need to be at the end point? When we get there, will we know if there's not a plan for reporting that back? I'm concerned about the EPA's working toward maximum reasonable exposures, using that as a consideration because maximum reasonable exposure relies on some assessment as opposed to choosing the most conservative, most prudent approach. If it really is just another shovel of dirt, let's make that extra shovel, and I realize everything can't be reduced to that in all areas. For that reason we need to emphasize the technology development. I'd like to go a step beyond and say instead of nit picking apart risk assessment models, I'd like to see this Board embrace a notion of promoting the site as a supermodel cleanup site, not to the minimum standards of 15 millirem. I'm encouraging the Board to go way beyond that and recognize this as a supermodel site. One other concern on the risk assessment that came out of the workshop - earth movement, for example, was never taken into consideration. All of these models

will go haywire if there is an earthquake or some kind of earth shift, which we can expect over these kinds of time frames.”

Norma Jean Germond, Public At Large

“I really appreciated the presentations of the tribal representatives today, and I think that was extremely valuable. Yesterday on the risk assessment stuff, I don’t feel comfortable with final numbers of what is clean, and how clean is that going to be if you are determining that with risk, because that changes. I am not comfortable about cleanup of the 100 Area using risk alone. I think we have a lot more to do on groundwater and vadose zone. We need to do a lot more on that in the future and have greater discussion on that. On Owendoff’s letter, I think we should respond to that and make it clear that we are not happy with that at all. I’m nervous about institutional controls. They’ve always bothered me, and it leads me to think about the one shot Charlie deal. We’ll do it once and walk away, and I feel we need to hold DOE responsible for this 560 square miles, and I think we have to hold DOE totally accountable before we let them walk away - everyone has to be satisfied. The tribal nations have to be satisfied. The cities and counties, and the people who live here need to be satisfied. I don’t see a total end state quickly. So that leads me to the issue of stewardship. We know we are going to be doing more of that in the future. So that is where I’m at on this last meeting.”

Madeleine Brown, Non Union, Non Management Employees

“I think I’ll echo sentiments heard already. The stewardship is one piece of homework we’re looking towards doing our work in. I think Todd gave us a clean sound bite that should be underneath HAB letterhead as an advice kernel and that is we must understand the impacts of what we leave in place. I’m a little confused about something Dennis said yesterday about the sentence that caused the Owendoff mess with the IG report. If Dennis has the ability to unravel this, please do it. On a wider sense, if regulators can refute the Owendoff one shot deal thing from a regulatory perspective, we should ask them to do that, and would also concur with ensuring that HQ refutes the Owendoff one shot deal. I’m a little leery about delving into risk, because it means so many things to so many different people. I’m not sure if we could get through it successfully. I have previously felt some discomfort over entreaties for having the Board be an amplifier for natural resource trustee concerns. In the ER committee this happens often, and I felt a little discomfort about it. I understand the NRTC more clearly now and agree and support it much, much more, and I’m glad about that. I’d like to remind the Board that we represent other values, and when Nanci remarked that your cleanup levels are not enough, this Board also needs to be sure that we aren’t hurting workers as we take out the very last piece of injury. One other thing on specific issues for the HAB to take up, in the area of technology development, there is a milestone in FY02 for which the budget planning is just getting underway now. So now is the time to think about the milestone due in FY02 for the competitive procurement initiative to take a reactor down to slab. I think we need to understand that more clearly and hold DOE and the regulators to uphold those milestones. There’s some technology in there. Tom Ferns just mentioned that the informal, casual ad hoc public use north of Vernita Bridge, should give us all concern for

the protection of the cultural resources and perhaps we should get on with getting that area protected from a cultural resource point perspective and be sure that the river users have a safer and more responsible way to get their boats out of the river.”

Gary Miller, City of Kennewick

“Risk is key to all aspects of the cleanup. Risk determines the level of cleanup. It’s the risk analysis that determines the amount of money that people are going to get, and I see from discussion that risk is on everybody’s mind. Hardly anybody understands it. Since it’s key, and since we don’t understand it, it seems like the Board should do something about it. Maybe its time to bring in a really good presenter that can make us understand it. I’d propose that the Board work to become more educated along that line. “

Al Conklin, Washington State Department of Health

“One day would not be enough to talk about risk. Risk is a big deal. How clean is clean - soil groundwater, etc. Risk assessment, risk communication is extremely complicated and extremely controversial. We can argue all day about what risk means, what those risk numbers are based on, what the models are that it was based on, and we would not reach agreement, no matter how long we discussed it. But I do agree that there needs to be better understanding on where those numbers came from. The only sure thing about risk is that we know more today than we did yesterday, and tomorrow we’ll know more than we knew today. When we finally know enough, who knows. I’m not sure when we’re going to be there. They are based on imperfect models that are often used because data is often too expensive or complicated to obtain. So models are often used, but models are inherently flawed as well, so there are problems associated with that. The bottom line is though, whatever acceptable risk is is determined not by science, but is determined by the people that are exposed to that risk - whether they are Indian nations, whether they are communities, whether they are people fishing or whatever. Whatever the acceptable risk is going to be, ultimately somebody needs to determine what that is going to be, and there has to be a willingness to pay to reach that level. It will be expensive.”

Pam Brown, City of Richland

“I would like more information on what is going on with contamination plumes in the 100/200 Areas. I realize that was more than could be accomplished in this meeting. I would like to know where we’re at with the technologies, what’s going on with the barrier, pump and treat and so on, what’s in the development stage in terms of the technologies to capture or stop the movement of those plumes.”

J.R. Wilkinson, Confederated Tribes of the Umatilla Indian Reservation

“First thing about the Owendoff letter, the National Association of Attorney General’s are actually responding directly as representatives of the states. They’re very upset as an organization about Owendoff’s letter. So another voice in that cacophony couldn’t hurt.

We need a complete inventory of the cultural resources and natural resources in the 100 Area to include biota receptors, the other side of institutional controls in natural attenuation. We really have not heard a discussion on natural attenuation. I think we need to have a clear voice on the progress and challenges on the sites so that Congress is hearing that we are making progress, but that there are challenges relative to what we're trying to achieve here. We need to have the baseline conditions to measure that progress and that gets me back to the first point about the inventory. That hooks in to a certain degree to what Jay was saying. Finally, I think we need to have a much better handle on this issue of off-site waste. I'm very concerned about what I heard from Tom Fitzsimmons about the chits. And so I want a better understanding of what exactly he is talking about there."

Greg deBruler, Columbia River United

"One thing I've always asked myself is we always do everything based on the use of man, risk of cancer, and other risk issues. If we protect the biological receptors of the Columbia River, the ecology basically, then man would already be protected. Perhaps we are learning that we all are interrelated, and I think that's great. We've always talked about where do we go from here. We have talked about going back and having a technical workshop to get down and look at these assumptions, to try to find common ground, to try to iron these things out. I hope that comes out of this. The other piece is we've all identified is that groundwater is a big missing piece. It needs to be addressed, and when we look at our risk issues, we need to understand that groundwater is not being looked at all, so our risk numbers are all goofed up. Eco-risk is the biggest thing that I keep hammering on. In an overview, risk assessment is just a tool. We want to use that tool. If we're going to use the tool, we need to come together and agree on what this tool will look like. I hope that this 100 Area workshop is a starting point for this technical workshop that can continue. It is also a starting point for us to jump into the 300 Area sometime in the future. Hopefully the regulators and DOE can see now the issues that are of importance to the people of the Northwest representing this constituency. Cleanup is vitally important to the future generations. I believe that we will find out that the risks out there are much greater than we have imagined. As we start to understand the interrelationships of multiple contaminants and the differentiations between super-sensitive people in different populations, we will find that maybe our standards are not on track. If we take cleanup and set the bar up here, and try our best to reach that bar with the most protection, we'll be thanked by future generations. If we allow the debate to say we don't have the money or technologies, then everyone in the future will lose. We have an obligation to the future. If we do it right, we will save a lot of money because we will take the challenge and create the technologies. I believe we are not spending an enormous amount of money, and it can be managed. We will do the best job possible to save the most money. Think about the goal to clean up the 100 Area, so that when it is done, everybody is satisfied. We all sign off and say, we did the best job this generation could do at the present, and we keep continuing on."

Mike Wilson, Ecology

"I see two things right away that we can play a part in as the Department of Ecology - that is the recurring theme that we have now opened the bottle and let the risk genie out. And it now has to be dealt with. It is a very complicated issue, one part of which there needs to be a basic grounding education in how risk is determined. And then go on into a more specific discussion and process on what it means at Hanford. The focus on groundwater is also important. Those are the two issues I think you should be requesting of us."

Mike Gearheard, EPA

"I heard a number of consistent messages that are useful to the EPA project team. I heard something that struck a chord with me and that is whatever we do here, we are most certain to be wrong to some degree, from somebody's perspective, at some level of detail. I believe that from my years in Superfund programs. The issue really before us is, what do you do when you know you're going to be wrong? That's really the public policy issue. How do you respond to that uncertainty? That is an issue teed up by Bill Ruckelshouse on his second coming at EPA, and he dealt with that by constructing a risk assessment and risk management paradigm which we are now trying to implement in the Superfund program. How do you behave when you fear that you are likely to be wrong? You don't have the information you need to know you're going to be right. That's what we're all about. I'm eager to hear what kind of advice the Board has to offer in that endeavor."

Dennis Faulk, EPA

"I want to complement the Board for doing this. I'm very glad that we did it. I got to showcase some of the work that I do, and I like that. We did not talk much about the risk assessment, and we can certainly put a white paper together. I can tell you that the risk assessment that we did to get us to the 100 Area cleanup is very elementary. I helped develop it. I am not a risk assessor. In a couple of pages, we can put it down on paper, and everybody will understand it. Then on the actual cleanup, there we are in a much better situation. We have real data. We are using the observational approach. Once we've cleaned up a waste site, we have oodles of data to then make decisions. Something I didn't do real well was go into specifics on our exposure scenario. That is the bottom line. If you can buy into the assumptions of the exposure scenario - and that was the family farm - that's where all the difference in the world occurs. One other point I heard strongly around the table was that we need to start focusing on groundwater. I would highly recommend that the ER committee look at this and maybe come back with some advice in February, because we are going to be going into the 2002 budget cycle. I can tell you the numbers I've seen to date do not support doing anything but the status quo in the groundwater world. February would be a very timely occasion to influence how the 2002 budget is put together."

Beth Bilson, DOE-RL

"I appreciate the information that was learned. I also appreciate a better understanding of the values that you're articulating, and that's very important to me as well. If I could ask for one thing as you move forward and look at the groundwater, recognize that it is not a simple question. And to the extent that your advice can address the complexity of the questions, it would be more useful. Some of the basic differences are measurement of the problem versus remediation of the problem. The ability to apply a variety of technologies into remediation of the problems is another issue. You talked about having the ER committee looking into advice - I think that is a great idea. Something general is difficult for us to respond to. Something which is more specific is easier to be clear about in the response and to act on."

COMMON GROUND

Major 100 Area cleanup issues of common ground identified by Board members were:

- Questions related to use of risk assessments and the risk assessment process
- Issues regarding groundwater including the risks posed and remediation technologies used
- Unacceptability of the Owendoff letter on one-shot cleanup
- Ability to communicate risks and related decisions
- Clarification of standards used
- Better understanding of ecological risks including assessment and protection
- Groundwater including assumptions regarding "clean".

Merilyn Reeves suggested that Beth Bilson communicate the great concern of the Board regarding the Owendoff letter to DOE-RL.

BOARD BUSINESS

Update on 2000 Calendar

Merilyn Reeves announced that the Executive Committee had approved the HAB meeting calendar for 2000. The calendar for Board meetings is as follows:

- February - Tri-Cities
- March Budget Workshop – TBD
- April – Tri-Cities
- June - LaGrande, Oregon;
- September – Seattle
- November – Tri-Cities
- December – Portland.

ATTENDEES
December 2-3, 1999

HAB Members and Alternates

Dick Belsey, member	Dirk Dunning, alternate	Allen Conklin, ex officio
Ken Bracken, member	Norm Dyer, alternate	J.R. Wilkinson, ex officio
Madeleine Brown, member	Carla High Eagle, alternate	
Pam Brown, member	Doug Huston, alternate	
Shelley Cimon, member	Norma Jean Germond, alternate	
James Cochran, member	David Johnson, alternate	
Greg deBruler, member	Robin Klein, alternate	
Harold Heacock, member	Todd Martin, alternate	
Paige Knight, member	Wanda Munn, alternate	
Susan Leckband, member	Nanci Peters, alternate	
Gary Miller, member	Fred Roeck, alternate	
Ken Niles, member	Dan Simpson, alternate	
Gerry Pollet, member	Stan Stave, alternate	
Merilyn Reeves, member	Jim Trombold, alternate	
Gordon Rogers, member	Dave Watrous, alternate	
Leon Swenson, member		
Margery Swint, member		
Betty Tabbutt, member		
Tim Takaro, member		

Agency Staff and Contractors

Wade Ballard, DOE	Rick Bond, Ecology	Vern Doren, BHI
Beth Bilson, DOE	Larry Goldstein, Ecology	Moses Jaraysi, BHI
Tom Ferns, DOE	Jane Hedges, Ecology	Nancy Myers, BHI
Glen Goldberg, DOE	Doug Mosich, Ecology	Diane Adams, EnviroIssues
Karen Randolph, DOE	Max Power, Ecology	Ruth Siguenza, EnviroIssues
Owen Robertson, DOE	Ron Skinnarland, Ecology	Tara Williams, EnviroIssues
Hector Rodriguez, DOE	Wayne Soper, Ecology	Jeff Hertzal, FDH
George Sanders, DOE	Mike Wilson, Ecology	Barbara Wise, FDH
Lisa Treichel, DOE	MaryAnne Wuennecke, Ecology	Donna Sterba, Nuvotec
	Dennis Faulk, EPA	Peter Bengtson, PNNL
	Mike Gearheard, EPA	Ginger Benecke, TRI

Members of the Public

Bill Bires	Bill Griffith, CRESP-UW	Rob Davis, HIN
Maxine Hines	Michael Kern, CRESP-UW	William Kinsella, Lewis and Clark College
Jonathan Staats	Jay McConnaughey, WDFW	