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U.S. Department of Energy

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Mr. Douglas R. Sherwood
Hanford Project Manager
U.S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352

Mr. Mike A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600



Dear Messrs. Sherwood and Wilson:

COMPLETION OF THE COLUMBIA RIVER COMPREHENSIVE IMPACT ASSESSMENT (CRCIA)
HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (TRI-PARTY AGREEMENT)
INTERIM MILESTONE M-15-80-B

This letter transmits the deliverable for the subject milestone. "DOE is to provide a recommendation for follow-on work to M-15-80, primarily based on M-15-80A [completed April 30, 1997], as well as funding considerations, overall Sitewide objectives, and Tri-Party Agreement authority. This will include future milestones." The body of this letter sets forth the U.S. Department of Energy (DOE), Richland Operations Office's (RL), rationale for recommendations and the specific recommendations for follow-on work are attached.

RL extends its appreciation to the CRCIA Team and the staff members from the State of Washington Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA) for the hard work put forth in the scoping study and the development of the requirements section in the "Screening Assessment and Requirements for a Comprehensive Assessment," (DOE/RL-96-16). The CRCIA Team includes representatives from the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, the Confederated Tribes and Bands of the Yakama Indian Nation, the Hanford Advisory Board (HAB), and the State of Oregon. RL looks forward to continued participation of the team through finalization of DOE/RL-96-16. This is an unprecedented opportunity for Tribes and stakeholders to provide input to the development of a risk assessment

throughout the work process and on future activities. To assure a broad range of public input for the long-term effort, RL intends to utilize the HAB to provide stakeholder involvement in the cumulative risk assessment, consistent with Federal Advisory Committee Act (FACA) requirements. Tribal consultation will also continue to play an important role. Expert panels will be convened as necessary to assist in the resolution of technical issues.

DOE's recommendations for CRCIA follow-on work represents the culmination of much deliberation and is based on the following:

- The results of the scoping study described in DOE/RL-96-16;
- Tribal/stakeholder comments regarding content provided in DOE/RL-96-16;
- Additional inputs from the CRCIA Team and continuing interactions with regulatory staff;
- Technical Peer Review comments;
- Public comments on DOE/RL-96-16 via public meetings and letters;
- Values for work prioritization previously negotiated by RL, Ecology and EPA, consistent with HAB and Future Site Uses Working Group advice; and,
- Reconciliation of existing and projected Tri-Party Agreement required scope and schedules with the Hanford budget, consistent with the language and intent of the milestone ("DOE is to provide a recommendation for follow-on work to M-15-80, primarily based on M-15-80A, as well as funding considerations, overall Sitewide objectives, and Tri-Party Agreement authority").

RL agrees with the need to assess current and future cumulative impacts to the Columbia River from Hanford-derived contaminants. Environmental Restoration is assigned this effort as part of the Hanford Groundwater Project. The "composite analysis" presently being performed by RL in response to the recommendation of the Defense Nuclear Facility Safety Board, initiates a "rough order of magnitude" initial assessment for radionuclides. This analysis will provide the basis for investigating key areas of uncertainty and sensitivity for radionuclide transport. During FY 1998, funding is allocated to refine the predictive tools and include chemical contaminants.

DOE proposes alternatives to the technical approach, timing, priority, and management recommendation set forth in Part II of DOE/RL-96-16 (Milestone M-15-80 submittal), which was authored by Tribal and stakeholder members of the CRCIA:

APPROACH: The specific Tribal/stakeholder approach suggested in Section 1.0 of the "Requirements for a Comprehensive Assessment" from DOE/RL-96-16 requires study of concurrent multiple analysis modules, graphically portrayed in Figures 3 and 4 of that section. Applying resources across all of the modules is premature and is not efficient.

TIMING: Conceptual and numerical models for the prediction of future Hanford groundwater contaminant conditions cannot be significantly improved until more is known about existing vadose zone contaminant distribution and vadose zone transport mechanisms. The 200 Area strategy is intended to investigate the wastes sites assigned to the Environmental Restoration Project (ER). These investigations will play an important part of a cumulative impact analysis. ER is also working with the Tank Waste Remediation System (TWRS) and Waste Management (WM) to develop vadose zone investigations for non-ER facilities to assure groundwater protection consistent with the Hanford Groundwater Protection Management Plan. Until these source-term investigations are planned, implemented, and results are understood, expenditure of significant resources at this time on Modules 4 through 9, as proposed in the "Requirements for a Comprehensive Assessment" from DOE/RL-96-16, is premature. More needs to be known about existing vadose zone contaminant distribution and vadose zone transport mechanisms. This information must then be input into refined vadose zone and groundwater transport models. If such models predict transport of future contaminants to the Columbia River that exceed human health or environmental standards, then the remaining modules should be considered.

PRIORITY: RL, EPA, and Ecology must make hard choices in the balance of cleanup actions, characterization, and performing long-term future risk analyses. Generally, RL considers physical cleanup to be the highest priority, followed by characterization, with long-term risk assessment following. DOE does not support the diversion of cleanup and characterization funds to support the level of effort and funding requested by a subset of the Tribal and stakeholder members of the CRCIA Team (\$2.6M in FY 1998; \$23.8M total over a five year period; as stated in a letter to Mr. John D. Wagoner, RL Manager, from the CRCIA Management Team "CRCIA Budget," dated April 22, 1997). However, significant funding is being allocated towards a phased approach that starts with the development of predictive tools and for the collection of data necessary to perform a cumulative assessment of long-term risk.

MANAGEMENT: RL must fulfill its legal responsibilities for the management of cleanup at Hanford. RL is, however, very supportive of stakeholder and Tribal participation and will utilize the HAB for stakeholder participation, consistent with the FACA requirements concerning advisory bodies. Tribal consultation will continue based on our government to government relationship.

To provide progress toward performing an effective and efficient cumulative risk assessment, RL proposes an approach that assumes the 100 and 300 Area remediation goals of the Records of Decision (RODs) for interim action are met. These RODs are intended to assure future protection of the associated aquifer and the Columbia River. RL proposes to concentrate on the future impacts of the wastes released to the environment in the 200 Area. RL will work towards containment of existing and future 200 Area groundwater plumes within the 200 Area plateau or a reasonable buffer zone, consistent with the Hanford Groundwater Protection Management Plan. In this approach, predictive tools will be developed to determine if existing and potential future contaminants released to the environment from the 200 Areas will be transported through the vadose zone and subsequently outside of the 200 Area buffer zone via the groundwater pathway. As characterization of 200 Area proceeds, the model will be upgraded. Additional sitewide predictive work will be considered if it is shown that the 100 and 300 Area RODs do not achieve intended remedial goals and/or future groundwater contamination plumes migrate outside of the 200 Area buffer zone and could seep or upwell into the Columbia River at concentrations that exceed human health and environmental standards.

DOE believes that CRCIA follow-on work must also address information needs associated with current or near-term risks, as identified in the CRCIA Screening Assessment. To provide a better assessment of current risks (more suitable for decision purposes) and to better determine the levels of future contaminants that may result in an unacceptable risk to the Columbia River, RL also proposes to perform activities that will reduce the information gaps, uncertainties, and assumptions in the Scoping Study.

RL does not propose new Tri-Party Agreement milestones for these activities. There is a need for development of stakeholder and Tribal consensus on these actions, which may significantly impact schedules. RL prefers to work proactively with the regulators, Tribes, and stakeholders in the development of the tools as opposed to delivering RL-generated deliverables for review and comment. The attachment describes funded and unfunded activities for the remainder of FY 1997 and FY 1998, based on respective ER projected budgets of approximately \$144M and \$132M. Moving unfunded work into the FY 1997 - FY 1998 time period will require positive adjustments in the ER budget, with equivalent adjustments elsewhere through the Integrated Priority Budget review process. ER will, however, carry the unfunded work for consideration of funding through a prioritization process should cost savings in the ER baseline be achieved.

Planning documents will not carry a specific unit of analysis for the CRCIA follow-on work. However, applicable scope and funding will be identifiable within other units of analysis as applicable to a cumulative risk assessment.

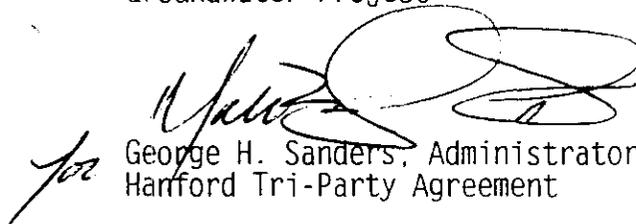
Recommendations have been informally shared with respective CRCIA Project Managers from EPA and Ecology. RL appreciates the time and effort of EPA and Ecology on the CRCIA and wish to continue the excellent working relationship with the follow-on effort. If you want to discuss this matter further or require additional information, please contact Mr. K. Michael Thompson at (509) 373-0750.

Sincerely,



K. Michael Thompson, Senior Project Manager
Groundwater Project

GWP:KMT



George H. Sanders, Administrator
Hanford Tri-Party Agreement

Attachment

cc w/attach:
R. Dirkes, PNNL
L. Gadbois, EPA
D. Holland, Ecology
A. Knepp, BHI
R. Morrison, FDH
R. Pat, Oregon DOE
M. Reeves, HAB

RECOMMENDATIONS FOR FOLLOW-ON WORK,
COLUMBIA RIVER COMPREHENSIVE IMPACT ASSESSMENT (CRCIA)
IN FULFILLMENT OF HANFORD FEDERAL FACILITY AGREEMENT
AND CONSENT ORDER (TRI-PARTY AGREEMENT) MILESTONE M-15-80B

Activities funded in the FY 1997 - FY 1998 Period. (Assumes FY 1997 Environmental Restoration (ER) budget of \$132M and FY 1998 ER budget of \$135M)

- Development of groundwater modeling tools for cumulative risk assessments. Funded at \$642K in FY 1997 and \$670K in FY 1998.
Relevance: This effort provides a numerical model for contaminant transport through the vadose zone and groundwater to the Columbia River. This effort is a continuation of the activity initiated in response to Defense Nuclear Facility Safety Board Finding 94-2 and will be modified to better determine 200 Area groundwater performance..
- Near-river piezometer installation in areas of known groundwater contamination. Funded at \$300K in FY 1997.
Relevance: This effort provides for the installation of piezometer tubes (monitoring wells) on the Columbia River shoreline to determine groundwater contaminant concentration and flow in areas where such plumes are suspected to upwell or seep into the river.
- Salmon chromium toxicity studies (injury determination). Funded at \$120K in FY 1997 and \$90K in FY 1998.
Relevance: This effort is intended to determine the measurable effects of chromium contaminated Hanford-specific groundwater on native salmon. Toxicity of chromium is influenced by the chemistry of the water and by salmon species. This is also the first step in a Natural Resource Damage Assessment injury determination.
- Hanford groundwater monitoring. Funded at \$9M in FY 1997 and \$10.8M in FY 1998.
Relevance: This effort provides the baseline groundwater flow and contaminant distribution for prediction of future models.

Activities presently unfunded in the FY 1997 - FY 1998 Period. (Assumes FY 1997 ER budget of \$132M and FY 1998 ER budget of \$135M)

Activities to address potential elevated risks identified as a result of the Phase I Screening Assessment. This task will follow-up on those location/contaminant/media combinations that were identified in the Screening Assessment as having a significant potential risk. Factors contributing to the elevated potential risks will be determined. Direction will be provided for the design of follow-on investigations to resolve uncertainties and improve the accuracy of the Screening Assessment results.

Relevance: The Screening Assessment conducted in Phase I of the CRCIA identified elevated potential risks to humans and ecological receptors that warrant clarification and/or further investigation. In many cases, these potential risks were driven by the use of surrogate and/or extrapolated data or assumptions made in the conduct of the Screening Assessment. A clear understanding of the drivers of the potential risks identified in the Screening Assessment is required to focus follow-on investigations and to make responsible waste clean up decisions.

Groundwater/pore water quality and distribution. Determine the nature of and extent of contamination in groundwater in the Hanford Site unconfined aquifer at locations proximal to the Columbia River. Monitoring methods include use of aquifer sampling tubes at the low water shoreline; river substrate pore water sampling tubes; near-river wells; and riverbank seepage. Geographic coverage extends from the 100-B/C Area to the Hanford townsite, with emphasis on shoreline segments where contaminant plumes are known to be present. Mapping methods include use of existing river bathymetric data; surveys using river bottom contacting electrical conductance probes; and direct field observations.

Relevance: Observational data from near the groundwater/river interface, where sensitive habitat may be exposed to contamination, will reduce uncertainty in estimating representative concentrations for risk assessments involving human and ecological exposure scenarios. Expanded shoreline coverage provided by newly installed aquifer sampling tubes (FY 1997) will reduce uncertainty associated with the segmentation scheme. New data will enhance technical baseline for meeting requirements contained in Part II: A4.0-1 through -4.

Chemical form and Bio-availability of selected metals that affect toxicity. This task consists of sampling water, sediments, and/or soil to determine the chemical form and Bio-availability of metals to more precisely determine their toxicity and more accurately assess the potential risk associated with their presence in the environment.

Relevance: For some metals, the chemical form greatly affects its Bio-availability and hence its toxicity in humans and in the environment. Knowledge of the chemical form and Bio-availability of metals, such as mercury, cadmium, lead, and zinc in the environment will clarify and reduce the uncertainty in the results of the screening assessment. In addition, this information will avoid the necessity of making overly conservative assumptions in future risk assessment activities and in determining cleanup levels.