



Confederated Tribes and Bands  
of the Yakima Indian Nation

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Established by the  
Treaty of June 9, 1855

November 7, 1994

Mr. John Wagoner, Manager  
Richland Operations Office  
Department of Energy  
P.O. Box 550 A7-50  
Richland, WA 99352

Subject: HANFORD SITE RISK ASSESSMENT METHODOLOGY (HSRAM), REVISION 3; COMMENTS ON--REQUEST FOR ACTION TO ASSURE EARLY PARTICIPATION IN SYSTEMS ENGINEERING EFFORTS TO PREPARE DESIGN PROCEDURES AND CONCEPTUAL DESIGNS--

Dear Mr. Wagoner:

DOE/RL letter of September 23, 1994 (94-EOD-019), requested comments on the subject risk assessment methodology. We note that this is the first request for comment by the Yakama Nation on this document, which has been in preparation for several years. It is unfortunate that our in-put has only been requested at this late stage in its development. Early consultation could have provided a document at this stage that we agree with; however, this is not the case. As a result it would appear that significant modification of the document is necessary to resolve our comments. We request that future efforts to prepare significant design procedures, such as the subject risk assessment, be accomplished with our integral participation and concurrence in the results. Such early participation is warranted for any significant Hanford design activity in which conceptual system designs and analytic scenarios are being developed to resolve waste management objectives or to accomplish environmental restoration that affect Yakama Nation laws, rights and cultural values.

1. The scope of the subject assessment properly includes the risk associated with human health and the risk to biological species occupying or potentially occupying contaminated areas now or in the future. However, risks to physical conditions at Hanford associated with religious and or cultural practices and beliefs are not addressed. The risks to these values should be properly assessed and alternative actions for remediation weighed (based on the risk assessment) to avoid or minimize risk to the maintenance of or establishment of pertinent physical conditions.

For example, in Yakama Nation ER/WM letter of October 12, 1994 we addressed concerns with the use of a sheet metal piling barrier to accomplish remediation of ground water at the N-Springs location,

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because of the disruption of ancestral burial grounds and disturbance of bodies. We noted that the use of minimally disruptive technology, for example, freeze barrier technology, should be utilized at that location to accomplish ground water remediation.

The subject risk assessment should provide methods for assessing the risk to ancestral burial grounds and to assure consideration of minimally disruptive remediation technologies. In addition the methodology should identify the requirement that best available technology for minimizing mechanical and chemical degradation of grave sites and bodies shall be implemented. This requirement should be incorporated in the appropriate system engineering requirement documents.

We are available to participate in the development of the appropriate scenarios and metrics associated with the cultural/religious values to be considered.

2. The risk assessment does not consider the effects on mutagenic rates of chemical and radiological exposure of human and animal germ cells to contaminants. In particular the effects of organic-bound tritium and carbon-14 should be assessed and the risk of mutations, modifying future generations, estimated. Of particular concern is the mutagenic effect on humans of consumption of groundwater contaminated with tritium and the consumption of foods containing tritiated proteins, grown with tritiated irrigation water. In addition mutations in fish consuming tritiated water and food during the generation of germ cells is a related ecological concern.

3. The estimation of risk of lost use of natural resources associated with remediation actions should be made part of the subject methodology. Considering the need to address the wholeness of the natural resources in any remediation effort, risk evaluations involving human health should necessarily be closely coordinated with natural resource residual injury/remediation evaluations. Thus, the subject risk assessment methodology should be submitted to the Hanford natural resource trustees established by CERCLA for approval.

4. Risk models developed previously for Hanford have failed to scientifically address the unique hazardous chemical and radioactive exposure pathways to Native Americans. In addition, such models must account for the unique risk factors from exposure to toxic materials which are specific to Native Americans. Risk methodology, databases, quality assurance information, and models must be made available to the Yakama Nation government during the entire risk evaluation process. Such a "transparent" process is

necessary for independent review by the Yakama government, and is necessary to establish credibility for any risk estimates.

5. Other detailed comments on the subject risk assessment are contained in the Attachment to this letter. We will continue to review the details and forward comments as they are generated.

Sincerely,



Russell Jim, Manager  
Environmental Restoration/Waste Management Program  
Yakama Indian Nation

ATTACHMENT: Detailed YIN ER/WM comments on HANFORD SITE RISK ASSESSMENT METHODOLOGY (HSRAM)

cc: K. Clarke, DOE/RL  
J. E. Rasmussen, DOE/RL  
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U. S. Congressman J. Inslee  
U. S. Senator P. Murray  
DNFSB

ATTACHMENT: Detailed YIN ER/WM comments on HANFORD SITE RISK ASSESSMENT METHODOLOGY (HSRAM)

1. FISH FARM SCENARIO--Fish farming is an activity that occurs commonly throughout the United States. In many instances ground water is used in such farming activities. Scenarios evaluating potential health effects that consider the acceptability of ground water should include the pathway of exposure via the consumption of agricultural fish raised on contaminated ground water. Such farming and/or hatching operations may become more prevalent in the future as natural surface water resources decline through use or contamination. Since fish can concentrate certain contaminants, this food pathway may be more limiting than the consumption of contaminated ground water by people. Such a scenario is comparable to the scenarios that consider use of ground by cattle and the accumulation of radioisotopes in milk or meat.

2. The consumption of fish and consideration of this scenario reflects the attention to foods characteristically favored by Indian people. In this regard consumption rates of fish for Indian people is about an order of magnitude greater than that specified in the subject methodology. Appropriate assumptions regarding the quantity of consumption of food stuffs, including the consumption of fish by Indian people should be specified in the subject methodology.