Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

April 17, 2007

Eric Blischke
Chip Humphrey
Project Managers
U.S. Environmental Protection Agency
811 SW Sixth Avenue, Third Floor
Portland, OR 97204

Re: **Yakama Nation's Submittal of Comments** *for the Portland Harbor Superfund Site Remedial Investigation / Feasibility Study Comprehensive Round 2 Site Characterization Summary & Data Gaps Analysis Report (R2 Data Report)*

Dear Chip and Eric:

On April 9, 2007, Yakama Nation submitted an initial list of data gaps specific to the Human Health Risk Assessment (HHRA) portion of the R2 Data Report. Attached are additional comments regarding assumptions, evaluations, and analyses associated with the HHRA.

If you have questions please call me at 509-865-5121 x6365 or feel free to contact Sheila Fleming (RIDOLFI Inc) at 206-682-7294.

Thank you for your consideration of our comments.

Sincerely,

Rose Longoria
Superfund Projects Manager

Yakama Nation
Department of Natural Resources
Fisheries Resource Management Program

Attachment

cc: Dana Davoli, EPA

DNR FRMP Superfund Projects/rml

MEMORANDUM

DATE: April 13, 2007

TO: Rose Longoria, Yakama Nation Fisheries

FROM: Kristin Cunningham, RIDOLFI Inc.

SUBJECT: **Additional Comments on R2 HHRA**

In addition to the list of data gaps we identified for the Human Health Risk Assessment (HHRA) portion of the Comprehensive Round 2 (R2) Site Characterization Summary and Data Gaps Analysis Report (April 9 memorandum), we are submitting additional comments regarding the Lower Willamette Group's (LWG) assumptions, evaluations, and analyses, to be considered for the Remedial Investigation / Feasibility Study (RI/FS) Baseline Risk Assessment (BLRA).

Comments Regarding Assumptions, Evaluations, and Analyses

1. **Human use areas:** The R2 HHRA states that human use areas at the site were identified based upon current and future conditions, but all assumptions appear to be based upon current site conditions only. A statement should be included in the RI/FS BLRA that if current conditions change and site uses become altered, additional risk evaluation may be required (such as evaluating beach areas that are currently restricted). This is particularly pertinent since data from certain locations were evaluated for one use (residential) while data from other locations were evaluated for another use (industrial), which may be expanded and redeveloped for other uses in the future.

2. **Exposure pathways:** Certain exposure pathways have been labeled "incomplete" or "insignificant" in the R2 HHRA and are thus removed from further evaluation. Although these designations may be appropriate for a risk assessment, the rationale must be included. It should be noted whether these determinations were made based upon earlier discussions, calculations, or agreements with the EPA. For example, a Native American fisher who may be exposed to beach sediment may also be exposed to surface water, but the latter pathway was not evaluated quantitatively because it was expected to be an "insignificant" exposure. Since an individual on a beach may indeed contact the surface water, it should be stated upon what basis the determination was made to consider it an insignificant pathway.

3. **Exposure Scenarios**: The BLRA should evaluate all potential exposure scenarios, including the diver (described in the "Proposed Diver Exposure Scenario," EPA 9/22/2006 memo) and breastfeeding scenarios. Multiple overlapping exposure scenarios should also be evaluated, as stated in the Programmatic Work Plan (PWP). The R2 HHRA only calculated cumulative risks for receptor populations exposed to multiple media associated with a single activity, but not the cumulative risks for receptor populations that might be exposed through multiple activities (for example, risk to a recreation beach user who is also a fisher).

4. **Exposure media**: The Native American scenario does not include direct exposure through ingestion or absorption of surface water (considered an "insignificant exposure"), shoreline groundwater seeps (considered an "incomplete pathway"), or transition zone water. It should be stated why these valid pathways were not quantitatively evaluated (e.g., approach agreed upon by EPA and partners?), and also included in the discussion of uncertainty.

5. **Upland sources:** The HHRA states that "potential risks associated with exposures at upland sites will be addressed by DEQ through upland investigation/evaluation activities" (R2 App F, Sec. 3.1). It should be noted in the uncertainty section that cumulative risks of uplands and river exposures would likely lead to a much higher estimation of overall risk.

6. **COPCs**: For those chemicals that were "screened out" and not evaluated quantitatively for potential risk, it should be stated that this approach was agreed upon by EPA and its partners so that it is clear that why these chemicals are eliminated from further consideration for the BLRA. Although this screening process may be valid for risk assessments to focus the list of contaminants of potential concern (COPC), it should be stated that the screening levels used are conservative and protective of all human population receptors as a rationale for not carrying those compounds forward, and if that statement is not justifiable, all compounds should be evaluated quantitatively.

7. **Surface Water:** The R2 HHRA did not use near-bottom surface water sample data when evaluating potential risks from exposure to SW because it was assumed to be "not representative of potential human exposures, which would occur mostly at the water surface and through the water column" (R2 App F, Sec. 3.4.3). This assumption should be supported with documentation that mixing does not occur within the river, including near-shore areas, in any season, including spring and fall when turn-over generally occurs in water bodies to a various depths. Otherwise, surface water data from samples collected at depth should be included in the assessment.

8. **Surface Water / Transition Zone Water Criteria:** Surface water criteria should be calculated for all chemicals detected in surface water samples using the adult Native American fish consumption rate of 175 g/d and an acceptable risk level of 10^{-6} (rather than a fish consumption rate of 17.5 g/d and a 10^{-4} risk level). Such criteria would be most conservative for screening and determining COPCs. Also, the blanket assumption that only compounds with >5% detection frequency are carried forward should include a caveat that considers limited sample size and location of detections (for all media/tissue in general). If a single detection, for example, were found at an obvious source area (based upon other media results), that compound should not be dismissed.

9. **Ground water seeps:** Previously, the LWG stated that "recreational beach users may contact groundwater seeps where groundwater discharges to recreational beaches above the water line" (Kennedy/Jenks, 2006, p.7). However, risks to recreational beach users from potential seep exposure are not evaluated in the R2 HHRA (only risks to transients). We recommend that the seep data be used to consider a complete pathway for any scenario with potential exposure to beach sediments, as well as shallow in-water sediments. It should also be noted that if conditions change in the future (see comment #1), additional seep surveys may be warranted.

10. **Shellfish Consumption:** The exposure factors identified and agreed to previously (Kennedy/Jenks, 2006) were carried forward and applied in the R2 HHRA risk calculations, including Native American fish consumption rates. However, "for shellfish, only adult non-tribal consumption was evaluated." Despite the fact that the CRITFC study indicated few tribal members consume shellfish from the Willamette river, future conditions may see an increase in the shellfish population because of a healthier river system and greater shellfish survivability and reproductive success, the availability of which, despite restrictions on harvesting, may lead to an increase in consumption of shellfish by Native American fishers. Consumption of shellfish by Native Americans should be evaluated as a potential exposure pathway in the BLRA. At that point, if the added risk is found to be insignificant, such a statement can be justified during risk management.

11. **Dermal Absorption:** Since there are very few compounds that have chemical-specific dermal absorption factors, it should be clear how such compounds were treated for the dermal absorption pathway: were they dismissed (e.g., metals) because a low to no absorption factor was assumed? If there are COPCs present, these must be evaluated for all potential exposure pathways unless a justification is provided (EPA, 2004). The use of the default screening value of 10% used for semivolatile organic compounds (SVOCs) should also be discussed further in terms of the affect on overall risk.

12. **iAOPCs:** We agree with EPA that development of initial Areas of Potential Concern (iAOPC) is only useful at the risk management stage and is not adequate for a remedial investigation. Rather than presenting a plethora of maps that show the results of data assessment after exposure point concentrations have been removed (or "hill topped"), maps should be generated in the BLRA that illustrate the areas of potential risk that were calculated for each exposure scenario. Such maps would be useful to better visualize the extent of contamination and all areas of potential risk. After that point, when risk management decisions are being made, the iAOPCS maps will be more appropriate.

References

EPA, 2004. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment), Final. Office of Emergency and Remedial Response. EPA/540/R/99/005. July.

Kennedy/Jenks. 2006. Portland Harbor RI/FS, Technical Memorandum for Human Health Risk Assessment: Exposure Point Concentration Calculation Approach and Summary of Exposure Factors. April 21.