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Confederated Tribes and Bands
of the Yakama Nation ERWM

Established by the
Treaty of June 9, 1855

August 16, 2012

Dennis Faulk, Hanford Project Manager
U.S. Environmental Protection Agency
309 Bradley Blvd., Suite 115
Richland, WA 99352

Re: Review comments on the Proposed Plan for Remediation of the 200-UP-1 Groundater Operable Unit (DOE/RL-2010-05, Revision 0) 1215619

Dear Mr. Faulk:

The U.S. Environmental Protection Agency (EPA) anticipates issuing the Record of Decision (ROD) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for the 200-UP-1 Groundwater Operable Unit (OU) this year. The Confederated Tribes and Bands of the Yakama Nation appreciate the opportunity to review and provide comments on this document.

While we applaud EPA's decision to issue the remedy for the 200-UP-1 OU as an Interim ROD, our concerns, for the most part, remain outstanding. The attached comments summarize our significant concerns. We have also attached copies of supporting documents on these same topics. We look forward to discussing our concerns regarding current cleanup plans for Hanford with you further.

Sincerely,

Russell Jim
Yakama Nation ERWM Program Manager
cc:
Jane Hedges, Washington State Department of Ecology
Jonathan A Dowell, Assistant Manager for the Central Plateau, US Department of Energy
Ken Niles, Oregon Department of Energy
Stuart Harris, CTUIR
Gab Bohnee, Nez Perce
Wade Riggsbee
Administrative Record

Attachments:

200-UP-1

Attachment 1: Yakama Nation Comments on: DOE/RL-2010-05 Revision 0, *Proposed Plan for Remediation of the 200-UP-1 Groundwater Operable Unit,* July 2012

General:

The Preferred Alternative – Alternative 3 – relies heavily on several assumptions, hydraulic containment and monitored natural attenuation (MNA) being foremost. Somewhat simplistic statements are made to reassure the public that through the reinjection of *treated* water near the margins or down-gradient of the plume, a hydraulic condition will occur to prevent further outward spread of I-129 contamination. What is not acknowledged is that reinjection will be of water containing the very contamination (I-129) you are trying to prevent and that the geological stratigraphy underlying the plumes is varied. Not discussed is the issue of just how and when there is to be an evaluation of I-129 treatment technologies and from where the funding dollars for research will be procured. There is an implied future use of *a request for technical wavier* without further remedial actions.

While there is some acknowledgement of and the need for additional characterization (particularly with regards to the chromium plumes in the 200 Areas and the influence from inputs from U.S. Ecology to the east) and new well placements, there is little information within the Proposed Plan as to how these additional, yet essential to the performance of the remedy, requirements will be achieved. There is an over-reliance on the ability of the 200-ZP-1 OU systems to capture and treat the contaminants of concern for the 200-UP-1. The design of the 200-ZP-1 facility is not robust enough to guarantee the treatment of chromium (total or hexavalent). Far-field well area contamination (chromium to the south and nitrate to the north) will not have a complete remedy. How will the remedy for groundwater meet the goal without addressing future impacts from sources in the vadose zone? Relying solely on a system (anaerobic and aerobic biodegradation) that has not been demonstrated to be a proven technology for the removal of a non-organic contaminant does not meet the CERCLA remedy requirements to remediate all contaminant concerns. Instead of reliance on unknown future technologies, we suggest utilization of the successful ion-exchange resin that has been developed and evolved into the treatment used now on the River Corridor for capture of chromium and strong base resins like Dowex 1 and Purolite A909 as ion exchange media for removing I-129.

We remain very concerned that there has not been an ecological risk assessment performed when risk from the Central Plateau groundwater plumes is clearly identified in the 300 Area ROD documents. It is unclear why Remedial Action Objective (RAO) #3 of the Draft Proposed Plan, where DOE acknowledges the need to protect the Columbia River and its ecological resources from degradation and unacceptable impact caused by contaminants migrating from 200-UP-1, has been removed from the Final Proposed Plan. Protecting the Columbia River is a critical goal for the cleanup of Hanford and should be included. Furthermore, we do not support use of the 90th percentile concentration values in determining Exposure Point Concentration values. The approach used to calculate Exposure Point Concentrations (EPCs) is a deviation from CERCLA risk assessment guidance and will be precedent setting. The way the EPCs have been calculated has also resulted in elimination of COCs.[1] We also request DOE revise risk values dependent upon the YN Exposure Scenario.

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[1] OSWER 9285.6-10, *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*, states that, "an exposure point concentration (EPC) is a conservative estimate of the average chemical concentration in an exposure medium." OSWER Publication 9285.7-081, *Supplemental Guidance to RAGS: Calculating the Concentration Term,* states that, "because of the uncertainty associated with estimating the true average concentration at a site, the 95 percent upper confidence limit (UCL) of the arithmetic mean should be used for this variable."

We are concerned that while Ecology has concluded that the *proposed approach for treatment and monitoring complies with the Applicable or Relevant and Appropriate Requirements (ARARs) of MTCA (WAC 173-340),* the active phase of treatment extends for only a short period of time with reliance on use of institutional controls (ICs) and monitored natural attenuation (MNA) for nearly a hundred years. We remain very concerned that our Treaty Rights will be infringed upon with the needed extensive remediation of the groundwater as there will be continued effects and potential new contaminants of concern (COCs) from the Tank Farms not considered in this Proposed Plan. We are concerned that any remedy reviews will not include actual sampling actions or technological systems review to confirm performance.

Attachment 2: August 7, 2012 letter to Dennis Faulk, EPA, from Philip Rigdon, YN

Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

August 7, 2012

Mr. Dennis McLerran, Regional Administrator
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Dear Mr. McLerran:

I am writing to address some extremely important issues regarding the forthcoming Final Records of Decision for the Hanford Site, specifically regarding EPA's legal authority to issue the RODs under the current circumstances as we know them. The Yakama Nation believes, following review of existing documents, that proposed remedial actions in the Final RODs may not be consistent with federal statutes and regulations. These include not only CERCLA and RCRA, but also the Atomic Energy Act (AEA), the Nuclear Waste Policy Act (NWPA), the National Historic Preservation Act (NHPA), and the Treaty with the Yakamas.

I have attached to this letter the Yakama Nation's positions and comments on these issues, and requests for additional information. These questions must be resolved before EPA issues any additional Final RODs for the Hanford Site. I understand that you have arranged a meeting with Russell Jim to discuss these issues next week. In the meantime, if you have any questions, I may be contacted at (509) 865-5121, ext. 4655.

Sincerely,

Andrea J Spencer

Philip Rigdon, Deputy Director
Department of Natural Resources

Attachment

cc: Warren Spencer, Chairman, RHW Committee
Vivian Babs George, Secretary-RHW Committee
Sam Jim, Sr., Member-RHW Committee
Stella Washines, Member-RHW Committee
Phil Rigdon, Deputy Director-YN Dept. of Natural Resources

SEE ADDITIONAL LIST NEXT PAGE

MAILING LIST-YN DOC 8/7/2012 TO D. MCLERRAN-EPA

The Honorable Patty Murray, 448 Russell Senate Office Building/Washington, D.C. 20510

The Honorable Maria Cantwell, 311 Hart Senate Office Building/Washington, DC 20510

The Honorable Doc Hastings, 1203 Longworth/House Office Building/Washington, DC 20515

Matthew S. McCormick, Manager-DOE Richland Operations Office

David Huizenga, Senior Advisor for Environmental Management

Tracy Mustin, Principal Deputy Assistant Secretary, Office of Environmental Management

Dennis A. Faulk, Program Manager, Hanford Office US Environmental Protection Agency

Ted Sturdevant, Director WA State Department of Ecology

Jane Hedges, Program Manager-Nuclear Waste Program, WA State Department of Ecology

Michael James Zevenbergen, U.S Attorney's Office, Seattle, WA

Andy Fitz, Senior Counsel, Washington Office of the Attorney General (NRD litigation)

Stephanie Parent, Attorney-Oregon (NRD litigation)

J.D. Williams, Attorney-Umatilla (NRD litigation)

David Cummings, Attorney-Nez Perce (NRDA litigation)

Ken Niles, Division Administrator, Oregon Department of Energy

Susan Leckband, Chair-Hanford Advisory Board

Allison M. Macfarlane, Chair-U.S. Nuclear Regulatory Commission

Administrative Record

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SECTION 1

United States of America – Yakama Nation Treaty of 1855
12 Stat. 951
Comprehensive Environmental Response, Compensation and Liability Act of 1980
42 U.S.C. § 9601 et. seq.

Article III of the Treaty with the Yakamas of June 9, 1855, states in part:

> The exclusive right of taking fish in all the streams, where running through or bordering said reservation, is further secured to said confederated tribes and bands of Indians, as also the right of taking fish at all usual and accustomed places, in common with citizens of the Territory, and of erecting temporary buildings for curing them; together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle on open and unclaimed land.

Exercise of such Treaty rights are not conceptual, but involve activities which are resource intensive and which involve specific and unique risks to enrolled Yakama tribal members. A legal analysis by the Yakama Nation of its Treaty rights at Hanford is attached. (See Appendix A). Protection of tribal members while exercising those rights is a threshold matter for EPA in assessing risks and developing cleanup plans. The CERCLA mandate to ensure protectiveness of human health cannot be achieved without addressing the specific and unique risks to Yakama tribal members.

The unique exposure pathways for tribal members must be addressed in plans for remedial investigation and feasibility studies, and protectiveness must be demonstrated for a reasonable tribal risk scenario. Such protectiveness must be described explicitly and in sufficient detail in documents which support each Record of Decision.

The following actions (or omissions) by EPA have negated the potential for assuring protection of tribal members in any forthcoming Record of Decision (ROD):

1. EPA failed to consider Treaty rights as a threshold matter during development of remedial investigations/feasibility studies (RI/FS) and proposed plans for Hanford. Information collected and alternatives considered did not take into account Treaty usage. Consequently, RODs will be lacking information required to demonstrate protectiveness and compliance.

2. EPA did not evaluate the unique risks to Yakama tribal members during exercise of Treaty rights at Hanford (specific contaminants, pathways, diet, and lifestyle). Consequently, RODs will be lacking information needed to demonstrate protectiveness and compliance.

3. EPA did not evaluate the impacts of institutional controls relative to Treaty rights. EPA did not specify the duration such institutional controls may be in place.

4. EPA did not fulfill its Federal trust responsibility to protect Yakama Treaty resources, including cultural resources, which directly affects the health and well-being of Yakama tribal members.

EPA should not issue Records of Decision for the Hanford Site until each of these matters is resolved to mutual satisfaction between EPA and the Yakama Nation.

RI/FS Characterization

The Remedial Investigations have not adequately characterized Hanford contamination. Significant portions of the site and most yet-to-be remediated waste areas have not been characterized. Relevant guidance specifies that "The final objective of the field investigations is to characterize the nature and extent of contamination such that informed decisions can be made as to the level of risk presented by the site and the appropriate type(s) of remedial response."[1] EPA should not develop RODs without adequate characterization of the site.

Risk Assessment

Baseline risk assessments provide an evaluation of the potential threat to human health and the environment in the absence of any remedial action.[2] However, a comprehensive baseline risk assessment has not been performed for Hanford.

The risk assessments for the Hanford Site assume anticipated land use and institutional controls. However, "Baseline risks are risks that might exist if no remediation or institutional controls were applied at a site"[3] and "The cumulative site baseline risk should include all media that the reasonable maximum exposure scenario indicates are appropriate to combine and should not assume that institutional controls or fences will account for risk reduction."[4] The baseline risk assessment should not rely on land use restrictions or institutional controls.

Unique exposures and pathways to Yakama Nation should be, but were not fully considered in development of the risk assessments. "Actions at Superfund sites should be based on an estimate of the reasonable maximum exposure (RME) expected to occur under both current and future land-use conditions. ... RMEs are estimated for individual pathways. If a population is exposed via more than one pathway, the combination of exposures across pathways also must represent an RME."[5] Tribal exposure pathways, including consumption of water, animals and plants as provided in the Yakama Nation exposure scenario, should be included in the assessment of risk.

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1 U.S. Environmental Protection Agency, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, October 1988, Document No. PB89-184626, EPA/540/G-89/004.
2 See footnote 1.
3 U.S. Environmental Protection Agency. Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A), December 1989. Document No, EPA/540/1-89/002.
4 U.S. Environmental Protection Agency, Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions, OSWER Directive 9355.0-30. April 22, 1991.
5 U.S. Environmental Protection Agency. Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A), December 1989. Document No, EPA/540/1-89/002.page 6-4.

Risk assessment guidance states that "The risk assessment should be conducted in accordance with all appropriate guidance and policies,"[6] and "The primary purpose of the baseline risk assessment is to provide risk managers with an understanding of the actual and potential risks to human health and the environment posed by the site and any uncertainties associated with the assessment."[7] EPA should not develop RODs without a baseline risk assessment, as defined by the regulations, which accounts for Tribal pathways and exposures.

Radioactive Contamination

EPA has issued guidance entitled "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (OSWER No. 9200.4-18, August 22, 1997). This 1997 guidance provided clarification for establishing protective cleanup levels for radioactive contamination at CERCLA sites. The guidance reiterated that cleanups of radionuclides are governed by the risk range for all carcinogens established in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) when Applicable or Relevant and Appropriate Requirements (ARARs) are not available or are not sufficiently protective. Cleanup should generally achieve a level of risk within the 10^{-4} to 10^{-6} carcinogenic risk range based on the reasonable maximum exposure for an individual with a preference for cleanups achieving the more protective end of the range (i.e., the *point of departure*, 10^{-6}). In calculating cleanup levels, one should include exposures from all potential pathways, and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.). The guidance also provides a listing of radiation standards that are likely to be used as ARARs to establish cleanup levels or to conduct remedial actions.

We are concerned that DOE's 765 pCi/g cleanup level for plutonium 239-240 at the Hanford site, as specified in a recent 200 Area Record of Decision,[8] appears to be higher than the cleanup level for several other DOE sites requiring cleanup of plutonium. Given its long half-life, quantity disposed in soil (~726 kg)[9] [10], and Relative Biological Effectiveness (RBE),[11] plutonium dominates the radiotoxic risk for long-lived radionuclides at Hanford.[12] [13] [14] [15] The liquid waste disposal sites addressed in this ROD received an estimated 229 kg of plutonium.[16] Plutonium 239 has a half-life of 24,000 years and implementation of this ROD will leave significant

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6 U.S. Environmental Protection Agency, Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual (Part D, Standardized Planning Reporting, and Review of Superfund Risk Assessments, Publication 9285.7-47, December 2001

7 U.S. Environmental Protection Agency, Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions, OSWER Directive 9355.0-30, April 22, 1991

8 Record of Decision Hanford 200 Area Superfund Site: 200-CW-5 and 200-PW-1, 200-PW-3, and 200-PW-6 Operable Units, September 2011. Page 99.

9 Robert Alvarez, Plutonium Wastes from the U.S. Nuclear Weapons Complex, Science and Global Security, 19:1, 15-27, 2011.

10 U.S. Department of Energy, The United States Plutonium Balance, 1944-2009, An update of Plutonium: the First 50 years, DOE/DP-0137, February 1996, June 2012.

11 RBE for I-129, Tc-99=1, and Pu-239=20.

12 U.S. Department of Energy, Tank Waste Inventory Network System (Data base for Hanford HLW Tanks) , Best Basis Estimate 2003. (Total I-129= 47.9 Ci, Total Tc-99=28,500 Ci, Total Pu-239/240= 80,200 Ci)

13 Op Cit Ref.10, P. 20 (Total estimated plutonium waste discharged at Hanford = 229 kg = 14,427 Ci)

14 W. O. Greenhalgh, "Pre-1970 Transuranic Solid Waste at Hanford," Westinghouse Hanford Company, WHC-SD-WM-ES-325, 1995, Table 4.1, p. 4.1. (Total Pu-239/240 =371 kg =23,373 Ci)

15 Op Cit Ref. 10.p. 12 (U.S. Ecology Landfill contained 100 kg Pu-239/240 =6,300 Ci).

16 Op Cit Ref 10, Table 6. p. 20

quantities of plutonium in the ground of the 200 Area. The remedial investigation indicates that plutonium has migrated to depths over 100 feet below the ground surface at concentrations that exceed EPA's 100 nCi/g standard for geologic disposal. [17] Thus, it is unclear how protectiveness, particularly for indigenous populations who may come to the area in the future beyond the time institutional controls remain effective, can be assured.

The Secretary of Energy is required to submit a determination to the EPA Administrator that these wastes do not need the degree of isolation that is required by implementation of the disposal requirements of 40 CFR Part 191.[18] We urge the EPA to reject DOE's determination, as it is non-protective of indigenous people, and cannot be implemented without failure of institutional controls and engineered barriers.

CERCLA Remedial Alternatives

Relevant guidance specifies that "Overall protection of human health and the environment and compliance with ARARs will generally serve as threshold determinations in that they must be met by any alternative in order for it to be eligible for selection."[19]

However, the River Corridor proposed plans for cleanup assume that contaminants from the 200 area, including contaminant plumes in groundwater, will not affect the River Corridor. In addition, the cleanup plans rely on institutional controls that cannot be confidently relied on, for example, during the extended time period long-lived radionuclides will remain toxic. In the 300 Area, draft proposed plan relies on an unproven remedy, uranium sequestration, such that protectiveness cannot be assured.

EPA should not develop RODs prior to completion and approval of the required baseline risk assessment, remedial investigation and feasibility study documents.

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17 U.S. Department of Energy, Implementation Guide for use of DOE M 435.1-1, Chapter III, Transuranic waste requirements, July 1999.

18 Ibid.

19 U.S. Environmental Protection Agency, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, October 1988, Document No. PB89-184626, EPA/540/G-89/004, page 6-14.

SECTION 2

National Historic Preservation Act
16 U.S.C. § 470 et. seq.

The primary issue related to the National Historic Preservation Act (NHPA) is that archaeological sites in the 100 K and 300 areas have been contaminated by effluent overflows.

- Many of these waste sites have not yet been characterized.
- A cemetery is present in the 100 K area that will need characterization sampling.
- Sampling plans must be designed that are appropriate for cultural sites (of special concern is a sampling plan for the cemetery).

To be in compliance with the NHPA DOE must mitigate for any adverse effects to these cultural sites.

- The sampling itself will likely be an adverse effect to the cultural sites/cemetery.
- Any remedial activities will be an adverse effect.
- Contaminated artifacts, funerary objects and human remains encountered will need to be appropriately managed.

Consultation on these matters began with Yakama Nation (YN) on January 27, 2012 with five policy-level representatives from YN and DOE in attendance.

- At this meeting YN policymakers realized further information was needed. The nature and extent of the contamination at these sites is unknown. Decisions regarding the handling of culturally sensitive resources will need to be made, based on the types of contaminants and their concentrations.

- YN's request to DOE was to provide additional data and fill in any data gaps, and work with Tribal staff to develop a sampling plan that can be brought to Tribal Council for approval. YN requested DOE provide detail on all available methods and technologies to perform the most complete, yet the least intrusive sampling.

- Upon approval of the sampling plan, YN requested that DOE to work with Tribal staff to begin sampling in the sensitive areas. (to date a sampling plan has not been developed for presentation to Tribal Council for approval).

On February 27, 2012 another meeting was held with YN and DOE. At this meeting three policy-level YN and DOE representatives were present. Previously requested data had not been gathered, and YN policy leadership stated they would NOT be attending another meeting until the data was gathered. Policy-level leadership has not participated in a meeting since this February meeting.

- There is no ongoing government to government consultation at this time, however, there are ongoing staff to staff discussions.

Until these cultural sites are characterized the level of adverse effects (if any) they incur cannot be determined. Several questions thus remain unanswered:

- Can the cultural sites be left undisturbed, and if so will there be a subsequent risk to human health and the environment?

- If contaminants are left in place, what concentrations will be acceptable? How will the sensitive area contamination levels differ from adjacent areas as far as acceptable levels?

- What type of capping would be used if contaminants are left in place?

- What types of institutional controls could be used to keep the public (looters) out of these contaminated areas? Looting is an ongoing problem in archaeological sites, especially cemeteries.

- If contamination is left in place, exposure to individuals purposefully disturbing the ground and digging to substantial depths must be taken into consideration.

- Will the sites need to be remediated, if so can the cultural materials be replaced back in the area after remediation, or will they need to be relocated? This type of action will require participation and special attention from Tribal Council, elders, and spiritual leaders.

- Currently there is no provision for contaminated cultural material.

Any ground disturbing activity in culturally sensitive areas will constitute an adverse effect, which will require a Memorandum of Agreement (MOA) for mitigation. Adverse effects will include any sampling characterization activity.

If remediation is necessary within cultural sites, the process will be extremely complicated and sensitive, and will require yet another MOA. This MOA will include, through stipulations and mitigation, how DOE and the final ROD will be in compliance with the NHPA. The final ROD needs to reflect the needed mitigation for whatever action will need to be taken as it will effect time, cost, and possible clean up levels.

SECTION 3

Atomic Energy Act of 1954
42 U.S.C. § 2011 et. seq.
Nuclear Waste Policy Act of 1982
42 U.S.C. § 10101 et. seq.

High-Level Radioactive Waste

EPA lacks the authority to decide on matters of classification or disposal of high-level radioactive waste (HLW) as defined by the Atomic Energy Act of 1954 (AEA) and the Nuclear Waste Policy Act (NWPA) of 1982. Both statutes define HLW as follows:

> The term "high-level radioactive waste" means –
>
> (A) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and
>
> (B) other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation. [20]

HLW must be treated and stored for eventual disposal in a geologic repository. Since EPA lacks the authority to decide on matters of classification or disposal of high-level radioactive waste at the Hanford Site (see Appendix B), under the NWPA it has a statutory obligation to ensure that any waste which falls within the definition of high-level radioactive waste is properly disposed of.[21]

The Waste Acceptance Criteria (WAC) for the Environmental Remediation Disposal Facility (ERDF) at Hanford clearly prohibits disposal of high-level radioactive wastes."[22]

Any forthcoming ROD for the 300 Area must include plans for storage and disposal of any HLW. However, neither the RI/FS documents nor Proposed Plan has included disposal plans for HLW. Consequently, any forthcoming ROD for the 300 Area cannot be compliant with the NWPA until EPA identifies and evaluates disposal plans for high-level radioactive waste.

The Hanford site was explicitly excluded by Congress from falling under DOE's authority to reclassify high-level radioactive waste for onsite disposal.[23] [24]

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20 Nuclear Waste Policy Act of 1982 [42 U.S. C. 10101], Section 2(12). http://epw.senate.gov/nwpa82.pdf
21 Ibid, Section 212 (a). http://epw.senate.gov/nwpa82.pdf
22 M.A. Casbon, Environmental Restoration Disposal Facility Waste Acceptance Criteria, Rev. 2, WCH-191, October 2010, pp.14, A-1. http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0061/0084183/11-AMRC-0019_-_Letter_[1011100432]_-_1.pdf
23PUBLIC LAW 108-375, Section 3161. http://www.dod.mil/dodgc/olc/docs/PL108-375.pdf
24Aaron M. Flynn, Congressional Research Service, American Law Division, CRS Report to Congress, Radioactive Tanks Wastes: Disposal Authority in the Ronald W. Reagan National Defense Authorization Act for FY 2005, P. CRS-3. http://digital.library.unt.edu/ark:/67531/metacrs7329/m1/1/high_res_d/RS21988_2005Jun02.pdf

History of High Level Radioactive Waste Disposal in the 300 Area

According to Gerber[25]:

> As high-level radiochemical operations got underway in the 325 and 327 Buildings in 1953, solid waste burial practices for the 300 Area began to change. High radiation levels in and near Burial Ground 618-2, generated by waste from the 325 and 327 buildings concerned site monitors. On their recommendation, Burial Ground 618-10, known as "300 North" opened in 1954 about 4.3 miles northwest of the 300 Area. Until it was phased out of operation between 1962 and 1964, this burial ground consisted of trenches and rows of burial caissons known as "pie fields." ... Beginning about 1960, after waste became hotter in the 325 and 327 buildings, cardboard containers and gunk catchers [lead pans] were replaced by the milk pail disposal system. Radioactive wastes were collected in operations buildings in 5 to 6 gallon aluminum milk pails. A commercial gelatin was poured in to seal the top, and each milk pail was placed in an individual cask containing lead shielding surrounded by an aluminum shell. These casks were transported to 300 North, and after 1962, to the Wye Burial Ground where milk pails (not casks) were disposed of in the buried caissons and covered with sand and concrete. The Wye Burial Ground (also known as 618-11) was active from 1962 to 1970... The... Wye burial grounds also received 1-quart "grape juice cans" that held used, highly radioactive charcoal filters from the operations buildings.

The Proposed Plan that EPA has developed for hazardous waste located in the Hanford 300 Area includes the 618-10 and 618-11 burial grounds. In the Proposed Plan, EPA is considering the treatment, removal and disposal of nuclear waste from 618-10 and 618-11. The ROD for the 300 Area would include final cleanup actions for the 618-10 and 618-11 burial grounds.

Available documents confirm that high-level radioactive waste has been stored at the 618-10 and 618-11 burial grounds. The Nuclear Waste Policy Act requires that all high-level radioactive waste be removed for eventual deep geologic disposal.

EPA is planning for disposal of the following types of waste from 618-10 and 618-11:

- Transuranic waste (Geologic disposal)
- Low-level radioactive waste (Surface disposal)

EPA has not identified a removal and disposal path for high-level radioactive waste in the 618-10 and 618-11 burial grounds. Any forthcoming ROD for the 300 Area must include plans for storage and disposal of all HLW. However, neither the RI/FS documents nor the Proposed Plan include disposal plans for HLW. Consequently, any forthcoming ROD for the 300 Area cannot be compliant with the NWPA until EPA identifies and evaluates disposal plans for high-level radioactive waste.

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25 M.S. Gerber, Multiple Missions: The 300 Area in the Hanford Site History, WHC-MR-0440, September 1993, pp. 59-60. http://www.osti.gov/bridge/servlets/purl/10116166-VacV0L/native/10116166.pdf

According to a 1997 review of disposal at the 618-11, "Individual waste shipments records for all wastes shipped to the 618-11 burial ground were maintained onsite until 1988 and SNM [special nuclear material] records were kept onsite until 1992. Unfortunately, both sets of records were destroyed. The loss of these two sets of records has made this work difficult and caused uncertainty about some of the information."[26]

Historical records indicate that these burial grounds received wastes from several 300-Area facilities that handled and processed high-level radioactive wastes from Hanford tanks, and spent fuel from Hanford production and commercial nuclear power reactors. They include:

- **324 Radiochemical Engineering Building** – This facility began operation in the late 1950s with the mission of conducting radioactive waste characterization, immobilization, spent fuel characterization, and cesium chloride encapsulation from Hanford high-level radioactive wastes.[27] It generated high-level liquid wastes while performing nuclear waste vitrification and fabrication of cesium and strontium heat sources derived from Hanford HLW tanks. The facility also handled, stored and performed research on commercial spent fuel. As of 1995, this facility contained 949 spent power reactor fuel rods.[28] Between 1983 and 1992, irradiated spent fuel from the Fast Flux Test Facility reactor were handled and processed there.[29] In 1986 a spill of 1.3 million curies of concentrated radiocesium and radiostrontium resulted in a lengthy cleanup and left behind approximately 23,000 curies of highly radioactive debris. [30] According to a building history, "Total activity of buried material was not reported."[31] Piping transferring HLW from this facility was also reported to have failed. [32] This and other 300-Area facilities handling high-level radioactive wastes used the same waste sewer lines for decades; these lines were sent to the burial grounds. [33]

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26 J.A.Demiter, W.O. Greenhalgh, Characterization of the 618-11 Solid Waste Burial Ground, Disposed Waste and Description of Waste Generating Facilities, Lockheed Martin Services, Hanf-EP-0649, Revision 0, October 7, 1997. P. 3-55. http://pbadupws.nrc.gov/docs/ML1026/ML102650079.pdf

27 U.S. Department of Energy, The 324 Building Radiochemical and Engineering Cells and High-Level Vault Closure Plan, DOE/RL-96-73, Rev. O, May 1997 P. 2-1.
http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0028/D197184372/D197184372_15743_159.pdf

28 Westinghouse Hanford Company, Special Waste Characterization, WHC-SD-W272-HC-001 Rev. 1, February 1, 1995. http://www.osti.gov/bridge/servlets/purl/10119172-49q0m5/webviewable/10119172.pdf

29 S.A. Bailey et al., Engineering Study for Materials Open Test Assembly (MOTA) Shielded Materials Facility (SMF) South Cell Waste Removal, PNNL-14034.
http://www.pnl.gov/main/publications/external/technical_reports/PNNL-14034.pdf

30 R.D. Torkarz et al. Evaluation of Options for Disposition of Dispersible Material in B-Cell, Pacific Northwest Laboratory, PNL8907 October 1993. http://www.osti.gov/bridge/servlets/purl/10104737-g0J5vS/native/10104737.pdf

31 U.S. Department of Energy, 324 Building Radiochemical Engineering Cells, High-Level Vault, Low-level Vault, and Associated Closure Plan, DOE/RL-96-73 Rev. 1, March 1998 http://www.osti.gov/bridge/servlets/purl/353276-a6W6wo/webviewable/353276.pdf

32 A.O. Dodd and N. G. Wittenbrock, 324 Building Safety Analysis Report Supplement, BNWL-CC-2028 Sup. 1, June 24, 1977. http://www.osti.gov/bridge/servlets/purl/5315579-YEb07s/5315579.pdf

33 A.O. Dodd and N. G. Wittenbrock, 324 Building Safety Analysis Report Supplement, BNWL-CC-2028 Sup. 1, June 24, 1977. http://www.osti.gov/bridge/servlets/purl/5315579-YEb07s/5315579.pdf

- **325 Radiochemistry Building**—According to an official history of the Hanford site, "Completed in 1953, this facility was built to safely house and handle multicurie-level chemical development work with high-level substances... in many cases [Hanford Works] high-level waste was the prime or only source to supply [specific radioisotopes, which were separated there]...The feed material was generally PUREX 1WW (first cycle waste) or waste from the commercial nuclear power plant at Shippingport, Pennsylvania."[34] This building also performed high-level waste vitrification projects which spanned a period from 1962 to 1980. It also handled and processed spent fuel from the Hanford N-reactor. [35]

- **327 Radiometallurgy Building** – This facility opened in 1953 with the primary mission of supporting the reactor operations. Activities in this building included examining and testing irradiated fuel elements and cladding from the Hanford production reactors. [36]

Disposal of Waste From the 300 Area 618-10 and 11 Burial Grounds

As outlined by the historical records summarized above, several 300-Area facilities handled and processed large quantities of high-level radioactive wastes and spent reactor fuel from production and power reactors, as defined by the NWPA. In 2004, the U.S. Congress authorized the DOE to disregard the requirements of the NWPA to allow for reclassification and subsequent onsite disposal of high-level radioactive wastes at the Savannah River Site and the Idaho National Engineering Laboratory. However, after Senate debate in opposition,[37] the Hanford site was excluded from this provision.[38] There is evidence of leaks into the environment from these activities as well as routine discharge of and disposal of liquid and solid wastes generated from these operations.[39] It is also clear that that the 618-10 and 618-11 burial grounds contain highly radioactive wastes from the 324, 325 and 327 buildings as defined under the NWPA.

According to DOE, wastes from 300 Area disposal sites are to be sent for geological disposal to the Waste Isolation Pilot Project in New Mexico, if the transuranic content exceeds 100 nCi/g. Other radioactive wastes from Burial Grounds 618 10 and 618-11 are to be treated for disposal on site at the Environmental Restoration Disposal Facility.[40]

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34 M.S. Gerber, Multiple Missions: The 300-Area in Hanford Site History, WHC-MR-0440, September 1993, pp. 21-23. http://www.osti.gov/bridge/servlets/purl/10116166-VacV0L/native/10116166.pdf

35 U.S. Environmental Protection Agency, EPA Superfund Record of Decision: Hanford 300-Area (USDOE), EPA/ROD/R10-01-119, April 4, 2001, P. 52. http://www.epa.gov/superfund/sites/rods/fulltext/r1001119.pdf pp. 23-24

36 .D. Bazzell, B.A Smith, River Corridor Buildings 324 and 327 Cleanup, DOE-0312-FP, Revision0, February 2006. http://www.osti.gov/bridge/servlets/purl/876421-5tBP9O/876421.pdf

37 David M. Bearden and Anthony Davis, CRS Report for Congress: Radioactive Tank Waste from the Past Production of Nuclear Weapons: Background and Issues for Congress, Congressional Research Service, Library of Congress, January 3, 2007, p. C-3. http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA453646

38 PUBLIC LAW 108–375—OCT. 28, 2004 118 STAT. 1811, Section 3116.

39 C.G. McCormack, 325 Building Safety Analysis Report, BNWL-CC-1913, February, 1969. http://www5.hanford.gov/ddrs/common/findpage.cfm?AKey=DA05687773

40 U.S. Environmental Protection Agency, EPA Superfund Record of Decision: Hanford 300-Area (USDOE), EPA/ROD/R10-01-119, April 4, 2001, P. 52. http://www.epa.gov/superfund/sites/rods/fulltext/r1001119.pdf

The Interim ROD for the 300-FF-2 Operable Unit recognizes the unique hazards associated with these burial grounds and states in a foot note:

> In the future, the Tri-Parties will review the 618-10 and 618-11 Burial Ground remediation plans using the information obtained through technology development efforts. If new information suggests a change to the remedy selected for these two burial grounds, the remedy change would be documented in an amendment to the ROD. The process of issuing a ROD amendment would require public involvement.[41]

According to a "Technology Needs/Opportunities Statement" prepared by the Washington Closure Group in 2010:

> The 618-10 Burial Ground received high-level, low-level, and TRU waste. Until 1960, some high-level and TRU wastes were disposed in cardboard containers with contact doses up to 500 R/h, although most high-level waste was interred in concrete-filled 208-L (55-gal) drums. After 1960, the high-level waste was packaged in milk pail disposal cans and interred in the vertical pipe units.[42]

The report goes on to say,

> The 618-11 Burial Ground received high-level, low-level, and TRU waste. As in the 618-10 Burial Ground, some high-level and TRU wastes were disposed in cardboard containers with contact doses up to 500 R/h, although most high-level waste was interred in the vertical pipe units and, after June 1964, in the caissons.[43]

Spent Nuclear Fuel

Spent nuclear fuel (SNF) has been stored in various facilities at Hanford, in some instances, for decades. SNF which was buried during plutonium production operations has also been discovered during excavations at various sites during remedial actions.

The AEA and NWPA define SNF as follows:

> The term "spent nuclear fuel" means fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing.

Under the NWPA, SNF must be treated and stored for eventual disposal in a geologic repository. It is not clear how EPA has considered treatment and storage of Hanford SNF for eventual geologic disposal.

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41 Op Cit Ref. 35, p. 53.
42 U.S. Department of Energy, Washington Closure Group, Technology Needs/Opportunities Statement, March 2010, p 26. www.washingtonclosure.com/documents/tech.../TechNeeds_SS056.d...
43 Ibid, p.2

According to a 2003 report, prepared for the DOE by the Fluor Hanford Company, the following types of waste are present in the burial grounds: RH-TRU [remote-handled transuranic waste], *high-level waste (spent fuel),* CH-TRU [contact-handled transuranic waste], LLW [low-level radioactive waste] and LLMW [low-level radioactive mixed wastes]. [Emphasis added].[44]

Experts involved in this review presumed without question that some of these wastes from these burial grounds would have to be disposed in a high-level radioactive waste repository, as described in an excerpt from report's table (see below).

Table 3-10. Sorting, Treatment, Storage, and Disposal Needs for Each Waste Type.

Spent fuel	**Will spent fuel fragments be considered RH-TRU or spent fuel?**	**Treatment may be needed to put into dry storage** **Spent fuel treatment is waste-dependent**	**Dry storage onsite**	**Yucca Mountain (Yucca WAC in 2011).**

Source: WMP-17684 (2003)

Any forthcoming RODs must include plans for storage and disposal of all SNF. However, neither RI/FS documents nor Proposed Plans have included necessary disposal plans for SNF discovered during remedial action excavations. Consequently, any forthcoming RODs cannot be compliant with the NWPA until EPA identifies and evaluates disposal plans for spent nuclear fuel and other high-level radioactive wastes disposed in the 618-10 and 619-11 Burial Grounds from activities in the Hanford 300-Area 324, 325, and 327 buildings.

44 L.C. Hulstrom, Fluor Hanford Co., 618-10 and 618-11 Burial Ground Remedial Design Technical Workshop Summary Report, WMP-17684, Rev. 0 September 2003. p.3-12. http://www.hanford.gov/docs/gpp/public/WMP17684.pdf

SECTION 4

Resource Conservation and Recovery Act
42 U.S.C. § 6901 et. seq.

Disposal Decisions for River Corridor wastes

The Yakama Nation has serious questions regarding EPA authority under RCRA for disposal of waste from remediated sites in the River Corridor pursuant to the proposed RODs. As indicated before, some contaminants (e.g., HLW, TRU, other radioactive wastes) will be removed from the 100 and 300 Areas that do not meet the definition of "hazardous wastes" under RCRA. How will they be stored or disposed? Are there wastes (e.g., dangerous waste, mixed TRU) that will be removed from those Operable Units without being treated before shallow land disposal in violation of RCRA regulations? Are they covered under the draft Ecology site wide permit and if so what will be the waste acceptance criteria for facilities like ERDF? EPA has no authority to make disposal decisions for these wastes at the Hanford Site if they are either not covered under RCRA or do not comply with RCRA disposal standards. As such the RODs will be invalid as a matter of law.

Uranium in soil and groundwater is a RCRA issue in the 300 Area. The remedy proposed for the 300 Area has failed in early testing [*PNNL-17480 (2008); PNNL-19461 (2010)]*. Ecology is relying on the Permit for the proposed remedy in this ROD as meeting the CA requirements for groundwater.

1. Is it appropriate for Ecology to prospectively accept CERCLA work via the II.Y conditions as satisfying the Dangerous Waste WAC 173-303-645/646 corrective action permit requirements while the remedy selected remains an unproven technology?
2. Ecology does not have a Permit condition to ensure that natural attenuation is not determined as meeting the corrective action Permit requirements of WAC 173-303-646.

RCRA Implementation at the Hanford Site

Closure of a RCRA TSD facility is described in the Dangerous Waste Regulations under WAC 173-303-610. WAC 173-303-610(2)(b)(i) requires - for soils, groundwater, surface water, and air - the numeric cleanup levels calculated using residential exposure assumptions according to MTCA regulations, Chapter 173-340 WAC, as now or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate (industrial use land). *See* WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745.

Under Method B, for unrestricted land use, soil direct contact concentrations (i.e., cleanup levels) are estimated to result in no acute or chronic non-carcinogenic toxic effects on human health using a hazard quotient of one (1) and concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one million ($1X10^{-6}$). *See* WAC 173-340-740(3)(b)(iii)(B).

There may be downward adjustments to a cleanup level, but this new level must not exceed one in one hundred thousand ($1X10^{-5}$) and the hazard index does not exceed one (1) at the site. *See* WAC 173-340-740(5)(b).

Groundwater cleanup levels shall be based on estimates of the highest beneficial use and the reasonable maximum exposure expected to occur under both current and potential future site use conditions. Ground water as a source of drinking water is the beneficial use requiring the highest quality of groundwater and that exposure to hazardous substances through ingestion of drinking water and other domestic uses represents the reasonable maximum exposure (i.e., unrestricted land use-Method B for the Hanford site). *See* WAC 173-340-720 and 173-340-720(4). A modified Method B may be used in some instances to evaluate groundwater remediation levels (*see* 173-340-720(4)(d)); however, any downward adjustments of site risk shall not must not exceed one in one hundred thousand ($1X10^{-5}$) and the hazard index does not exceed one (1) at the site. *See* WAC 173-340-720(7).

1. **Dangerous Waste Regulations for Landfills** [see WAC 173-303-665(6)] identify the closure and post-closure requirements. These include requirements to maintain the integrity and effectiveness of the final cover, maintenance and monitoring of groundwater monitoring system (including compliance with WAC 173-303-645-releases from RCRA regulated units which may be addressed through use of MTCA corrective actions).

2. **"Capping"** as discussed in Hanford Burial Ground cleanup activities and decision making utilizes an alternative technology known as an evapotranspiration barrier (ET). The ET barrier is under consideration by DOE at several mixed waste sites because they are simple in design and constructions, stated to have demonstrated effectiveness in arid and semiarid climates, and relatively low in cost. However, these statements have been countered by other researchers (see "Alternative Covers: Enhanced Soil Water Storage and Evapotranspiration in the Source Zone," W.H. Albright, W.J. Waugh, and C.H. Benson, May 2007).

3. "**Land Use.**" DOE's 2012 Vision anticipated the possibility of transfer of Hanford land parcels. Assumptions on the entire inner area remaining exclusive industrial and thus serving as the basis for exposure scenarios (which are used to establish cleanup levels under MTCA) may be faulty. Native American uses are reasonably expected, not just industrial.

4. **Solid waste burial grounds' waste volume (m^3)**: Approximately 70% of the solid waste burial grounds' waste volume (m^3) resides in what will be the RCRA permitted landfill burial grounds; some contain both Plutonium and Uranium. Approximately 13% resides in Industrial landfill burial grounds. Approximately 10% resides in Alpha Dry Wastes landfill burial grounds. Approximately 4% resides in Dry Waste landfill burial grounds. Approximately 3% resides in Construction landfill burial grounds.

Appendix A

T. Zeilman February 13, 2012 letter to M. Zichlinsky

LAW OFFICES
OF
THOMAS ZEILMAN

402 E. YAKIMA AVENUE, SUITE 710
Mailing Address: P. O. BOX 34
YAKIMA, WASHINGTON 98907

TELEPHONE: 509/575-1500 - FAX: 509/575-1227
E-MAIL: TZEILMAN@QWESTOFFICE.NET

February 13, 2012

Marlene Zichlinsky, Attorney
Office of the Regional Solicitor
Pacific Northwest Region
U.S. Department of the Interior
805 S.W. Broadway, Suite 600
Portland, OR 97205

Dear Ms. Zichlinsky:

It has come to my attention that you telephonically attended the January 19 meeting of the Hanford Natural Resources Trustee Council (HNRTC), and that you provided your legal opinion regarding whether the Yakama Nation still retains treaty reserved rights to hunt and gather foods on lands owned by the U.S. Department of Energy (DOE) at the Hanford Site. According to others who were at the meeting you told the Council that, when the United States withdrew public lands for Hanford, any treaty rights to those lands were extinguished. This opinion was apparently given in the context of whether any natural resources injured by releases of hazardous substances include those which are utilized by the Yakama Nation pursuant to hunting and gathering rights reserved in the Treaty of 1855. Any such resources lost to the tribe would be compensable in damages under § 107(f) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). I would like to take the opportunity to provide the Yakama Nation's legal position on this issue for the record so that there is no doubt where we stand.

As you know, only Congress may abrogate rights reserved in Indian treaties, and only with clear and explicit language, either within the statute itself or in its legislative history. *United States v. Dion*, 476 U.S. 734, 739-740 (1986). In *Dion*, the U.S. Supreme Court ruled that the standard for abrogation is "clear evidence that Congress actually considered the conflict between its intended action on the one hand and Indian treaty rights on the other, and chose to resolve that conflict by abrogating the treaty."

Id. at 740; see also *Minnesota v. Mille Lacs Band of Chippewa Indians*, 526 U.S. 172 (1999) (no "clear evidence" of abrogation in state enabling act). The Court examined the express language of the Bald and Golden Eagle Protection Act (BGEPA), as well as its legislative history, and determined that Congress "believed that it was abrogating the rights of Indians to take eagles." *Id.* at 743. Critical to the analysis in *Dion* was the fact that the legislative history contained extensive discussions of Indian hunting of eagles and their importance to tribes.

In contrast with the BGEPA, there is absolutely no evidence in any of the federal statutes authorizing the establishment of the Hanford Site that Congress ever intended to abrogate the treaty hunting or gathering rights of the Yakama Nation. Federal acquisition of the land which now comprises Hanford was originally authorized by Title II of the Second War Powers Act of 1942, Pub. L. 77-507 (56 Stat. 176) (Mar. 27, 1942). Nothing in the plain language of that statute evinces any intent to abrogate Indian hunting rights, and they are not discussed in the legislative history. 56 Stat. at 177; see also S. Rep. No. 77-989 and H.R. Rep. 77-1735.

Since this original acquisition, none of the statutes providing the government authority to administer the Hanford Site have ever acknowledged Yakama treaty rights despite explicit language regarding compensation for land acquisitions. The Second War Powers Act expired on March 31, 1947. 50 U.S.C. Appx. § 645. By that time Hanford had been transferred from the Manhattan Project to the Atomic Energy Commission (AEC), which received its powers from the Atomic Energy Act of 1946 (AEA). *See* Pub. L. 79-585, c. 724, § 9(a)(3) (60 Stat. 755, 765) (Aug. 1, 1946) (formerly codified at 42 U.S.C. § 1809). Again, there is nothing in the AEA even recognizing treaty hunting rights, much less intent to abrogate them through eminent domain. *Id.*, § 13 (60 Stat. at 772) (formerly codified at 42 U.S.C. § 1813). This authority was superseded by the Atomic Energy Act of 1954, which also says nothing about Indian treaty rights, either on its face or in its legislative history. Pub. L. 83-703 (68 Stat. 919); *see* 42 U.S.C. §§ 2221-2224; S. Rep. No. 83-1699 and Conf. Reps. Nos. 83-2639 and 83-2666.

None of the statutes establishing the current DOE mention treaty rights either, and thus they have not abrogated such rights. The Energy Reorganization Act of 1974, which set up the Energy Research and Development Agency, says nothing about Indian hunting. Pub. L. 93-438 (88 Stat. 1233) (Oct. 11, 1974), codified at 42 U.S.C. § 5801 *et. seq.* Its legislative history is completely devoid of Indian treaty considerations as well. *See* S. Rep. 93-707, H.R. Rep. 93-980, Conf. Reps. Nos. 93-1252 and 93-1445. The statute which transferred Hanford to the new Department of Energy fails likewise. Pub. L. 95-91, Title III, § 301(a) (Aug. 4, 1977) (91 Stat. 577), codified at 42 U.S.C. § 7151. As a result, Congress has never weighed the policies behind these statutes against Indian treaty hunting rights, and has thus never "resolved the conflict" between the two by abrogating those rights.

Although you pointed out in your comments to the HNRTC that Yakama hunting rights are "defeasible," this is true only if government lands are put into private ownership.

The minutes of the Walla Walla Treaty Council, where the Yakamas' treaty was signed, indicate that the Indians understood in 1855 that they were reserving the right to hunt on lands "not occupied by white settlers." *State of Washington v. Chambers*, 506 P.2d 311, 315 (1973) (Yakama treaty hunting rights are "restricted only in those areas staked out by the white man as his own place to settle"); see also *Confederated Tribes of the Umatilla Indian Reservation v. Maison*, 262 F.Supp. 871, 873 (D.Or. 1966). Case law interpreting Stevens treaty hunting rights has been consistent that the term "open and unclaimed lands" means "publicly-owned lands, which are not obviously occupied and which are put to a use not incompatible with hunting." *State of Washington v. Buchanan*, 978 P.2d 1070, 1082 (1999) (giving summary of Stevens treaty case law).

Under this standard, over 90% of the land within the Hanford Site clearly qualifies as "open and unclaimed" for the purpose of Yakama treaty hunting and gathering. There can be no dispute that Hanford is publicly owned by the Department of Energy. Although the United States may argue that all of Hanford is "occupied" by DOE because a small fraction of the land is still being used for the agency's cleanup mission with limited public access, this position has no merit. First, the site has had no "white settlers" occupying its lands since they were taken by the War Department. Second, with the exception of the very small industrial areas where plutonium production and waste storage occurred (and where releases of hazardous substances originate), the lands of the Hanford Site have been basically unused by the U.S. government for seven decades. Finally, there is no evidence in the Yakama treaty minutes that the Indian leaders who signed it understood that a federal agency could have authority to permanently exclude tribal members from a huge area of public land as a buffer zone for temporary government purposes. Indian treaties are to be interpreted as the Indians would have understood them at the time. See *Mille Lacs*, 526 U.S. at 196.

Although published U.S. District Court decisions regarding treaty hunting in national parks have ruled that federal lands withdrawn for a specific use inconsistent with hunting are not "open and unclaimed," these cases certainly are not controlling legal authority for hunting rights at Hanford. See *United States v. Hicks*, 587 F.Supp. 1162, 1165 (W.D.Wash. 1984); see also *United States v. Peterson*, 121 F.Supp.2d 1309 (D.Mont. 2000). In *Hicks*, the court ruled that enactment of legislation in 1942 banning all hunting in Olympic National Park "terminated" the Quinaults' hunting rights there because the park's use had become "incompatible with hunting." *Hicks*, 587 F.Supp. at 1167. In *Peterson* the court held the same for Blackfeet rights in the legislation establishing Glacier National Park. *Peterson*, 121 F.Supp.2d at 1320. These cases essentially followed *Dion*, concluding that Congress' intent to prohibit hunting was incompatible with the exercise of the treaty right, which was "clear evidence" of abrogation.

The same cannot be said for the Second War Powers Act, which provided temporary authorization in 1942 to "acquire by condemnation" any real property "that shall be deemed necessary for military, naval, or other war purposes." Pub. L. 77-507, 56 Stat. at 177. Indeed, the very purpose of the statute was "to further expedite the prosecution of the war," and any lands acquired could only be "occupied, used and improved for the

purposes of this Act." *Id.*, 56 Stat. at 176-177. The war for which this law was enacted has been over since 1945, and the authorizing statute expired two years later. Since the Atomic Energy Acts only authorized the AEC to own "facilities for the production of fissionable material," it is arguable that the AEC and DOE have had little congressional authority since 1947 to retain any extensive land holdings beyond those immediately needed for nuclear fuel production. See Pub. L. 79-585, 60 Stat. at 759, 774 (atomic production "facilities" means "any equipment or device capable of such production"). Of course, by the time CERCLA was enacted in 1980 the Hanford Site's original purpose was nearing an end. In 1987 all plutonium production ceased; DOE then turned to remediation of the resulting environmental hazards - the current Hanford "mission." The primary statutes governing present activities are federal and state environmental and cultural resource protection laws being enforced through the Tri-Party Agreement. Although some energy and technology research is also being conducted, it is also restricted to a very small footprint in the industrial areas.

In other words, unlike a national park, the vast majority of Hanford has always consisted of inessential surplus lands. It is important to note that a portion of them originally consisted of checkerboard Public Domain parcels, which were owned and administered by the General Land Office (later the Bureau of Land Management (BLM)) or the Bureau of Reclamation (BOR). When the Hanford Engineer Works was established in 1943 these sections were withdrawn from the Public Domain, and they have remained under DOE ownership. According to the EIS that was developed for the Hanford Comprehensive Land-Use Plan, DOE expects to return these lands to their original land management agencies:

> When DOE relinquishes its withdrawals on lands that were historically Federal, those lands withdrawn only by DOE would revert to the Public Domain and management by BLM. Those lands withdrawn by the overlapping DOE and BOR withdrawals would remain withdrawn and managed by the BOR. The BOR's use of the withdrawn Public Domain lands after the relinquishment of DOE's overlapping withdrawal must be consistent with the purposes for which they were originally withdrawn from BLM by BOR. If they are not, the BOR would be expected to relinquish or renegotiate its withdrawal notice under the Federal Land Policy and Management Act of 1976 and the lands could be returned to the Public Domain for BLM management.

See *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS)*, U.S. Department of Energy (September 1999), at S-56.

As a result, within the next few decades over 90% of current DOE managed land at Hanford may end up back in the Public Domain under exclusive BLM stewardship. The Spokane District of the BLM is currently in the process of revising its Resource Management Plan (RMP), which governs the use, protection, and enhancement of resources on BLM administered lands in Eastern Washington pursuant to FLPMA. A preliminary document released by the Spokane District last year specifically recognizes Yakama treaty rights to hunt and gather foods and medicines on all BLM lands, and

acknowledges the agency's trust obligation to consult with the Yakama Nation regarding the affect of BLM actions on treaty reserved rights. See *Eastern Washington and San Juan Resource Management Plan: Analysis of the Management Situation*, U.S. Department of the Interior, Bureau of Land Management (March 2011), at 198-202.

The Land-Use ROD that was finalized by DOE in 1999 contemplates a return within the next fifty years of most of Hanford to some form of open public use, including wildlife conservation, recreation, and treaty fishing. See *Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement*, U.S. Department of Energy, 64 Fed. Reg. 61,615 (November 12, 1999). Only small areas within the current waste management zones would be restricted from public use for exclusive DOE purposes. *Id.* at 61,623. Therefore, the vast majority of Hanford Site lands will probably be under the management of agencies within the Interior Department for multiple uses, including Indian treaty resource harvest.

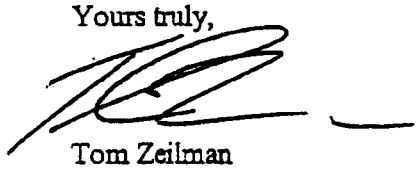
This is already true for the Hanford Reach National Monument (HRNM), where the U.S. Fish and Wildlife Service currently permits hunting by the public in the Wahluke Slope/Saddle Mountain Wildlife Refuge, and has designated such hunting as a compatible use within the Arid Lands Ecology Reserve. See *Hanford Reach National Monument Final Comprehensive Conservation Plan and EIS*, U.S. Fish and Wildlife Service, (August 2008); 16 U.S.C. § 668dd(a)(3)(B)-(D); 16 U.S.C. § 668dd(a)(4)(K). Indeed, an audit report issued over a decade ago found that DOE no longer needs to retain ownership of the HRNM for any purpose. See *Audit Report: Administrative Control of the Hanford Reach National Monument*, U.S. Dept. of Energy, Office of Inspector General (July 2001) at 3-7. The Washington Department of Fish and Wildlife currently recognizes Yakama treaty rights to hunt within the HRNM, and acknowledges the tribe's corresponding off-reservation co-management and law enforcement role. See *Draft Elk Population Control Hunt Plan for the Arid Lands Ecology Reserve*, U.S. Fish and Wildlife Service (December 1, 2011).

Even assuming *arguendo* that Congress intended to extinguish treaty hunting rights, there is no evidence that the Yakama Nation was ever compensated for any taking of those rights. Treaty rights to hunt and fish are compensable under the Fifth Amendment to the U.S. Constitution. See *Menominee Tribe v. United States*, 391 U.S. 404, 413 (1968); *Peterson*, 121 F.Supp.2d at 1318, n. 12. Congress has specifically recognized this principle by authorizing federal agencies to provide just compensation to Indian tribes for any loss of such rights caused by federal projects. See *Whitefoot v. United States*, 293 F.2d 658, 660 (Ct.Cl. 1961). Although the Manhattan Project was granted authority in 1942 to condemn lands for the war effort, including plutonium production at Hanford, title to a property interest passes to the United States only when the owner receives compensation. *United States v. Dow*, 357 U.S. 17, 21 (1958). Failure by the government to provide compensation results in acquisition of only a "temporary use and occupation" of the property interest taken, not full ownership. *Id.* Because the Yakama Nation never received compensation for any usufructory property rights reserved on Hanford lands, such rights were never fully extinguished even if Congress had intended to do so.

Given the continuing nature of these rights, the Hanford natural resource damage assessment (NRDA) is an opportunity for the Yakama Nation to receive at least some compensatory remedy for any treaty reserved resources (including their "supporting ecosystems") lost through injury from hazardous releases from waste sites since 1980. The fact that tribal members have been officially prohibited by DOE from exercising treaty rights in the upland areas in the last thirty years is of no consequence. In the absence of any statutory authority abrogating treaty rights, a federal agency cannot arbitrarily keep tribal members from entering surplus federal lands to exercise treaty protected rights for the sake of government convenience. This is especially true given both the liberal canons of treaty construction and the trust responsibility of all federal agencies to protect tribal resources. In any case, governmental denial of public access to natural resources has never been a bar to any trustee seeking damages and restoration pursuant to an NRDA.

I hope that we can seek an occasion to discuss these issues further so that your client can take appropriate action within the HNRTC. You can contact me at (509) 575-1500 or (509) 949-7942.

Yours truly,



Tom Zeilman

cc: Harry Smiskin, Chair, Yakama Tribal Council
Vera Hernandez, Chair, YN R/HW Committee
Virgil Lewis, Sr., Chair, FWL&O Committee
Phil Rigdon, DNR
Russell Jim, ER/WM
Leroy Adams, Jr., WRMP
Lynn Peterson, DOI Office of the Solicitor
Patrick Spurgin, Attorney
Julio Carranza, OLC
Hanford NRTC senior trustees

Appendix B

2005 National Defense Authorization Act citation

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Section 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA)

As set forth in Public Law 108-375, 2004 (EXIT), Section 3116, "Defense Site Acceleration Completion," establishes the following regulatory requirements, which are reproduced verbatim on this page:

- In General
- Monitoring by the Nuclear Regulatory Commission
- Inapplicability to Certain Materials
- Covered States
- Construction
- Judicial Review

IN GENERAL
Notwithstanding the provisions of the Nuclear Waste Policy Act of 1982, the requirements of section 202 of the Energy Reorganization Act of 1974, and other laws that define classes of radioactive waste, with respect to material stored at a Department of Energy site at which activities are regulated by a covered State pursuant to approved closure plans or permits issued by the State, the term 'high-level radioactive waste' does not include radioactive waste resulting from the reprocessing of spent nuclear fuel that the Secretary of Energy (in this section referred to as the 'Secretary'), in consultation with the Nuclear Regulatory Commission (in this section referred to as the `Commission'), determines—
does not require permanent isolation in a deep geologic repository for spent fuel or high-level radioactive waste;
has had highly radioactive radionuclides removed to the maximum extent practical; and

does not exceed concentration limits for Class C low-level waste as set out in section 61.55 of title 10, Code of Federal Regulations, and will be disposed of—
in compliance with the performance objectives set out in subpart C of part 61 of title 10, Code of Federal Regulations; and
pursuant to a State-approved closure plan or State-issued permit, authority for the approval or issuance of which is conferred on the State outside of this section; or
exceeds concentration limits for Class C low-level waste as set out in section 61.55 of title 10, Code of Federal Regulations, but will be disposed of—
in compliance with the performance objectives set out in subpart C of part 61 of title 10, Code of Federal Regulations;
pursuant to a State-approved closure plan or State-issued permit, authority for the approval or issuance of which is conferred on the State outside of this section; and
pursuant to plans developed by the Secretary in consultation with the Commission.

MONITORING BY NUCLEAR REGULATORY COMMISSION
The Commission shall, in coordination with the covered State, monitor disposal actions taken by the Department of Energy pursuant to subparagraphs (A) and (B) of subsection (a)(3) for the purpose of assessing compliance with the performance objectives set out in subpart C of part 61 of title 10, Code of

Federal Regulations.
If the Commission considers any disposal actions taken by the Department of Energy pursuant to those subparagraphs to be not in compliance with those performance objectives, the Commission shall, as soon as practicable after discovery of the noncompliant conditions, inform the Department of Energy, the covered State, and the following congressional committees:
The Committee on Armed Services, the Committee on Energy and Commerce, and the Committee on Appropriations of the House of Representatives.
The Committee on Armed Services, the Committee on Energy and Natural Resources, the Committee on Environment and Public Works, and the Committee on Appropriations of the Senate.
For fiscal year 2005, the Secretary shall, from amounts available for defense site acceleration completion, reimburse the Commission for all expenses, including salaries, that the Commission incurs as a result of performance under subsection (a) and this subsection for fiscal year 2005. The Department of Energy and the Commission may enter into an interagency agreement that specifies the method of reimbursement. Amounts received by the Commission for performance under subsection (a) and this subsection may be retained and used for salaries and expenses associated with those activities, notwithstanding section 3302 of title 31, United States Code, and shall remain available until expended.
For fiscal years after 2005, the Commission shall include in the budget justification materials submitted to Congress in support of the Commission budget for that fiscal year (as submitted with the budget of the President under section 1105(a) of title 31, United States Code) the amounts required, not offset by revenues, for performance under subsection (a) and this subsection.

INAPPLICABILITY TO CERTAIN MATERIALS
Subsection (a) shall not apply to any material otherwise covered by that subsection that is transported from the covered State.

COVERED STATES
For purposes of this section, the following States are covered States:
The State of South Carolina.
The State of Idaho.
CONSTRUCTION
Nothing in this section shall impair, alter, or modify the full implementation of any Federal Facility Agreement and Consent Order or other applicable consent decree for a Department of Energy site.
Nothing in this section establishes any precedent or is binding on the State of Washington, the State of Oregon, or any other State not covered by subsection (d) for the management, storage, treatment, and disposition of radioactive and hazardous materials.
Nothing in this section amends the definition of 'transuranic waste' or regulations for repository disposal of transuranic waste pursuant to the Waste Isolation Pilot Plant Land Withdrawal Act or part 191 of title 40, Code of Federal Regulations.
Nothing in this section shall be construed to affect in any way the obligations of the Department of Energy to comply with section 4306A of the Atomic Energy Defense Act (50 U.S.C. 2567).
Nothing in this section amends the West Valley Demonstration Act (42 U.S.C. 2121a note).

JUDICIAL REVIEW
Judicial review shall be available in accordance with chapter 7 of title 5, United States Code, for the following:
Any determination made by the Secretary or any other agency action taken by the Secretary pursuant to this section.
Any failure of the Commission to carry out its responsibilities under subsection (b).

Page Last Reviewed/Updated Thursday, March 29, 2012

Appendix C

R. Jim April 9, 2012 letter to D. Faulk

Confederated Tribes and Bands of the Yakama Nation

Established by the Treaty of June 9, 1855

April 9, 2012

Dennis Faulk, Hanford Project Manager
U. S. Environmental Protection Agency
309 Bradley Blvd., Suite 115
Richland, WA, 99352

Re: ER/WM Cultural Resource concerns on the draft Remedial Investigation/Feasibility Study (RI/FS)

Dear Mr. Faulk,

Yakama Nation Environmental Restoration/Waste Management (YN ER/EM) would like to submit our concerns with regards to cultural resources in the 100-K area. As stated during the Environmental Protection Agency (EPA) National Remedy Review Board meeting, March 27-29, 2012, the RI/FS and associated plan does not identify how the Department of Energy will comply with the National Historic Preservation Act, Native American Grave Protection and Repatriation Act, Archaeological and Historic Preservation Act, Archaeological Resources Protection Act, Executive order 13175, American Antiquities Act, and Proclamation 7319.

After expressing these concerns at the Remedy Review Board meeting, Board members requested YN ER/WM staff to detail out the concerns and submit them formally. The attached concerns are being submitted per this request. Please accept them as an addendum to YN ER/WM's original 10 page comment submitted to yourself and Remedy Review Board members. A copy of these concerns has been submitted to Amy Legare, Chairwoman, EPA National Remedy Review Board for distribution to Remedy Review Board members, also per Board member request.

If you have any questions or concerns please contact myself or a member of YN ER/WM cultural resource staff, Rose Ferri or Dana Miller at 509-452-2502. We look forward to continued consultation to resolve these sensitive cultural issues.

Sincerely,

Russell Jim
Yakama Nation-ER/WM Projects Manager

Vera Hernandez, RHWC
Sam Jim Sr., RHWC
Philip Rigdon, YN DNR
Rob Whitlam, DAHP
Kate Valdez, YN THPO
Warren Spencer, RHWC
Raymond Smartlowit, RHWC
Amy Legare, EPA, Review Board Chairwoman
Administrative Record
Dan Opalski, EPA, Region 10

100-K and 300 Area RIFS EPA Advisory Remedy Review Board Statement

RE: Follow up comments concerning cultural resources

The 100-K and 300 Areas RI/FS have not addressed cultural resources. Although the cultural resource section acknowledges the abundance of cultural sites and culturally significant areas throughout the Hanford site, the remedy does not address how cultural resources will be protected or how effects to cultural resources will be addressed, as mandated by the NHPA and implementing CFRs. The RI/FS states "Tribal Nations leaders review the locations and potential impacts to these resources before site activities begin." However DOE has not been compliant with the NHPA and implementing CFRs since 2003. Approximately 1,200 projects (roughly 90% of all projects) were implemented since 2003 without a full Section 106 review and without any Tribal consultation. To date YN does not know the location and the nature of most of these projects.

Currently there are ongoing discussions with regards to the discovery of contaminated artifact, funerary objects and /or human remains. This topic was originally brought to DOEs attention in the late 1980s. To date there is still no plan as to how these resources will be cared for. Under the NHPA it is DOE's responsibility to properly care for these cultural materials. Tribal discussions with DOE revealed there is a lack of data to determine the level, type and depth of contamination in culturally sensitive areas, known archaeological sites and burial areas. Although DOE has invited Tribal input on a plan of action, until more characterization and testing is completed it is impossible to move forward with a treatment plan, or remedy selection, as it is unknown if cultural material will need to be removed, or can be left in place based on the level of contamination.

The final RODs are expected to be written by September 30, 2012, yet DOE has yet to meet with Affected Tribes to develop a sampling plan for the culturally sensitive areas, known archaeological sites and burial grounds. Once a sampling plan is developed samples will need to be collected and analyzed. The site specific results will need to be reported to Tribal Policy Makers, at which time each site will need to be reviewed. In consultation with DOE, EPA, and WA Ecology the Tribal Policy makers will need to decide what can be left in place and what will have to be removed based on levels of contamination. A plan detailing removal methods and proper curation/reburial of cultural materials must be developed and included in the ROD. The removal of cultural material will add time and expense, which has not been addressed in the alternative remedy selection and cost analysis process. To leave cultural material in place may affect clean up levels as well.

Final RODs need to account for the additional time, expense, clean up levels, and/or mitigation measures to comply with National Historic Preservation Act, Native American Grave Protection and Repatriation Act, Archaeological and Historic Preservation Act, Archaeological Resources Protection Act and Executive order 13175. With regards to HRNM land DOE will also need to ensure compliance with American Antiquities Act and Proclamation 7319. Compliance with laws and regulations needs to be written into the ROD, not merely written into an implementation/work plan post ROD..

It is unclear if DOE has consulted with Department of Interior on remedy and clean up levels as directed in Proclamation 7319 for the HRNM and adjacent lands that could affect the Monument lands. Any outcome of this consultation may affect clean up levels on the River corridor, which in turn may affect remedy selection for the 100-K and 300 Area proposed plans.

Attachment 3:
Excerpts from the DRAFT MEETING SUMMARY HANFORD ADVISORY BOARD RIVER AND PLATEAU COMMITTEE *July 11, 2012 Richland, WA*

Opening

Pam Larsen, River and Plateau Committee (RAP) chair welcomed the committee and introductions were made. The committee approved the April meeting summary pending one additional edit for clarity from Liz Mattson. Edits were also received from the U.S. Department of Energy (DOE) and U.S. Environmental Protection Agency (EPA).

Susan Hayman reminded the committee that edits to the meeting summary can now be accessed on the SharePoint site. The latest version of meeting summaries incorporating all edits received will be posted to the site prior to the next committee meeting.

Tifany Nguyen, DOE-Richland Operations Office (RL), announced that the Hanford Advisory Board (Board or HAB) appointment process is moving forwarded and is in the final stages of approval.

Larry Gadbois, EPA, said EPA has completed their response to the HAB advice on the 300 Area. He provided copies to meeting attendees (Attachment 2).

200-UP-1 Proposed Plan, Revision 0

Agency presentation

Naomi Bland, DOE- RL, introduced herself along with John Morse, DOE-RL, and Emy Laija, EPA. She said they would provide a brief overview of the 200-UP-1 Groundwater Operable Unit (OU) Proposed Plan (PP), Rev. 0 (Attachment 3). Naomi reviewed the location and features of the site, including the major contamination plumes in groundwater. She also discussed the major differences between Rev. 0 and Draft A, including the remediation alternatives and preferred alternative. Naomi said the public comment period would be open through August 16.

Emy clarified that the time to reach Preliminary Remediation Goals is not equal to the time to restore the aquifer. Regardless of how fast pump and treat occurs, groundwater standards will not be met for 125 years. She said all information about the 200-UP-1 PP will be posted online and the links will be shared with RAP. Information is also available in the administrative record. Emy requested input on the readability of the document.

Regulator perspective

Zelma Jackson, Washington State Department of Ecology (Ecology), said Ecology is in support of Alternative 3 and has been participating in discussions with DOE and EPA.

Committee Questions and Response

Note: This section reflects individual questions, comments, and agency responses, as well as a synthesis where there were similar questions or comments.

C: It makes sense to build one big plant instead of several small ones. However, there are several elements that do not appear to have been considered carefully enough, such as developing a separate scheme for chromium.

> *R: [DOE] As part of the filtration process, chloride is added to remove the chromium that remains after the other treatments. There are built-in mechanisms for removing chromium from the system as part of the biosystem. Remaining chromium will be in the form of chromium-3 as a result of a reducing environment.*

C: There are only two wells that define the chromium plume, which is not enough for a full characterization of the size of the plume. There should be a plan to fully investigate the extent of chromium contamination before beginning treatment. Defining the plume should have been included in the Remedial Investigation/Feasibly Study (RI/FS), not in the PP.

> *R: [DOE] DOE is finalizing the design of chromium treatment. DOE will probably need to install additional characterization wells and will need to address the additional*

chromium plume coming into the site from US Ecology. Post-Record of Decision (ROD) characterization is not unusual.

[EPA] EPA believes the RI/FS process was done well. DOE assumed a worst-case scenario in designing treatment plans since they were unable to gather all the information to fully characterize the plume. The budget estimate will cover the worst-case scenario.

Q: What was the determining factor for selecting Alternative 3 as the preferred alternative over Alternative 4?

R: [DOE] The selection represents the middle-best option. DOE does not want to overbuild. Alternative 3 can accommodate the need for more or less pumping.

[EPA] Even if a highly aggressive pump and treat approach is selected there will still be a reliance on Monitored Natural Attenuation (MNA). It becomes a question of the value received by spending extra resources on a more aggressive approach when the aquifer will still need additional time to reach groundwater standards.

Q: What are the drivers for completing this work? Is there a Tri-Party Agreement (TPA) milestone associated with the project?

R: [EPA] There is no TPA milestone aside from the milestone to have Draft A of the plan prepared in 2010, which was met.

Q: What is the schedule?

R: [EPA] The 200-UP-1 PP, Rev. 0 will be available for public comment next week. The goal is to issue a ROD by the end of the fiscal year. The system is already hooked up for technetium near the SSX area and will be hooked up to the pump and treat system in the 2013-2014 timeframe.

[DOE] Part of the remedy has already been completed. The SSX wells will begin operation in August.

C: The proposed hydraulic containment approach for the iodine plume basically equates to giving up. This is an interim action that should be developed further before issuing a final ROD.

R: [DOE] Iodine is above the maximum contaminant level (MCL), but it is very close to the dose limit. DOE definitely wants to reach levels below the dose limit, but achieving the MCL is another issue since reaching MCL is very difficult. The treatment plant does have the capability to remove some iodine, but it might not be efficient enough to reach desired levels.

[EPA] Cost estimates do include developing a technology to address iodine-129. EPA will push a little harder and potentially conduct some treatability tests. If a technology for iodine-129 cannot be developed, a Technical Impracticability waiver will be required.

C: Are the above ground pipes transporting contaminants from wells to treatment?

R: [DOE] Yes. The pipes will be in place for the next 25-30 years. The above ground pipes are more useful when checking for leaks or determining if there are problems with the pipes. The freezing problem has been addressed and the pipes are thick enough to not lead to problems of degradation over time.

C: It is a wise decision to keep this as an interim ROD.

R: [EPA] The Remedy Review Board commented that the 200-UP-1 cleanup plan should remain as an interim decision, so the agencies have tried to be responsive to that request. Remedy Review Board comments that include UP-1, the 300 Area, and K Area will be forwarded to RAP. The information will also be posted online.

Emy said the agencies would benefit from a simple letter from the Board expressing support, if the Board does support Alternative 3 as the preferred alternative. EPA added that comments can also be submitted from individuals and will be taken into consideration. RAP did not note any significant issues of concern readily apparent that would require advice development and felt a letter of general support might be more appropriate.

Susan H. noted that the Board would still need to issue this letter via the September Board meeting since there will not be an opportunity to bring it forward earlier. Members of the Board who are not knowledgeable about 200-UP-1 would likely need more information to understand RAP's thinking before consenting to a letter. The Board would need to be canvassed to determine whether there is wide support for Alternative 3. Susan Leckband, Board chair, added that whenever she sends a letter on behalf of the Board she receives Board approval even though it is procedurally not required.

C: It is important for the Board to express support of Alternative 3 and express support of Interim RODs when appropriate. The Board could also add a point about approving the ability to build capacity in the pump and treat system.

C: A letter could be issued at any time. It will be important to examine what is included in the interim ROD before providing Board support. Having only two wells is a major concern as well as the continual input of additional contamination from the US Ecology site and impacts to groundwater. Maintaining interim ROD status is a positive approach, but the document is still not complete enough. It is known that the groundwater movement is different than what is portrayed in the models.

R: [DOE] It has been difficult to obtain data from US Ecology until recently. DOE is planning for post-ROD characterization of the chromium plume. Right now, DOE is assuming a worst-case scenario with maximum contamination levels. It will be important to determine if there is a connection between the US Ecology chromium plume and the 200-UP-1 chromium plume. DOE has held conversations with US Ecology and they will need to investigate what is occurring on their site.

Q: Will there be enough capacity in the pump and treat system to handle all the chromium that might be found during characterization?

R: DOE and EPA have full confidence that the pump and treat system will have enough capacity, but some modifications might be required if really high amounts are found.

C: It would be helpful to consider a full list of contaminants of concern (COCs). Also, the number of wells in the area should be robust enough to meet Resource Conservation and Recovery Act (RCRA) Permit requirements. All COCs identified in the Permit units should be considered as part of the treatment plan.

R: [EPA] The PP is not part of RCRA; it is a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) decision.

C: It would be helpful to have a list of COCs to compare against RCRA contaminants to determine if everything is covered. Ecology is working for the Hanford Site cleanup to be protective and equivalent to a RCRA monitoring plan. All actions under the monitoring plan are being shifted to CERCLA decisions. Even though the 200-UP-1 PP decision is not a RCRA decision, it should meet the needs of any RCRA permitting unit.

R: [DOE] DOE has tried for years to integrate RCRA and CERCLA requirements. Ecology is determined to ensure there is a separate and well-defined RCRA monitoring plan for the Permit. Even though that is a separate process, it does not mean all activities will not be covered. Aspects of pump and treat are being negotiated as required in Permit units, although not all activities under pump and treat are included in Permit requirements.

Attachment 4: Yakama Nation Comments on: DOE/RL-2009-122 Revision 0, *Remedial Investigation/Feasibility Study for the 200-UP-1 Groundwater Operable Unit,* May 2012

There are areas of uncertainty within the groundwater modeling approach (STOMP-1D), and its application is inappropriate until all issues are resolved. The graded approach to evaluating groundwater protection and STOMP-1D modeling has many uncertainties (e.g., what criteria will be used to assess the validity of the Preliminary Remediation Goals [PRGs] as they apply to site conditions). We believe *The Technical Guidance Document for "Tank Closure Environmental Impact Statement" Vadose Zone and Groundwater Revised Analyses* should be revised and corrected before it is used to define initial values for model parameterization (e.g., revising the incorrect Kd value of 0.6 used for uranium). Application of this model for making cleanup decisions is inappropriate until these issues are resolved.

Anticipated land use and institutional controls should not be assumed when assessing baseline risk. DOE's own guidance acknowledges the EPA directive that institutional controls cannot be factored into a baseline risk assessment, stating "EPA directed that exposures that are limited by institutional controls may not be factored into a baseline risk assessment for a CERCLA RI/FS" (DOE, 1992). By definition, baseline risks are risks that would exist if no remediation or institutional controls are applied at a site. This information provides a foundation for determining the most appropriate remedial options. Only after potential current and future risks are estimated can risk management decisions be made to remediate or otherwise mitigate (e.g., through institutional controls) such risks.

In the Executive Summary of the RI/FS Report (DOE, 2012a), for example, the following statement that the "results of the risk evaluation indicate that there are no current risks to onsite industrial workers or offsite receptors from the contaminated groundwater because the existing Hanford Site access and institutional controls prevent groundwater use and exposure" (page vii) incorrectly biases the conclusion of no risk with the assumption of institutional controls. This is further confused by the subsequent statement about there being a need "to remediate groundwater within the OU" because concentrations pose unacceptable risk.

Contaminant migration from the Central Plateau to the Columbia River should be evaluated and the associated human and ecological risks should be assessed. Contamination in the Central Plateau is currently migrating to groundwater through the highly complex vadose zone and has already reached the Columbia River; it will continue to migrate long into the future, as shown by DOE's own modeling in the Draft Tank Closure and Waste Management Environmental Impact Statement (DOE, 2009). A baseline risk assessment, as noted above, cannot assume that controls will mitigate such migration. DOE should consider contaminant migration in groundwater over time from the Central Plateau to the River Corridor and Columbia River, including groundwater flow rates, plume mixing, and exposure to contaminated groundwater by various exposure pathways.

In considering groundwater contaminant migration to the river, it is important that action levels used in the risk assessment, presented in the RI/FS Table 6-1 (DOE, 2012a), and Preliminary Remediation Goals (PRGs) applied in the Proposed Plan (DOE, 2012b) include not only levels that are protective of groundwater use, but also those protective of surface water use by humans and aquatic biota. As such, an ecological risk assessment should be performed (RI/FS Section 6.7) that evaluates potential risk to ecological receptors from exposure to groundwater contaminants transported to the surface via irrigation and into the Columbia River via upwelling and seeps.

It is unclear why Remedial Action Objective (RAO) #3 of the Draft Proposed Plan (DOE, 2010b), where DOE acknowledges the need to protect the Columbia River and its ecological resources from degradation and unacceptable impact caused by contaminants migrating from 200-UP-1, has been removed from the Final Proposed Plan (DOE, 2012b). Protecting the Columbia River is a critical goal for the cleanup of Hanford and should be included.

Risks to Tribal members from exposure to sources of groundwater contamination should be assessed. Despite short-term land use decisions made by DOE, the federal government has a fiduciary responsibility to the Yakama Nation to protect Treaty Rights as well as the cleanup responsibility to protect human health and the environment. DOE fails to accurately and completely identify all sources of contamination (e.g., adjacent to the 200-UP-1 OU), transport mechanisms through all environmental media (e.g., migrating to surface water), and potential risks to all receptor groups including tribal members. Ultimately, a site-wide cumulative risk assessment should be conducted based on the Yakama tribal exposure scenario, including the contribution from exposure to 200-UP-1 groundwater contaminants, to help inform cleanup decisions.

It is unclear why results of the Yakama Nation Risk Assessment presented in the Draft RI/FS Report (DOE, 2010a) were removed from the Final RI/FS Report (DOE, 2012a). Although this draft tribal assessment was not complete (e.g., assumed no direct external radiation exposure), at least it recognized this very important receptor group and quantified some of the potential risks. As potential future users of the site (e.g., identified in the Conceptual Site Model in the RI/FS Report), tribal members' risk should be assessed based on a traditional subsistence lifestyle.

References

DOE. 1992. *Use of Institutional Controls in a CERCLA Baseline Risk Assessment.* CERCLA Information Brief. EH-231-014/1292. Office of Environmental Guidance, U.S. Department of Energy. December.

DOE. 2009. *Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington.* DOE/EIS-0391. U.S. Department of Energy. October.

DOE. 2010a. *Remedial Investigation/Feasibility Study for the 200-UP-1 Groundwater Operable Unit.* DOE/RL-2009-122, Draft A. U.S. Department of Energy. September.

DOE. 2010b. *Proposed Plan to Amend the 200-ZP-1 Groundwater Operable Unit Record of Decision to Include the Remedial Actions for the 200-UP-1 Groundwater Operable Unit.* DOE/RL-2010-05, Draft A. U.S. Department of Energy. September.

DOE. 2012a. *Remedial Investigation/Feasibility Study for the 200-UP-1 Groundwater Operable Unit.* DOE/RL-2009-122, Revision 0. U.S. Department of Energy. May.

DOE. 2012b. *Proposed Plan for Remediation of the 200-UP-1 Groundwater Operable Unit.* DOE/RL-2010-05, Revision 0. U.S. Department of Energy. July.