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Confederated Tribes and Bands
of the Yakama Nation ERWM

Established by the
Treaty of June 9, 1855

January 24, 2017

Mr. Dennis A. Faulk, Program Manager
Office of Environmental Cleanup
Hanford Project Office
U.S. Environmental Protection Agency (EPA)
825 Jadwin Avenue, Suite 210
Richland, Washington 99352

Subject: Review of DOE/RL-2016-01, Draft A, Rev 1 Hanford Site 2016 CERCLA Five- Year Review Report

Dear Mr. Faulk:

We appreciate the opportunity to review this document, and while response is not required, it is our hope that these comments will be taken under serious consideration. Yakama Nation (YN) ER/WM Program requests a meeting with DOE and EPA to discuss our concerns and address adverse effects to cultural resources.

We look forward to discussing our vision of cleanup and all our concerns with you further.

Sincerely,

Marlene George
Acting YN-ER/WM Projects Manager

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cc:
Administrative Record
Ms. Alexandra K. Smith, Washington State Department of Ecology
Ray J. Cory, Assistant Manager for the River and Plateau
G. Bohnee, NPT
R. Buck, Wanapum
Susan Leckband, HAB
R. A. Lobos, EPA
K. Niles, ODOE
R. Skeen, CTUIR
Environmental Portal

Attachments: #1: Comments on DOE/RL-2016-01, Draft A, Rev 1 Hanford Site 2016 CERCLA Five- Year Review Report

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Attachment #1: Comments on the DRAFT CERCLA 5 YEAR REVIEW:

YN suggests and/or requests these inputs. While response is not required, it is our hope that these comments will be taken under serious consideration.

YN comments (both area specific and general) and suggested edits to DOE/RL-2016-01, Draft A, Rev 1 Hanford Site 2016 CERCLA Five- Year Review Report:
Edit report to include discussion of activities since the last 5 yr. review and current status of the following : YN agrees with decision to expand Executive Summary but requests additional discussion within report chapters and listing any issues/actions into the final document.

- Orchard Lands
- 324 Building
- 618-10 & -11 Burial grounds
- PFP
- 200-BC-1, cribs, trenches, and tank associated with uranium recovery and tank-waste scavenging operations in the 200 East Inner Area
- 200-CB-2, B Plant canyon and service facility
- 200-CP-1, PUREX canyon and service facility
- 200-CR-1, REDOX canyon and service facility
- 200-CW-1, cooling water ponds and ditches in 200 Areas
- 200-DV-1, cribs and trenches in the 200 Area that contributed to deep vadose-zone Contamination
- 200-EA-1, 200 East Inner Area waste sites
- 200-IS-1, pipelines and associated structures in Central Plateau
- 200-OA-1, trenches, cribs, pits, ditches, dumping areas in Central Plateau Outer Area
- 200-SW-1, nonradioactive solid waste landfills
- 200-SW-2, radioactive solid-radioactive-waste landfills
- 200-WA-1, 200 West Inner Area waste sites

General Comments:

- Yakama Nation ER/WM Program is currently performing a site wide Traditional Cultural Property (TCP) Study for the Hanford site. There are specific areas where there are known TCPs (including but not limited to: N-Area, Gable Mountain, Columbia River, White Bluffs, K-Area and the 300 Area), and additional areas are currently being researched. Any action or lack of action that limits use to these culturally significant areas is an adverse effect to the property and will affect the culture and cultural identity of the Yakama People. These adverse effects must be considered in each final record of decision as well as evaluated during each CERCLA 5 year review in consultation with the Yakama Nation and the Washington State Department of Archeology and Historic Preservation. Memorandum of Agreements need to be in place to mitigate for any adverse effects as mandated by the National Historic Preservation Act and implementing CFRs (36 CFR 800). This review does not address any of these concerns with the exception of the N-Area. Further consultation is needed to address effects to cultural resources and how effects are being addressed according to the National Historic Preservation Act. YN has consistently disagreed with the use of the CLUP to identify future land uses on the Hanford Site. Its baseline statement is based on the false premise which has been carried forward into its Supplement Analysis that YN Tribal members do not carry a disproportionately high and adverse human health or environmental affect under its environmental justice analysis (see Table 1, DOE.EIS-0222-sa-02). This adverse affect was/is not reflected in any Records of Decision. If this is to be a complete

review of the protectiveness of remedies based in part on all future land uses, it must include the perspective of YN Treaty rights.

- Clarify is there could be an addendum to this 5 year review.
- Where statements are made that the information is a snapshot of the remedy component as of December 2015 and does not reflect planned studies or remedy modifications or speculative changes based on current or future studies (e.g. O& M), there should be a method in place to include any recommendations or follow-up actions to ensure protectiveness is maintained or will be and who is responsible for implementation, which agencies have over sight authority and a schedule of completion (time-line to protectiveness; protectiveness determinations cannot remain open-ended).
- Where statements are made that a future final action ROD will address additional exposure scenarios and additional models for evaluating contaminant migration pathways, clarify what pathways these might be and how the IROD remedies have not precluded determination of final remedy protectiveness.
- Where IROD RAOs were based on use of dilution factors, clarify how this use does not/will not/may affect final remedy determinations of protectiveness.
- The operation of the Pump and Treat Systems along the River has created changes in groundwater flow direction and velocity throughout some of the area units (e.g. D/H). These changes are expressed as depressions and mounds in the water table, often very localized, affecting the local flow direction and gradient (DOE.RL-2016-09, REV.0). The flow directions and gradients experienced during low and high river stage have greater effect on contaminant transport in the River Corridor than is represented in some of the groundwater mapping. Clarify how this is accounted for in this 5 year review, any impact on protectiveness determinations, and any issues which need tracking.
- WDOE has issued Sediment Management Standards. Clarify how this new information does not /does/ may affect determinations of remedy protectiveness for all River Corridor OUs.
- In all Source Operable Units Cleanup Status Tables, clarify remaining waste sites (perhaps in a footnote) and how they are considered as to have no affect (or potential will have an affect) on the determination of remedy protectiveness. Clarify also, why there seems to be such a lack of progression of work in the 100-K area source operable units as compared to the other operable units.
- Include under discussion of response actions any modified remedy components such as engineering controls, access controls, ICs, and any potential impacts to protectiveness or future protectiveness determinations on a waste-site by waste-site basis where this potential exists. Include discussion of resources/receptors that have been or could potentially be affected, as well as primary human and/or ecological health threat and exposure pathways by these changes.
- Include a table of cleanup levels selected in the IROD/ROD.
- Provide consistent discussions (for each OU section) of data related to site-specific groundwater remedy completion strategy. Identify whether opportunities exist to improve the performance and/or reduce costs of monitoring sampling, and treatment systems and methods for implementation of these during the next 5 years.
- Include additional information about existing ARARs, newly promulgated standards, and/or changes in TBCs that do not affect protectiveness.
- Discuss whether there are unanticipated toxic byproducts or daughter products of the remedy not previously addressed by the decision documents and how this could affect the protectiveness of the remedy.

- Discuss whether physical site conditions or the understanding of these conditions have changed in a way that could affect the protectiveness of the remedy (e.g. 324 Building/200-PW sites).
- When discussing the question *Has any other information come to light that could call into question the protectiveness of the remedy,* address vulnerabilities that may be related to climate change. Discuss whether there are newly identified contaminants or contaminant sources leading to a potential/actual pathway not previously addressed by the remedy
- Unable to locate EPA/ROD/R-10-95/126.
- Suggest review for consistency of chronology of significant decision documents relevant to response actions for all OUs (see DOE/RL-2011-56, Rev. 1).
- Request resolution of concerns with on-site verses off-site laboratories and sample analysis. YN reviews have noted concerns with QA/QC, etc have resulted in lack of sampling which could have significant impacts on data and defensibility of protectiveness determinations.

Area Specific Comments:

100-BC-1 and -BC-2:

- Previous assessments have not resulted in any interim measure for groundwater. DOE/RL-2010-96 identified CrVI, Sr-90, and tritium as GW COCS. A 2016 risk assessment identified chloroform and TCE as COPCs in 3 deep wells. Provide more details as to how the interim remedy can be considered protective of groundwater.
- Workscope was added to the 100-B/C/RI FS work plan to install three aquifer tube clusters and conduct additional porewater sampling. Clarify the status of this workscope and how it was factored into this review.
- Table 2-2 is confusing. DOE/RL- 2016-09, REV O states DOE has completed remediation of 100-BC waste sited covered by an interim action ROD. Clarify what sites remain for completion to be 100% for the 100-BC-1 source OU.
- Are modeling scenarios developed for the IROD different than what maybe proposed in the final ROD? How specifically did the model account for lateral spread?

100-FR-1/-2/3 & 100-IU-2, and -IU-6:

- Clarify, if any, changes in DOE/RL-2014-44-ADD2 had impacts on the evaluation of remedy performance. Clarify if the planned 8 new monitoring wells were installed in 2016. Clarify if any of these were corrective actions.
- Clarify how the groundwater is expected to be protective when there are not enough monitoring wells in place to define the western portion of the nitrate plume. Additionally clarify when the additional monitoring well will be installed south of the TCE plume to remedy the uncertainty in the interpretation of plume boundaries and protectiveness of the remedy. Clarify also why exceedances of cleanup standards for TCE in wells 199-F5-45 & 199-F7-2 allow for the MNA remedy to be considered as protective.
- The ROD states MNA for Sr-90 for 150 years. The contamination will be detectable for at least 250 years. At what concentration in the future the strontium contamination will no longer pose a threat to human health is unknown--only future sampling will be able to answer that question. There are other fission products from past reactor fuel failures where discharges of long-lived radionuclides were released into the cribs, etc. How were these issues considered in this review and do these issue impact future determinations of protectiveness and are these issues to be carried forward?

100-DR-1/-2:

- Technical assessment: Clarify how statement that RTD activities demonstrate protectiveness of groundwater and the River throughout the soil column when DOE/RL-2016-09, REV. 0 Table 4-1 indicates shoreline impact of CRVI and groundwater concentrations above standards for both CRVI & Sr-90.

100-HR-3:

- Clarify actions to be taken or evaluations to be done to inform the location of long-term secondary sources of slow leaching CrVI into the aquifer (see DOE/RL-2016-09, REV 0 [SGW-58416]). Clarify how this information has affect on the protectiveness of the interim or potentially the final remedy.
- Section 2.9.5.5.12 of the last review stated the potential of new contaminants (such as carbon tetrachloride and chloroform) for the 100-HR-3 being identified based on groundwater sampling. Clarify if this uncertainty was evaluated in this review and what future actions may need to be occur and whether these are issues to carry forward.
- Clarify how RCRA actions at the 183-H SEB support remedy protectiveness determinations.
- **The following may need to be considered under 100-D area:**
    - New wells were planned for the southern are of the 100-D plume as the CrVI concentrations are declining more slowly than in nearby wells (199-D5-103 & ISRM barrier areas). How was this factored into the protectiveness review?
    - Clarify if the new extraction well upgradient of well 199-D8-95 has been put into operation and how any data was factored into the protectiveness review.
    - Clarify how the following information from DOE/RL-206-09 was factored into the protectiveness review.
        - Farther north of well199-D8-96, moderate levels of contamination remain, despite the remediation in the area. It is theorized, based on two lines of evidence, that contamination may remain near the 166-DR-1 & 2 Trenches, causing this portion of the plume to remain at relatively constant levels;
        - 1. CrVI was detected at 148 ug/L in well 199-D8-99 when it was installed in 2010 (currently an injection well). No source area was identified for this contamination, but the well is located near the trenches.
        - 2. CrVI concentrations in nearby wells 199-D8-68, -71, -91 remain near 20 ug/L (Figure 4-16). These wells are located between the 116-DR-1 & 2 Trenches and the River, with no other source in the vicinity. As a result, the concentrations in this area should have been below detection after 5 years of injecting clean water upgradient. The continued presence of moderate to low-level concentrations may be related to a source area being masked by the injection of clean water at well 199-D8-99.

100-N Area:

- Issues at 100-N: Continued elevations of Sr-90: Wells 199-N-81 & 199-N-67 (11,000 -15,000 pCi/L) & Rivershore aquifer tubes -1908-N outfall -preferential pathway to river-leaks from the fuel storage basin and pipelines between the N Reactor and river. Three (3) new wells are planned-2014 GW report. Also within the untreated portion of the apatite barrier have wells with exceedances over 800piC/L. The data from the seeps is not included in the GW plume shapes. Clarify how this information was incorporated into the review and what issued were resolved and which are not and need to be carried forward.
- Replacement well for TPH monitoring is planned-When is it expected to be in place? How was this factored into the review and is it an issue to be carried forward?
- There appears to be a source of Hex Chrome at well 199-N-80 although there exists the possibility of source being 100-K area trench. It doesn't appear to be moving laterally. How was this factored into this review and is it an issue to be carried forward?
- Well-N-41 is another source of hex chrome concerns. How was this factored into this review and is it an issue to be carried forward?

- 100-N spring 8-13 aquifer tube has hex chrome levels very close to DWS-(7.06 ug/L) How was this factored into this review and is it an issue to be carried forward?
- Because this area includes a substantial Traditional Cultural Property (TCP) and the purposed remedy will include institutional controls lasting for around 300 years, an MOA mitigating the adverse effects must be included in any final record of decision. Limiting the use of this area for 300 years will have a tremendous adverse effect on the TCP due to the nature of the TCP and how it has been traditionally used as part of cultural practices. Mitigation will need to address 300 years of adverse effect.

100-K areas:

- In" excerpts from ROD-pg 2-44", clarify statement that there is a potential for other groundwater co-contaminants to be present in the reinjected effluent at concentrations above the drinking water standards set for those contaminants. The YN, Hanford Advisory Board and the general public as well have been advised this is not the case. Co-contaminants cannot be re-injected at levels above standards. This is not protective of human health and the environment. How can this remedy be protective if this is truly what is occurring?
- Unable to locate EPA/ROD/R-10-95/126. Was able to locate EPA/ROD/R-10-99/039. RAO #3 identified: Provide the highest degree of protection of human health and the environment through removal and disposal of the mass of contamination so institutional controls and/or long-term monitoring are not required. These objective will be achieved by implementing the RTD alternative as appropriate or required. These are significantly different than what's in this review. Please clarify.
- Technical Assessments: Statement that cleanup levels for some contaminants that were developed for shallow soil remediation may not be adequately applicable for deep vadose and periodically-rewetted-zone contamination conditions is an uncertainty that affects the protectiveness determination. How was this factored into this current 5 year review? This should be an issue carried forward into the next review and what actions are to be taken to resolve it. Also, clarify what evaluations might be done under the current review process to resolve this uncertainty.
- The 2015 Pump and Treat report indicated there are potential source areas (i.e. 183-KE & 183-KW head house) where secondary source material (e.g. high concentrations of sodium dichromate dehydrate solutions) with in the vadose zone and aquifer exists. Clarify how this information does not or does call into question the determination of protectiveness of the remedy.

200-PW-1,-3,6 AND 200-CW-5:

- Clarify as an issue to be carried forward: Inherent delays and the DOE procurement acquisition process required to build a Class 2 Nuclear facility. Include discussion how this impacts or has the potential to impact the determination of remedy protectiveness.
- Clarify that the 200-PW-1 vapor extraction system to remove carbon tetrachloride is expected to demonstrate protectiveness by 2024 if not sooner. Identify this as a potential issue to be carried forward.

200-DF-1 (ERDF):

- ERDF provides protectiveness for the Short-Term and this should be the protectiveness determination. There are contaminants in ERDF that will last way beyond the life of containers (made of steel, wood, plastic, etc.), that will result in releasing these contaminants to the soils in the future.