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Department of Energy
Richland Operations Office
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Mr. Russell Jim, Manager
Environmental Restoration/
Waste Management Program
Confederated Tribes and Bands
of the Yakama Nation
2808 Main Street
Union Gap, Washington 98903

RECEIVED
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EDMC

Dear Mr. Jim:

TRANSMITTAL OF 200 AREA WORK PLANS

Please find attached a copy of each of the following documents:

- "200-CW-1 Operable Unit RI/FS Work Plan and 216-B-3 RCRA TSD Unit Sampling Plan," DOE/RL-99-07, Revision 0; 53609
- "200-CS-1 Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan," DOE/RL-99-44, Revision 0; 53610
- "200-CW-5 Operable Unit RI/FS Work Plan," DOE/RL-99-66, Rev. 0; and 53611
- Comment Responses for Nez Perce Tribe Comments on DOE/RL-99-44, Draft B, 200-CS-1 Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan. 52124

These are the first three work plans completed that follow the assessment approach outlined in the, "200 Areas Remedial Investigation/Feasibility Study Implementation Plan – Environmental Restoration Program," (DOE/RL-98-28) for characterization and remediation in the 200 Areas. They contain the elements of a Comprehensive Environmental Response, Compensation and Liability Act of 1980 remedial investigation/feasibility study (RI/FS) work plan and Resource Conservation and Recovery Act of 1976 (RCRA) Treatment, Storage and Disposal (TSD) Unit Sampling Plan. A sampling and analysis plan and waste control plan accompany each work plan as appendices.

Public review comments received on the Draft B 200-CW-1 and 200-CS-1 Work Plans have been dispositioned and incorporated accordingly. Comments received on the review of DOE/RL-99-44, Draft B, 200-CS-1 Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan from the Nez Perce Tribe have been dispositioned and incorporated, where appropriate. A copy of the response to the Nez Perce Tribe's comments is attached.

If you should have any questions, please contact Bryan L. Foley, Environmental Restoration Division, at (509) 376-7087.

Sincerely,

Bryan L. Foley, Project Manager
Environmental Restoration Division

ERD:BLF

Attachments: As stated

cc w/attachs:
N. Peters, YN
Admin Record, H6-08 (200 Area)

cc w/o attach:
B. H. Ford, BHI
G. B. Mitchem, BHI
M. E. Todd, CHI
C. D. Wittreich, CHI
The Honorable William Burke, CTUIR
J. Price, Ecology
P. Sobotta, NPT
L. Seelatsee, Wanapum

Response to Nez Perce Comments on DOE/RL-99-44, Draft B, 200-CS-1 Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan

General Comments

1. The conceptual models shown in this document are inadequate as their relation to the waste site is unclear. For example, the model shown for the 216-A-29 ditch could either run the length of the waste site or be perpendicular to the length of the ditch at its inlet or at some other point along this km long ditch.

Response: Text will be added to clarify that the conceptual models represent conditions perpendicular to the axis of the ditch (cross-section) at the head-end.

2. Apparently, work activities in the field have not yet been fully integrated by the Groundwater/ Vadose Zone Integration Project as the *Groundwater Monitoring Plan for the 216-A-29 Ditch*, PNNL-13047, and this plan do not reference each other. Due to a falling water table, new RCRA groundwater monitoring wells will be installed for the 216-A-29 Ditch, the **200-CS-1 Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan, DOE/RL-99-44, Draft B** does not discuss the installation of new RCRA groundwater monitoring wells for the 216-A-29 Ditch.

Response: The current revision of the Groundwater Monitoring Plan for the 216-A-29 Ditch will be reviewed and Section 3.2 will be updated accordingly, including an update to the reference.

There are currently no plans for replacement wells for the 216-A-29 Ditch. However, if a replacement well were to be installed, a multipurpose boring would be evaluated as part of the efforts to integrate with the RCRA Groundwater Monitoring program as stated in Section 5.2.2.2.

3. Prior to any ground disturbing activities, Tribal personnel would like to be notified and offered the option of being present during any ground disturbance to protect cultural resources.

Response: Tribal personnel will be kept informed of the operable unit schedule. Specific notification will be made if ground disturbance is to occur in previously undisturbed areas.

4. It is not clear in the document if impacts to ecological resources are being estimated based on a modeling approach only. There should be plans to do some minimal level of sampling of biota to look at potential impacts before and after cleanup to determine if contamination could still pose a problem to ecological resources.

Response: There is no operable unit-specific ecological investigation planned. The DOE perspective is that ecological assessments should be performed in a more holistic approach rather than under operable unit-specific assessments. Such an approach is encompassed in the System Assessment Capability (SAC) which is being developed under

the Groundwater/Vadose Zone Integration Project. The SAC will be used to conduct site-wide effect assessments, including ecological. As the SAC requirements to support such assessments are defined, they will be used to refocus project characterization activities.

The DOE has performed numerous biotic sampling programs. Much of this information can be found in the following documents:

- *Historical Records of Radioactive Contamination in Biota at the 200 Areas of the Hanford Site, Johnson et al. (1994), WHC-MR-0418*
- *Near-Facility Environmental Monitoring Annual Reports (now published by Fluor Daniel Hanford, Inc,)*
- *Hanford Site Environmental Reports published by Pacific Northwest National Laboratory*
- *Site-specific sampling reports, such as Ecological Sampling at Four Waste Sites in the 200 Areas, Mitchell and Weiss (1995), BHI-00032.*

Several biotic samples have been collected in the 200 Areas including soil and vegetation samples on or adjacent to the 216-A-29 Ditch, the 216-B-63 Trench, and the 216-S-10 Ditch representative waste sites. In addition, animal, insects, and animal nests are collected where known or suspected contamination is present in the 200 Areas. These studies have been valuable in identifying potential receptor pathways and areas of concern for both biological receptors and waste management operations. Many different species of plants and animals have been collected and analyzed, including insects and small and large mammals.

5. In the focused feasibility study, there is a discussion in Section 2.4 about the conceptual model taking into account contaminant uptake and transport by plants and animals. The value of the conceptual model and its output are questionable if data is never collected to validate and/or verify the predictions generated.

Response: See response to general comment 4. As part of the RI report, existing ecological data such as those presented in the Annual Hanford Site Environmental Data Reports will be reviewed to refine the conceptual exposure model.

6. ERWM is concerned about issues related to cleanup of contaminated sites at Hanford. At the present time, cleanup standards are based only on risk based human health scenarios. The ERWM realizes that this is what is required by the CERCLA regulations but believes that more should and could be done to ensure that contaminated sites are really cleaned up and are truly protective of the environment.

   We recommend that as waste sites are being targeted for characterization and cleanup actions that biological sampling and monitoring are instituted to determine if flora and fauna are at risk. Characterization studies and conceptual models should not be based solely on human health risk

scenarios but should also include plants and animals. Documenting and verifying contaminant levels in biota would go a long ways in determining if a site is really "cleaned up."

A recent case study at Hanford illustrates this point. During the past few years, the area known as the North Slope was being cleaned up. Several contaminated sites occurred on the North Slope, mostly because of US Army activities in the 1940s. Many waste sites on the North Slope were identified and cleaned up based on human health scenarios, and the North Slope was eventually declared "clean" and turned over to the US Fish and Wildlife Service (USFWS) for management.

The USFWS as part of a pre-acquisition survey went back to some of the areas that had been declared "clean" and sampled biota including bird eggs, insects and small mammals for DDT and DDE. The results from the samples indicated that low levels of DDE still occurred at many of these waste sites. The USFWS data and other data collected by DOE were recently reviewed by two toxicology experts and both reviews indicated that they are not sure whether or not these levels of DDE could cause an injury to biological resources. Both of them agreed that more data was needed, so the question remains unanswered.

Many tribal members from the Hanford affected tribes would like to have the opportunity to harvest plants someday from the Hanford environs for food, ceremonial, and medicinal purposes. Even low levels of a particular contaminant are of concern and basing cleanup standards just on a human health scenario does not ensure that biological receptors are contaminant free. The human health risk scenarios do not take into account potential impacts to the ecology of an area and impacts that affect culture.

Hopefully, we can learn a lesson from the North Slope that can be applied to future clean up efforts at Hanford. The ERWM recommends that in the future at Hanford waste sites including those contained in the 200-CS-1 operable unit, that biological sampling be included as part of the clean up process even though this may not be specifically required by CERCLA. Depending on the characteristics of a waste site biological media such as insects, deep rooted vegetation, small mammals, and pocket mouse mounds should be considered in the sampling program. Ensuring that biota are not being injured or impacted by contaminants would meet DOE's environmental stewardship policy and would help verify that sites are in actuality cleaned up. ERWM contends that taking a few biological samples before and after cleanup does not significantly alter the overall cost and provides data that is representative of the whole system.

Response: See response to general comments 4 and 5.

Ecological Characteristics

Section 2.1 provides a description of the physical settings of the waste sites that includes topography, geology, vadose zone, and groundwater. The lack of any ecological descriptions of these sites is a glaring omission. These sites have a long history of biological uptake of contaminants and restoration efforts that have been instituted over the years. There is no mention of the flora and fauna which reside at these sites and what the current status is of the revegetation efforts that have occurred at some of these sites. At one time sensitive species like long-billed curlews and burrowing owls resided at some of these sites and the presence or absence of such species should be noted.

Ecological descriptions need to be included as they are in most other Hanford documents of this nature.

Response: See response to general comments 4 and 5. A summary of ecological resources is provided in Appendix F, Section 8.0 of the 200 Areas Remedial Investigation/Feasibility Study Implementation Plan (DOE/RL-98-22). A reference to this material will be added to work plan Section 2.1.

Figures

Figures 2-1 through 2-5 are not very good, especially 2-1. A basic tenant of any figure or table is that it be able to stand alone. The reader should not have to refer back to the text to understand figure 2-1. The other figures are too busy and the specific waste sites of concern should stand out more. No indication is given of what the triangles with black dots enclosed signify.

Response: Comment accepted. The figures will be clarified accordingly.

Modeling

It is not clear in the document if impacts to ecological resources are being estimated based on a modeling approach only. Are there any plans to do some minimal level of sampling of biota to look at potential impacts before and after cleanup to determine if contamination could still pose a problem to ecological resources? Any such sampling should be part of the characterization process.

There is a brief mention of impacts to biota in Section 3.3.2 about the conceptual model taking into account contaminant uptake and transport by plants and animals. What good is the conceptual model if data is never collected to validate and/or verify the predictions generated?

Response: See response to general comments 4 and 5.

Data

The ERWM believes that a lot more data regarding the biological uptake of radionuclides at these waste sites has not been included. At many of these sites a lot of characterization work was done in the early 1980s. There are still people working at Hanford that have these reports and worked on generating much of the data contained in these reports. At some of these sites soil from pocket mouse mounds and vegetation were analyzed for radionuclide content. The ERWM would be glad to provide the names of Hanford scientists who have specific knowledge about these sites.

Response: See response to general comment 4. The documents identified in the response to comment 4 will be reviewed and site-specific data will be added to Section 3.1

216-S-17 Pond

The ERWM would like to know if 216-S-17 Pond is considered part of the 200-CS-1 operable unit. It appears that it isn't but considering that it is in the same vicinity as 216-S-10 and received contaminated effluents it seems that it should be included as part of the 200-CS-1 operable unit.

Response: The 216-S-17 Pond is part of the 200-CW-2 operable unit, which received a different type of waste stream (REDOX cooling water).

Specific Comments

1. Page 2-24, Figure 2-12: The water table in this Figure is shown as being present in the Hanford Formation while the statigraphy shown in Figure 2-8 the water table is in the Ringold Formation.

Response: Figure 2-8 portrays the stratigraphy near the headend of the 216-A-29 Ditch near the proposed characterization borehole, thus is representative of that area. Figure 2-12 portrays the lower half of the 216-A-29 Ditch. Figures 2-12 will be revised to represent the headend of the 216-A-29 Ditch and include the Ringold Formation consistent with Figure 2-8.

2. The stratigraphy of the ditch varies over the length of the ditch and should be consistent with that shown in *Groundwater Monitoring Plan for the 216-A-29 Ditch*, PNNL-13047.

Response: The stratigraphy at the head-end of the 216-A-29 Ditch shown in Figure 2-8 of the work plan is consistent with that shown in the Groundwater Monitoring Plan for the 216-A-29 Ditch.

3. Page 3-8, Section 3.2, Second Paragraph: The *Groundwater Monitoring Plan for the 216-A-29 Ditch*, PNNL-13047, should have been listed as a reference in this section.

Response: Comment accepted. The recently revised Groundwater Monitoring Plan for the 216-A-29 Ditch will be referenced in this section.

4. Page 3-9, Section 3.2.1.2: For the 216-A-29 Ditch, the range of groundwater flow rates (0.009 m/day to 0.063 m/day) reported in the text do not agree with those reported (0.03 m/day to 0.09 m/day) in *Groundwater Monitoring Plan for the 216-A-29 Ditch*, PNNL-13047, pages 3.1 and 4.1.

Response: The flow rates will be changed and referenced to reflect the most recent calculations included in the Groundwater Monitoring Plan for the 216-A-29 Ditch.

5. Page 4-4, Section 4.2.1: The location of the 216-A-29 borehole should be coordinated with the Groundwater Monitoring program as it may be able to serve as a monitoring well.

Response: Agree. Integrated borings for individual waste sites is identified in Section 5.2.2.2 of the work plan.

6. Neutron moisture-logging should be performed in all nearby boreholes to identify soil layers with relatively high amounts of moisture. These relatively moist areas may preferentially retain the contaminants and should be sampled.

Response: All new borings constructed under this work plan will be geophysically logged, along with two existing boreholes near the 216-S-10 Pond and Ditch. An evaluation of other wells at the 216-S-10 Pond and Ditch, 216-B-63 Trench, and 216-A-29 Ditch were determined to not be suitable for logging due to the presence of annular seals (Section 4.3 of the work plan). The casings for these wells are not in direct contact with the formation due to the presence of bentonite, or other well construction materials. In addition, there is currently no calibration standard to correct for this condition.

7. Page 4-6, Section 4.2.2: To adequately assess the distribution of contaminant at each waste site, more than two test pits should be excavated. Additional test pits are necessary if lateral spreading of contaminants have occurred in the subsurface.

Response: Test pit and borehole locations are distributed throughout/along the waste sites, within the waste site boundary. This sampling approach will allow an assessment of the lateral extent of contamination within the waste site boundary. Previous characterization activities at the 216-A-29 Ditch and 216-B-63 Trench provide additional data points within the waste site boundary. Lateral spreading outside the waste site will be addressed as part of the confirmatory/remedial design-sampling phase (see Section 5.5).

8. Page 4-7, Section 4.3: Geophysical logging will be prohibitively expensive and unavailable if DOE-RL does not support and ongoing geophysical logging effort.

Response: Comment noted.

9. Since the current distribution of gamma ray emitters under the 200 Areas is not known, we are recommending the geophysical logging of the laterals under the tanks and the boreholes in the 200 Areas' cribs, ponds, and trenches. ERWM sent a letter, dated July 21, 1999, with this recommendation to Mr. Rich Holten, U.S. Department of Energy, Richland Operations Office.

Response: See DOE-RL response letter, CCN 074286, from Mr. R.D. Hildebrand, DOE Project Manager, Groundwater Vadose Zone to Mr. P. Sobotta, Nez Perce Tribe dated December 6, 1999. Also see response to Comment 6.