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STATE OF WASHINGTON
DEPARTMENT OF FISH AND WILDLIFE

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27 February, 2001

Larry Gadbois
U.S. Environmental Protection Agency
712 Swift Ave., Suite 5
Richland, WA 99352

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EDMC

Dear Mr. ~~Gadbois~~ ^{Larry}:

RE: Comments on the *USDOE Hanford Site: First Five Year Review Report* (Report),
Public Review Draft, January 25, 2001

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The Washington Department of Fish and Wildlife (WDFW) appreciates the opportunity to comment on the Report. In addition, we referenced other federal agency(ies) policy and guidance, regulations and statutes to assist in framing our comments. WDFW focused on the determinations of whether remedies were protective of the environment (i.e. fish and wildlife) and recommendations by U.S. Environmental Protection Agency (EPA). The 5-year review should have considered ecological risk that has been inadequately addressed at the 4 NPL sites, new contaminant exposure pathways, newly listed species under the Endangered Species Act, and the newly designated Hanford Reach National Monument and resources identified for protection in the proclamation.

GENERAL COMMENTS

Ecological Risk

To date, the Tri-Parties, i.e. EPA, U.S. Department of Energy (USDOE), and Washington Department of Ecology (Ecology), have been using a qualitative ecological risk assessment in the Remedial Investigation/Feasibility Study (RI/FS) process to determine risk to biological receptors. The approach is based on modeling, and the models have never been validated or calibrated. It can not be determined whether a selected remedy is protective of the environment (i.e. fish and wildlife) at a remedial waste site and surrounding areas during the RI/FS and 5-year review process, or whether the remedy is functioning as intended without collecting biological data or validating models.

The qualitative risk assessment failed in the 1100 Area and the 100-IU-3. Exposure routes are being documented after the fact, such as, DDT in biota in the 1100 Area and 100-IU-3. The results of studies assessing effects of hexavalent chromium on fall chinook

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salmon indicate potential injury. The Tri-Parties knowing this still have not changed to a pre-remedial quantitative ecological assessment in the remaining NPL areas (i.e. 100, 200 and 300 Areas).

A quantitative approach, such as, a pre-remedial ecological exposure/effect assessments, is needed immediately to assist the decision-makers in the RI/FS and future 5-year review processes and in establishing remedial action objectives that are protective of biological receptors. This approach would be consistent with EPA guidance. Without gathering pre-remedial biological data, we are unable to determine whether selected or proposed remedies are/will be protective of the environment (i.e. fish and wildlife).

New Contaminant Exposure Pathways

With the current RI/FS risk assessment approach, no new data have been collected during the RI/FS or 5-year review process to determine if there are any open contaminant exposure pathways to fish and wildlife that may pose unacceptable risk to them. However, in the past several years, several scientific efforts have documented open pathways. These include DDT, ⁹⁰Sr, and Cr⁺⁶ and were initiated by U.S. Fish and Wildlife Service (USFWS), Washington Department of Health, and the Hanford Natural Resource Trustee Council (Council), respectively. Unfortunately, it appears that EPA staff failed to recognize and/or act on this information and the need to conduct further evaluations on these contaminants.

DDT was documented by USFWS while performing a level III preacquisition survey on the North Slope (100-IU-3) and Arid Lands Ecology Reserve (1100-IU-1). Concentrations observed in small mammal samples exceeded >5.0 ppm and the ratio of DDT/DDD/DDE in one sample at the H-06-LE site on the North Slope was very close to 1:1:1 indicating a relatively unweathered source of DDT still exists there. Contaminant concentrations of ⁹⁰Sr in biota were substantially higher near the N reactor than at a background site (Vernita Bridge). The hexavalent chromium study is the most extensive study to date at the Hanford Site in terms of documenting ecological exposure and effects. It is still incomplete but initial results indicate potential injury to fall chinook salmon somewhere between 11 ppb and 24 ppb. Upper Columbia River steelhead, which are federally listed, may be more sensitive than fall chinook salmon and additional studies are warranted.

Federally Listed Species

The authors of this Report failed to consider recent federal listings under the Endangered Species Act. Species listed include: upper Columbia River steelhead (*Oncorhynchus mykiss*) as endangered (8/97), upper Columbia River spring chinook salmon (*O. tshawytscha*), as endangered (3/99), and bull trout (*Salvelinus confluentus*), as threatened (6/98). These listings occurred after Record of Decisions had been issued for remedial ground water actions in the 100 and 300 Areas. USDOE continues to allow the release, as

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defined under CERCLA § 101 (22), of hazardous substances that exceed state ambient water quality standards to the Columbia River that may potentially harm these listed species and their critical habitat.

EPA's 5-year review guidance recommends an interagency, multi-disciplinary team approach to ensure a high quality, thorough review, especially at complex sites. It is unknown why EPA's Hanford Project Manager decided against this approach. WDFW believes that it is necessary to utilize other federal agency expertise from the USFWS and National Marine Fisheries Service (NMFS) given the complexity of the site, the multitude of contaminants present, and their potential detrimental affects to biological receptors. In light of the recent listings at a minimum, USFWS and NMFS should be consulted and the ground water Records of Decisions in the 100 and 300 Areas should be modified to reflect the new listings and list ESA as an ARAR. These RODs should be modified to include language that requires USDOE to gather biological data to determine potential impact to listed species and establish clean-up standards protective of them.

Hanford Reach National Monument

There are waste sites that lie within the Hanford Reach National Monument's boundary. The proclamation signed on June 9, 2000 by the President of the United States included language recognizing the USDOE's responsibility to restore the natural resources at the Hanford facility and within the Monument's boundary. To achieve that goal, it is appropriate and consistent with ESA requirements for EPA to recommend to USDOE that they implement a quantitative ecological risk assessment to ensure remedial actions are indeed attempting to sever or reduce exposure of hazardous substances to biological receptors. The current qualitative risk assessment approach does not achieve this objective, nor does waiting to conduct an ecological baseline risk assessment after remedial actions are finished achieve this objective. WDFW has concluded that the Tri-Parties are currently unable to document whether selected or proposed remedial actions are/will be protective of biological receptors.

SPECIFIC COMMENTS

100 Area

This NPL site and associated operable units lack the same quantitative ecological risk assessment as the 200 and 300 Areas. Insufficient scientific data exists to show that selected remedies are indeed protective of the environment. Additional biological data sampling is warranted.

Although the Tri-Parties foreclosed on conducting a 5-year review for the 100-IU-3 Operable Unit in the *draft Interim Closeout Report North Slope Expedited Response Action*, a review appears appropriate given the assumptions used at the time of the

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remedy selection. The foreclosure action is also inconsistent with EPA 5-year review guidance that states, "An entire site is subject to a statutory review if any one of its remedial actions is subject to a statutory review. The triggering action for a statutory review at a site with multiple OUs is the initiation of a remedial action at the first OU where hazardous substances, pollutants, or contaminants will remain above levels allowing for unlimited use and unrestricted exposure after completion of the remedial action." We interpret the word "site" to mean the 100 Area NPL site. The guidance further states "Five year reviews should address all operable units and remedial actions for which there is a ROD or Action Memorandum." We believe that the 5-year review should include the Action Memorandums for 100-IU-4, 100-IU-1, 100-IU-3, 100-IU-3 North Slope 2-4-D Burial Site, and the no action ROD for the 100-IU-1, 100-IU-3, 100-IU-4 and 100-IU-5. These exclusions from the review are not consistent with the way the 5-year review process applied to the 1100-IU-1.

In addition, new ecological exposure pathways and receptors have been identified for waste sites within the 100-IU-3 Operable Unit. The source of this information came from a USFWS preacquisition survey. The contaminant of concern is DDT and its metabolites and receptors include small mammals, insects, and raptors. No ecological risk assessment was conducted prior to the remedial action or prior to the Operable Unit being deleted from the 100 NPL site via a partial deletion. Implementation of a biomonitoring plan is appropriate at this time given that the 100-IU-3 OU lies within the Hanford Reach National Monument.

The Council's assessment plan (i.e. *Hanford Site 100 Area Assessment Plan, Volume I: Columbia Rivers Aquatic Resources*) is mentioned on page 100-11. Unfortunately, EPA only mentions the Cr⁺⁶ study. The assessment plan also identified tritium and ⁹⁰Sr as contaminants of concern and identified potential ⁹⁰Sr studies involving sculpin. The proposed studies would assist in fulfilling the evaluation of ecological receptor impact requirements as identified in the Interim Remedial Action ROD for the 100-NR-1 and the 100-NR-2 Operable Units. The requirement states, "Obtain information to evaluate technologies for Sr-90 removal and evaluate ecological receptor impacts from contaminated groundwater (by October 2004)." No quantitative ecological assessment studies have been proposed other than those USDOE agreed upon in supporting the Council's 100 Area Assessment Plan (Resolution 99-01).

On page 100-18, EPA states "the pump-and-treat system does not appear to be effective method for reducing Strontium-90 concentrations in the aquifer relative to natural decay." This may be the case for ⁹⁰Sr, but the pump-and-treat may be effective in creating a hydraulic barrier that prevents other contaminants of concern from impacting the Columbia River. Its evaluation as a hydraulic barrier that prevents other contaminants of concern from impacting the Columbia River does not appear to have been performed. In addition, proposals have not been presented to treat these contaminants of concern.

Recommendations

- 1) USDOE shall recalculate ecological risk for the 100 NPL site using a quantitative approach for terrestrial and aquatic environments (i.e. biological receptors), and initiate by July 2001. The emphasis of the assessment shall be to gather pre-remedial biological data, and shall be coordinated with the Hanford Natural Resource Trustees.
- 2) Action item 100-2 needs to be revised to include "USDOE shall initiate a quantitative ecological evaluation of ecological receptor impacts from contaminated ground water by December 2001 and complete by October 2004."
- 3) USDOE shall develop a remedial treatment train that addresses the other ground water contaminants of concern originating from the 100 N-Area by October 2004.
- 4) Action item, 100-1, second bullet, needs revised to state that "downtime must be dramatically reduced and the system must achieve an operational efficiency of a minimum of 90%." Efficiency would be comparable to the Strontium-90 pump-and-treat.
- 5) All 100 Area interim RODs shall be modified to include ESA and Migratory Bird Treaty Act as ARARs.

200 Area

This NPL site and associated operable units lack the same quantitative ecological risk assessment as the 100 and 300 Areas. Insufficient scientific data has been collected to assist in establishing appropriate remedial action objectives. Additional biological sampling is warranted.

WDFW has repeatedly requested a 200 Area quantitative ecological assessment (please reference letters dated 14 January, 1999; 4 August, 1999 and 4 January, 2000 from J. McConnaughey to Bryan Foley of USDOE). It is extremely difficult to properly frame remedial action objectives when insufficient biological data that can assist in determining the extent of a release of a hazardous substance to the environment has been gathered. Without biological data, the remedial project managers are merely speculating that proposed/selected remedies will be protective of the environment.

Given that a conservation land use designation surrounds the industrial exclusive area, as designated in the final Comprehensive Land Use Plan, it is appropriate to gather biological data to assist in the on-going remedial characterization there. Institutional Controls, such as, signs and fencing, will not prevent or hinder avian, insects, or small mammal species from entering waste sites, or the industrial exclusive area.

Recommendations

- 1) USDOE shall calculate ecological risk by conducting a quantitative ecological assessment for the 200 NPL site, and initiate by December 2001. The effort shall be coordinated with the Hanford Natural Resource Trustees.
- 2) USDOE shall include the Migratory Bird Treaty Act as an ARAR in all 200 Area Operable unit RODs.

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300 Area

This NPL site and associated operable units lack the same quantitative ecological risk assessment as the 100 and 200 Areas. Insufficient scientific data exists to show that selected remedies are indeed protective of the environment. Additional biological data sampling is warranted.

Goals listed on pages 300-7 and 300-8 for the 300-FF-1 Operable Unit are unachievable without gathering ecological receptor data.

A uranium plume that originates from the 300 Area NPL site is reaching the Columbia River. Data indicate that the uranium concentration levels are not attenuating as predicted (reference letter dated 5 September, 2000 and see enclosure from J. McConnaughey of WDFW to Mike Goldstein of EPA). The half-life for uranium radioactive isotopes is hundreds of thousands to millions of years. EPA is currently requiring USDOE to pump and treat a uranium plume in the 200 Area but is not requiring USDOE to pump and treat a plume in the 300 Area that is directly and currently impacting the Columbia River. Containment is cited as justification for pump-and-treat in the 200 Area; the same justification exists in the 300 Area. Furthermore, EPA's policy directive 9200.4-17P and USDOE's guidance document entitled *Decision-Making Framework Guide for the Evaluation and Selection of Monitored Natural Attenuation Remedies at Department of Energy Sites* (USDOE Office of Environmental Restoration, May 13, 1999) are not being adhered to. According to Ecology staff, the policy and guidance are not being met, (reference letter dated December 19, 2000 from John Price, Environmental Restoration Project Manager to Mr. Michael Goldstein of EPA). As part of a performance evaluation, a scientific approach to this problem would include a quantitative ecological assessment to determine if the uranium plume is affecting aquatic receptors. Aquatic receptors were not considered during the RI/FS qualitative risk assessment process. Part of the evaluation should include potential effects/harm to federally listed fish species.

Our comments submitted on the 300-FF-2 remain unresolved and applicable. Please reference letter dated 12 January, 2000 from J. McConnaughey to Mike Goldstein of EPA, and letter dated 5 September, 2000 to same addressee.

Institutional Controls, such as, signs and fencing, will not prevent or hinder fish, insects, burrowing mammals and migratory birds from entering waste sites or contaminated ground water plumes.

Recommendations

- 1) USDOE shall recalculate ecological risk for the 300 NPL site using a quantitative ecological risk assessment approach for terrestrial and aquatic environments (i.e. biological receptors), and initiate an assessment by July 2001. The emphasis of the assessment shall be to gather pre-remedial biological data, and shall be coordinated

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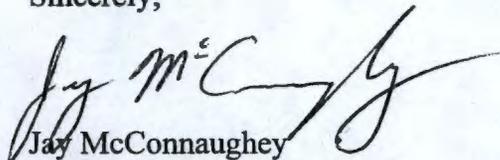
with the Hanford Natural Resource Trustees. Evaluation shall include species listed under ESA and the Migratory Bird Treaty Act.

- 2) USDOE shall include quantitative ecological risk assessment language in the 300-FF-2 ROD.
- 3) USDOE shall revisit the 300-FF-5 selected remedy to ensure that it is protective of federally listed fish species and their critical habitat.

In conclusion, it is important to WDFW that a pre-remedial quantitative ecological risk assessment is used in the RI/FS process. This assessment approach is identified in guidance titled *Natural Resource Trusteeship and Ecological Evaluation for Environmental Restoration at Department of Energy Facilities* and OSWER Directive 9285.7-28P of USDOE and EPA, respectively. Although EPA has performed a 5-year review, if public comments, EPA and USDOE's guidance and policies, and regulations are ignored, then the review is deficient and the Tri-parties are unable to demonstrate or defend that remedial actions are being protective of the environment, i.e. fish and wildlife.

If you have any questions regarding these comments, please contact me at (509) 736-3095.

Sincerely,


Jay McConnaughey
Habitat Biologist, Hanford Site

cc:

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100 Area Administrative Record

200 Area Administrative Record

300 Area Administrative Record