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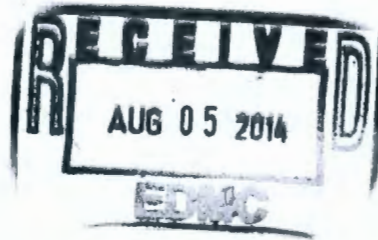
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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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July 31, 2014

14-NWP-156



Ms. Joanne Chance
Richland Operations Office
United States Department of Energy
PO Box 550, MSIN: A3-04
Richland, Washington 99352

Re: The United States Department of Energy – Richland Operations Office Transmittal of the *Annual Operations and Monitoring Report for UPR-100-N-17: November 2012 – February 2014*, WCH-600, Revision 0 (Annual Report)

Dear Ms. Chance:

The Department of Ecology (Ecology) reviewed the referenced annual report. The annual report provides operational data and a microbial report. It also contains recommendations for bioventing operations at the 100-N Area.

Ecology concurs with the following recommendations regarding system operations and performance monitoring. We urge the United States Department of Energy – Richland Operations Office to implement them as soon as possible at the Hanford Site.

1. Continue to operate the bioventing system as an interim remedial action until a decision is made in the final Record of Decision.
2. Evaluate operating the bioventing system on a predetermined schedule such as one week on and two weeks off to reduce costs for power consumption while maintaining oxygen levels.
3. Perform respirometry tests in the spring and fall of 2014 to determine if there is any seasonal variability in the degradation rates as they relate to river stage and groundwater elevation at the site.
4. During future respirometry tests, allow the system to remain off for a longer time after the test concludes and collect a final set of data prior to restarting the system to confirm the low degradation rates as ambient conditions are reestablished.
5. Integrate the bioventing remedy with 100-N groundwater management to ensure a coherent approach for petroleum remediation.

Additional recommendations were made in the microbial report:

- Add nutrients to the excavation zone to enhance native bioremediation that is already occurring.
- Do not add microbes or nutrients in deep vadose or rewetted zones for the UPR-100-N-17 waste site.



Ms. Joanne Chance
 July 31, 2014
 Page 2

14-NWP-156

Ecology is pleased to have received the data on microbial speciation and has concluded:

- An addition of nutrients in the excavated zone is not warranted and backfill should proceed.
- An addition of petroleum degrading microbes is not warranted for the UPR-100-N-17 waste site.
- Addition of nutrients in deep and rewetted zones is not warranted for the UPR-100-N-17 waste site.

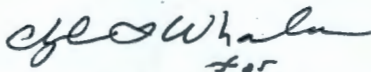
We have concerns regarding the kinetic studies that evaluated the minimum time to reach cleanup values and whether nutrient addition would shorten the remedial timeframe in the deep or rewetted zones. The laboratory used fresh diesel for the kinetic studies, rather than weathered diesel which would represent field conditions in the 100-N Area. Fresh diesel has a higher kinetic rate, and therefore, lower remedial timeframe. The data was then used to calculate a kinetic rate for microbial consumption and to ascertain whether nutrient addition would affect that rate. This is not the same as concluding a kinetic rate and nutrient requirements for site-specific microbial communities in a weathered diesel scenario.

Ecology wants to emphasize that current operation of the bioventing system is adequate without the addition of nutrients, and that pumping air into the vadose zone fulfills the intent of the Interim Record of Decision.

The decision to add nutrients will be revisited, if evidence (for example, soil samples, groundwater monitoring, or consistent oxygen levels but decreasing carbon dioxide levels in respirometry tests) shows a decrease in microbiological activity without a related decrease in petroleum (carbon) source.

If you have any questions, please contact me at kim.welsch@ecy.wa.gov or (509) 372-7882.

Sincerely,



Kim Welsch, Acting Project Manager
 Environmental Restoration Project
 Nuclear Waste Program

wel/jc

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 Administrative Record: 100 N ✓
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