

From: Chawla, Mahesh
Sent: Friday, April 30, 2021 10:24 AM
To: 'Garcia, Richard M.'
Cc: Dixon-Herrity, Jennifer; Schwartzman, Adam; Tammara, Rao; Arlene, Briana; Palmrose, Donald; Rikhoff, Jeffrey; Guo, Lifeng; Martinez, Nancy; Hoffman, Robert; Folk, Kevin; Elliott, Robert; Rakovan, Lance; McKenney, Chris; Erwin, Kenneth; Greene, Natasha; Josey, Jeffrey; Hernandez, Nick; Merker, Lindsay
Subject: FINAL - Request for Additional Information - Columbia Generating Station - On-Site Cooling System Sediment Disposal Approval Request - EPID L-2020-LLL-0031
Attachments: Columbia Generating Station 10 CFR 20.2002_Final RAIs.docx

Dear Mr. Garcia,

On December 21, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20356A172), Energy Northwest (the licensee) submitted to the U.S. Nuclear Regulatory Commission (NRC) a 10 CFR 20.2002 request for approval of onsite disposal of sediments from the circulating water system cooling towers and standby service water system spray ponds at the Columbia Generating Station. In accordance with 10 CFR 20.2002(b), each application should include an analysis and evaluation of pertinent information on the nature of the environment. The NRC staff has reviewed Energy Northwest's submittal and determined that additional information is required for the NRC to complete its safety and environmental reviews.

On April 22, 2021, we conducted a clarification teleconference between the NRC staff and the representatives of Energy Northwest to get further clarifications needed for the subject RAIs. Based on the discussions during the call, it was agreed by the NRC staff to revise the information requested in the RAI SHH-3. The revised final RAIs are provided as an attachment to this email. After the clarification teleconference, you called back and requested 60 calendar days to provide the requested information on the docket. Therefore, please provide the response to the RAIs on the docket within 60 calendar days of the receipt of this email. Thanking you,

Sincerely,

Mahesh Chawla, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
ph: 301-415-8371

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MChawla	JDixon- Herrity
4/30/2021	4/30/2021

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Options

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**Columbia Generating Station 10 CFR 20.2002
Request
for Additional Information (RAIs)**

On December 21, 2020, Energy Northwest submitted to the U.S. Nuclear Regulatory Commission (NRC) a 10 CFR 20.2002 request for approval of onsite disposal of sediments from the circulating water system cooling towers and standby service water system spray ponds at the Columbia Generating Station. In accordance with 10 CFR 20.2002(b), each application should include an analysis and evaluation of pertinent information on the nature of the environment. The NRC staff has reviewed Energy Northwest's submittal and determined that additional information is required for the NRC to complete its safety and environmental reviews.

Historic and Cultural Resources (HCR) Issues

The NRC staff's environmental assessment considers a variety of issues related to the impacts from the proposed 10 CFR 20.2002 disposal action, including historical and cultural impacts. Since this review addresses past, present, and future disposal actions the NRC staff has the following questions regarding historical and cultural considerations that were considered prior to the development of the initial soil disposal area as well as the November 2020 expansion.

- HCR-1 Energy Northwest's 10 CFR 20.2002 submittal identifies that sediment disposal cell expansion was completed in November 2020. Is the disposal area located in a previously disturbed area or considered an archaeologically sensitive area?
- HCR-2 Did Energy Northwest contact or consult with the State Historic Preservation Officer or Federally- or State-recognized tribes regarding the November 2020 disposal cell expansion and any associated ground disturbance? If so, provide a discussion of the consultation(s) conducted.
- HCR-3 Did Energy Northwest follow the site's cultural resource protection procedure prior to conducting any ground disturbance of the disposal area? If so, describe the steps taken in accordance with the procedure prior to and when conducting ground disturbing activities of the disposal area.
- HCR-4 Did Energy Northwest conduct an archaeological survey of the disposal area prior to conducting ground disturbance? If so, provide a discussion of the survey findings.

Safety and Human Health (SHH) Issues

The NRC staff also determined a need for additional details as well as further clarification of statements made in the submittal documents to address technical issues associated with safety and human health-related issues that need to be considered for NRC staff to completely evaluate this alternate disposal request. Specific details regarding the issues of concern and questions whose answers will help to resolve these concerns are provided below.

Issue #1

Background:

The enclosure and supporting attachments do not provide enough details related to the doses to workers associated with disposing of the cooling tower sediments and spray pond sediments in the fenced sediment disposal area and related monitoring activities.

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Doses to workers associated with this alternate disposal request are based on an occupational worker scenario with a regulatory limit of 15 mrem/yr. Section 5.1, Sediment Disposal Area Control, notes that the area is only occupied when material is being disposed, during sampling activities, and during the changeout of TLDs and other environmental monitoring activities. Section 5.5, Radiological Impact Evaluation (Dose Assessment), discusses an approach to dose modeling but does not provide total dose values. Specific details provided also do not differentiate the doses to different types of workers who may be involved with the area.

Regulatory Basis:

This information is needed to ensure that the relevant exposure scenarios and appropriate parameter values are considered when assessing doses associated with this proposed disposal action in accordance with 10 CFR 20.2002.

Path Forward:

- SHH-1 Provide specific details describing the different types of workers involved with the activities that occur within the sediment disposal area (i.e., are the workers involved with the disposal actions the same workers involved with the monitoring activities?).
- SHH-2 Confirm whether all workers involved with activities occurring within the sediment disposal area qualify as radiation workers under the facility's radiation protection plan, are members of the public, or a combination of both. If multiple groups are involved, document how each of their doses are calculated.
- SHH-3 Provide an assessment of the impacts, including specific doses when available, to members of the public involved with the disposal actions and other operating activities (e.g., monitoring activities) associated with the activities occurring within the Sediment Disposal Area. Include any dose modeling data and results or other references used to evaluate these scenarios.

Issue #2

Background:

The enclosure document and supporting attachment documents do not provide enough detail for NRC staff to gain a complete understanding of the size of the disposal area, the size of the individual disposal cells, the total volume of sediments that have already been deposited in the area, and the volume of sediments that has yet to be disposed.

Multiple sections of the enclosure and attachments submitted to the NRC for review discuss volumes of material associated with this 20.2002 request. Additional details are needed to ensure a clear understanding of which volumes of materials should be considered. Specific sections that need further clarification include:

1. Section 1.2, Location – In this section Energy Northwest estimates that approximately 200 cubic yards of total space remains in the two active cells and 1200 cubic yards is available in the future use cell for a total of 1400 cubic yards. Based on an average amount of dry sediment that was disposed from 2010 to 2019, 198 cubic yards per year,

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Energy Northwest estimates that this remaining space will be filled in 7 years (198 cubic yards/year X 7 years = 1396 cubic yards).

2. Section 5.5.2, Dose Projection Assumptions – This section provides the parameters used for performing the dose modeling. In this section Energy Northwest notes that the total volume of deposited sediment is 2850 cubic yards; 1800 cubic yards of sediment from the cooling tower based on the assumption of 60 cubic yards per year for 30 years and 1050 cubic yards based 35 cubic yards per year for 30 years.
3. Section 5.5.2, Dose Projection Assumptions – This section also discusses dimensions of deposited material that was used for modeling, this time using units of meters instead of yards. Although not specifically noted, it appears that Energy Northwest considered identical cylindrical areas of waste with a radius of 15 meters and assumes different depths for the deposited material (1.2 m for the spray pond material and 2 m for the cooling tower material) as a way of performing a more conservative dose assessment.

Regulatory Basis:

This information is needed to ensure that enough details are provided to meet the specific requirements established in 10 CFR 20.2002(b) and (c). This information is also need when evaluating the dose calculations needed to assess the doses (20.2002(d)) associated with this proposed disposal action in accordance with 10 CFR 20.2002.

Path Forward:

- SHH-4 Clarify the total area of the sediment disposal area and the volumes of sediment that have previously been disposed of and have yet to be disposed in the sediment disposal area. Is the 3600 ft² (120 ft X 300 ft) fenced area discussed in the State Environmental Policy Act (SEPA) Environmental Checklist included with Enclosure Attachment 3, the sediment disposal area being considered in this alternate disposal request? If not, provide the area of the sediment disposal area and a reference to these dimensions. Also, based on the information provided in Sections 1.2 and 5.5.2, clarify if the 2850 cubic yards of material includes the 1400 cubic yards of material that has yet to be disposed and if the total volume of material in the sediment disposal area at the time of closure is 2850 cubic yards or 4250 cubic yards (2850 cubic yards + 1400 cubic yards).
- SHH-5 Explain why Section 5.5.2, Dose Projection Assumptions, only considers two areas when there are more than two disposal cells. By using separate volumes, does this indicate that the sediments from the cooling towers and the spray ponds remain separate when being placed in the disposal cells (i.e., specific disposal cells for each sediment) or are they mixed within a single disposal cell? If specific cells are used for each sediment, how many and what are the dimensions of the specific disposal cells? If the sediments are mixed, explain the significance of using a depth of 1.2 m for spray pond sediments and 2 m for cooling tower sediments when performing the dose calculations.

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Issue #3

Background:

The enclosure discusses two methods that were used for evaluating doses to workers associated with sediment disposal and environmental monitoring activities in the sediment disposal area. Doses are provided using TLD measurements. These quarterly average doses are reported as mR per standard quarter. Additional details are needed to further understand what “quarterly average” means. The enclosure also discusses doses that were calculated using RESRAD and Microshield and site-specific parameter values. These values do not appear to have been updated since the original analyses performed in 1995 (i.e., no updated dose analyses were provided). As a result, these doses do not consider the impact from the addition of cooling tower sediments and spray pond sediments that have been added to the sediment disposal area since then.

Section 5.4 indicates that measurements of direct radiation at the sediment disposal pit area are taken using TLD Station 119B as the indicator location and Station 119Ctrl as control location. According to Figure 4-1 in the 2019 Annual Radiological Environmental Operating Report, the locations of TLD Station 119B and TLD Station 119Ctrl seem to be far away from the sediment disposal area and may not be representative of direct radiation measurement due to the disposal of sediments in the sediment disposal cells. They both seem to be more representative of a background dose. The TLD measurements appear to consider background measurements based on measurements from a control site but no discussion is provided regarding background measurements when calculating doses based on radionuclide concentrations measured in the sediment samples.

Regulatory Basis:

This information is needed to ensure that enough details are provided to meet the specific requirements established in 10 CFR 20.2002(b) and (c). This information is also needed when evaluating the dose calculations needed to assess the doses (20.2002(d)) associated with this proposed disposal action in accordance with 10 CFR 20.2002.

Path Forward:

- SHH-6 Confirm the process used to establish annual doses based on the measured direct radiation values reported in Table 3, “Measurements of direct radiation at the disposal area using TLD Station 119B and TLD Station 119Ctrl” and their location relative to the sediment disposal area. What role do the background measurements play and how are net negative values addressed for both the TLD measurements and the radionuclide concentrations measured in the sediment samples? How do these doses compare with the dose values calculated using the individual radionuclide concentrations measured in the sediment samples collected during each disposal and summarized in Table 2 of Section 3.2, “Analysis of Sediment,” of the enclosure?
- SHH-7 Clarify the process used to calculate the quarterly average mean value for the TLD measurement (i.e., the average of 3 months of measurements, the average of 12 months of measurements divided by 4, or some other method).

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- SHH-8 Without consideration for the TLD control location (TLD Station 119Ctrl), how do the doses associated with the TLD measurements compare with the doses calculated using the radionuclide concentrations measured in the pre-disposal samples?
- SHH-9 Considering up-to-date site characteristics for the sediment disposal area and the cumulative impacts from the addition of sediments and radionuclides, provide up-to-date doses to individuals working within the sediment disposal area as well as for current and future reasonably foreseeable land-use scenarios.