

July 2, 2010

Mr. E. Kurt Hackmann  
Director, Hematite Decommissioning Project  
Westinghouse Electric Company  
3300 State Road P  
Festus, MO 63028

SUBJECT: WESTINGHOUSE HEMATITE DECOMMISSION PLAN REVIEW REQUESTS  
FOR ADDITIONAL INFORMATION

Dear Mr. Hackmann:

By your letter dated August 12, 2009, you submitted a request for approval of the Westinghouse Hematite Decommissioning Plan (HDP) [ADAMS Nos. ML092330123, ML092330125, ML092330127, ML092330129, ML092330131, and ML092330132]. The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed your request. As a result of that review the staff has identified areas where additional information is required in order to complete its review. Enclosed are requests for additional information (RAIs) covering Chapter 11 of the HDP. In June and July, the NRC will be transmitting RAIs covering the remaining Chapters of the HDP and other documents submitted in support of the Hematite decommissioning. Other documents include the Decommissioning Fund Plan (ML091950063) and the Physical Security Plan and Contingency Procedures.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Please provide your response to the RAIs within 30 days of the date of this letter. If you have any further questions, please contact me at (301) 415-5928 or via email at [john.hayes@nrc.gov](mailto:john.hayes@nrc.gov).

Sincerely,

**/RA by P. Michalak for/**

John J. Hayes, Senior Project Manager  
Materials Decommissioning Branch  
Decommissioning and Uranium Recovery  
Licensing Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Federal and State Materials  
and Environmental Management Programs

Enclosure: HPD Chapter 11 RAIs

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Enclosure: HPD Chapter 11 RAIs

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J. Tapp, RIII

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**HEMATITE DECOMMISSIONING PLAN CHAPTER 11 - ENVIRONMENTAL MONITORING  
PROGRAM  
REQUEST FOR ADDITIONAL INFORMATION**

1. (HDP –C11- Q1) Comment: In several sections of Chapter 11, reference is made to the Effluent and Environmental Monitoring Plan (EEMP) and the Water Management Plan. However, details as to what the Plans consist of are not described in the Hematite Decommissioning Plan (HDP).

Basis: Details of the EEMP and the Water Management plans are necessary to complete the NRC staff's evaluation of the HDP.

Path Forward: Provide a copy of the Effluent and Environmental Monitoring Plan (EEMP) or incorporate into the HPD details from the EEMP which describe the effluent and environmental monitoring plan.

2. (HDP-C11-Q2) Comment: Footnote B of Table 11-1 indicates that the As Low as Reasonably Achievable (ALARA) goal will be based upon annual average concentrations and for liquids this is applied at the site boundary. It seems inappropriate to define the process as being ALARA when the ALARA actions are limited to basing the consequences on an annual average concentration and there is so much time when no activities are occurring.

Basis: An ALARA is a program whereby licensees implement actions to limit the exposure of on-site and off-site personnel. Determination of the dose based upon an annual average concentration cannot be considered as an implementation of an ALARA program. Appendix D of NUREG-1757 provides guidance on the information that the licensee should provide regarding the Environmental ALARA Evaluation Program. This includes a description of the ALARA goals and the procedures, engineering controls, and process controls to maintain doses ALARA.

Path Forward: Provide a description of the ALARA program which will be implemented during the decommissioning.

3. (HDP-C11-Q3) Comment: With respect to airborne effluents it would seem that the sampling point also needs to be at a downwind location at the maximum off-site location based upon the process being performed.

Basis: Depending upon the process and the environmental conditions, the maximum location for effluent monitoring may not be located at the perimeter.

Path Forward: Westinghouse Electric Company (WEC) should include in its airborne effluent monitoring an assessment for the maximum offsite location.

4. (HDP-C11-Q4) Comment: The collection mode for the sanitary wastewater treatment liquid effluent is not specified in Table 11-1. It appears that only the analytical frequency "weekly" is specified.

Enclosure

Basis: The collection mode for the Sanitary Wastewater Treatment effluent stream should be specified.

Path Forward: Specify the collection mode for the Sanitary Wastewater Treatment effluent stream.

5. (HDP-C11-Q5) Comment: It is stated in Section 11.2.1 of the HDP that air effluent sampling will consist of perimeter sampling. It is also stated that perimeter sampling will only occur when work activities are likely to generate, at the perimeter of the work activities, airborne radioactivity concentrations in excess of 20 percent of the values listed in Appendix B, Table 2 of 10 CFR Part 20. The number and the location of the perimeter air samplers will be established based upon consideration of the location and nature of the current work activities and environmental conditions such as wind direction.

Basis: Effluent monitoring is typically required when a particular process has the potential for releasing a given amount of material which could contribute a given fraction of the allowable dose. It is usually not based upon a given application of the process but rather based upon the potential. In addition, when such processes do not include a defined discharge point, fixed monitoring locations are typically selected to provide some stability to such a program.

Path Forward: The effluent monitoring program should be a function of the processes being performed. Where a defined release point exists for the process, that discharge point should be monitored for its release. To ensure adequate monitoring for those instances where a fixed release point cannot be identified, perimeter monitoring is acceptable but the monitors should be fixed in location and should provide a decommissioning project history. The fixed perimeter monitors should be supplemented by mobile sampling locations which account for environmental factors and the process.

6. (HDP-C11-Q6) Comment: Section 11.2.3.1 of the HDP states that "liquid effluent will be controlled by an evaluation of laboratory results to determine suitability for release, or by process knowledge and retrospective confirmation of the concentrations based on subsequent laboratory analysis." It is also indicated that methods for water treatment will be implemented when appropriate to further reduce concentrations released to the environment. However, no description is provided of the laboratory analysis, process knowledge or methods for water treatment which will be utilized to minimize the release. Table 11-1 specifies Gross Alpha and Gross Beta as the types of analyses for liquid effluent and in a footnote states, "Analytical procedures that provide equivalent data quality (e.g., liquid scintillation, kinetic phosphorescence analysis or alpha spectroscopy) may be selected based upon the sample medium." However, clarification is needed on how and when these other methods will be employed. A threshold where specific isotopic analysis will be performed should also be identified.

Basis: Appendix D of NUREG-1757 indicates that a description should be provided of the controls that will be used to minimize releases of radioactive material to the environment.

Path Forward: The types of detection methods and laboratory analysis should be specified, including ability to detect Tc-99. The methods for reducing the concentrations from the water treatment facility to the environment should be provided.

7. (HDP-C11-Q7) Comment: Section 11.3 of the HDP states that a revision to a monitoring location contained in the EEMP may be replaced with an alternate location without prior NRC approval provided that the alternative is representative of the original location and that no other changes are necessary. However, justification for the change is not included as a stipulation. Section 11.3 also states that corrections will be taken to investigate the cause of a “significant” continuous upward trend and that remedial actions will be taken as appropriate.

Basis: Appendix D of NUREG-1757 provides guidance which indicates that the licensee should provide a summary or a diagram of the location of all effluent discharge points.

Path Forward: WEC should clarify Section 11.2.3.3 and Table 11-1 to ensure that the information is consistent with the guidance of NUREG-1757. Replacement of monitoring locations should be a last resort. The documented evaluation should also include justification for replacing a monitoring location. Clarify the term significant and provide more detail for the investigation process.

8. (HDP-C11-Q8) Comment: It appears from discussion in Section 11.2.1 of the HDP that mobile air samplers will be utilized and will be moved based upon the work activities, wind direction and other environmental conditions. It would appear appropriate for some air samplers to be mobile and some to be permanent.

Basis: Material may be discharged from the site as a result of specific decommissioning processes or as a result of the entrainment of site soil and other material which may become airborne as a result of climatic conditions. The methods for determining the impact of site decommissioning should account for potential continuous release mechanisms and those associated with a process.

Path Forward: WEC should include in the HDP air sampling program both mobile and permanent air sampling locations, describe the manner in which each will be employed, and provided the location of each permanent air sampler.

9. (HDP-C11-Q9) Comment: An annual review of the ALARA program seems too infrequent considering the decommissioning will only last about 3 years (Section 11.1.3).

Basis: Appendix D of NUREG-1757 provides guidance on the information that the licensee should provide regarding the Environmental ALARA Evaluation Program. This includes a description of the ALARA reviews and reports to management. Having an annual review for a program which is anticipated to be three years in duration appears to be insufficient for ensuring that programmatic changes may be made in a timely fashion.

Path Forward: Provide an explanation as to why an annual assessment of the ALARA program is sufficient in timeliness and why an assessment should not be more frequent than annually.

10. (HDP-C11-Q10) Comment: The HPD contains no information on the location of the airborne and liquid effluent sampling points. Also, there are no specified locations for soil, sediment, and vegetation samples, nor are there particular on-site wells specified which will be part of the monitoring program

Basis: Appendix D of NUREG-1757 provides guidance on the information that the licensee should provide regarding the Effluent Monitoring Program. One of the items is a summary or a diagram of all effluent discharge points.

Path Forward: WEC should provide a map showing the airborne and liquid effluent monitoring locations as well as the environmental monitoring program sampling locations. Also provide a description of on-site wells that will be used with the monitoring program.

11. (HDP-C11-Q11) Comment: Table 11-5 of the HDP contains no ALARA goals, Investigative Level or Regulatory Level for groundwater, soil, sediment, or vegetation. Also the precise basis for these levels for air and surface water should be provided.

Basis: Appendix D of NUREG-1757 indicates that a decommissioning plan should contain a summary of action levels and a description of the actions to be taken if a limit is exceeded.

Path Forward: Provide the ALARA goals, Investigative Level or Regulatory Level values for groundwater, soil, sediment, or vegetation in Table 11-5. Clarify from where in Part 20, Appendix B, Table 2, the regulatory level in Table 11-5 is taken. If uranium and thorium are used as surrogates for gross alpha and beta, this should be explained, possibly as a footnote to the tables.

12. (HDP-C11-Q12) Comment: The discussion in Section 11.2.3.4 of the HDP indicates that there will be a weekly grab sample from the Sanitary Wastewater Treatment Plant Outfall. It would appear that a weekly composite would be appropriate.

Basis: Guidance in NUREG-1757 Appendix D indicates that licensees are to submit a decommissioning plan which includes an environmental monitoring program which demonstrates that samples will be representative of actual radiological conditions at the time samples are collected. It is unclear that a weekly grab sample would be representative of the actual radiological conditions.

Path Forward: Modify the sampling program for the Sanitary Wastewater Treatment Plant Outfall to be a continuous composite sample or else provide a justification as to why the weekly grab sample is representative of the actual radiological conditions.

13. (HDP-C11-Q13) Comment: The discussion in Section 11.2.3.5 indicates that the quality assurance requirements for the effluent monitoring program are contained in the EEMP. The EEMP has not been provided for review and no details were provided in the HPD about the requirements. While an "example" list of typical procedures was provided in Table 11-4, such a listing provides no commitment nor does it establish what the actual requirements will be.

Basis: Guidance in NUREG-1757 Appendix D indicates that licensees are to provide a description of the quality assurance program to be established and implemented for the effluent monitoring program.

Path Forward: Provide the EEMP or a description of the quality assurance program to be established and implemented for the effluent monitoring program.

14. (HDP-C11-Q14) Comment: It is stated that contaminated water will be collected and treated in accordance with the Water Management Plan. The Water Management Plan was not provided nor was the collection and treatment plans described in Section 11.2.4.1 of the HPD.

Basis: Guidance in NUREG-1757 Appendix D indicates that licensees are to provide a description of the controls that will be utilized to minimize the releases of radioactive material to the environment.

Path Forward: Provide the Water Management Plan or a description of the methods which will be incorporated to collect and treat contaminated water.

15. (HDP-C11-Q15) Comment: Section 11.2.4.1 of the HDP discusses that holding tanks not requiring secondary containment will have their above ground components, piping, and ancillary components inspected for system integrity and potential leakage. Leak detection and integrity assessments will be performed on tanks, piping, and components which are located below ground is not discussed.

Basis: Guidance in NUREG-1757 Appendix D indicates that licensees are to provide a description of the leak detection systems for tanks.

Path Forward: Provide a description of the leak detection systems that will be implemented for those liquid systems that have components which are located below ground and the basis for determining whether a system or component requires secondary containment.

16. (HDP-C11-Q16) Comment: It is indicated in Section 11.2.4.2 of the HDP that the comparison of effluent concentration values with the applicable regulatory limits in Appendix B, 10 CFR Part 20 will be performed semi-annually and reported to the Hematite Project Director. This information also needs to be reported to the U. S. Nuclear Regulatory Commission in accordance with 10 CFR 70.59.

Basis: 10 CFR 70.59 requires semi-annual reporting of the quantity of each of the principle radionuclides released to unrestricted areas in liquid and gaseous effluents during the previous 6 months and such information as the Commission may require to estimate the maximum potential annual radiation doses to the public resulting from effluent releases.

Path Forward: Modify Section 11.2.4.2 to include a commitment to provide the effluent release data required by 10 CFR 70.59.

17. (HDP-C11-Q17) Comment: It is stated in Section 11.3 of the HDP that the environmental monitoring locations and sampling parameters are presented in Table 11-5. In most cases, the specific monitoring locations are not specified in the table. In addition, for the groundwater, soil, sediment, and vegetation samples, no ALARA goal, Investigative Level or Regulatory Level values are provided.

Basis: Guidance in NUREG-1757 Appendix D indicates that licensees are to provide a summary of the action levels. Environmental monitoring locations are to be representative of actual radiological conditions. Unless the monitoring locations are known, a determination cannot be made as to whether the monitoring locations will be representative of actual radiological conditions.

Path Forward: Provide the action levels for the ground water, soil, sediment, and vegetation samples; ALARA goal; and Investigative Level or Regulatory Level; and provide all monitoring locations.

18. (HDP-C11-Q18) Comment: It is stated in Section 11.3 of the HDP that the environmental samples will be collected and analyzed in accordance with the approved site procedures (see Table 11-4) and governing programs. However, Table 11-4 is only entitled "Example List of EEMP Implementing Procedures". There is no indication that WEC has or will have those procedures.

Basis: Guidance in NUREG-1757 Appendix D indicates that licensees are to provide a summary of the collection and analysis procedures.

Path Forward: Provide a summary of the collection and analysis procedures.