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Our ref: HEM-06-38
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Subject: Submittal of Hematite Decommissioning Plan and Supporting Documents, Licensee No. SNM-33 (Docket 070-00036)

Reference: 1. Status of the Hematite Decommissioning Plan (TAC No. L52624), January 5, 2006, letter from Daniel Gillen to Henry A. Sepp

Enclosed is a complete resubmittal of the Westinghouse Electric Company LLC ("Westinghouse") Decommissioning Plan and related documents for the Hematite Former Fuel Fabrication Facility in Festus, Missouri ("Hematite site"). Revision 3 of the Decommissioning Plan includes changes to address comments identified by NRC in Reference 1 and in a January 25, 2006 meeting with NRC staff. Westinghouse will provide a separate response to the NRC letter dated May 1, 2006 which provided NRC's summary of the January 25, 2006 meeting.

A summary of changes to the Decommissioning Plan and related documents is provided in Attachment 1 to this letter. Westinghouse requests that upon approval, the Decommissioning Plan, as amended and revised, be incorporated into SNM-33.

As previously requested in our August 31, 2005 letter, in conjunction with this submittal and in accordance with 10 C.F.R. §70.38(i), Westinghouse requests that the Nuclear Regulatory Commission ("NRC" or "Commission") approve an alternate schedule for decommissioning of the Hematite site in conformance with the schedule set forth in Figure 8-1, Projected Decommissioning Schedule, of the Decommissioning Plan, Revision 3. Based on several factors, the allotted 24-month period provided in the regulations for completion of decommissioning is insufficient. These factors include:

- The complexity of the actions necessary to decommission the Hematite site, e.g., the remediation of the Burial Pits, requires unique actions and deliberate steps to accomplish.
- A number of decommissioning work activities are interrelated and require some activities to be completed prior to initiating others. For example the necessity for groundwater remediation activities cannot be fully evaluated until removal of the soil source terms and a period of groundwater monitoring is complete.

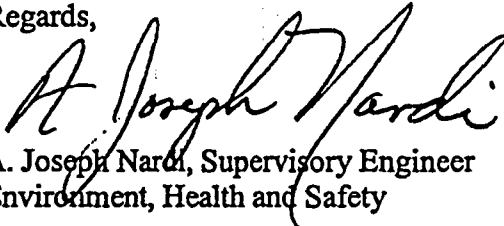
- There are non-radiological constituents present at the Hematite site. Therefore, the overall site work planning must consider the presence of both radiological and non-radiological constituents and can proceed only when all necessary regulatory reviews and approvals are obtained. This process is ongoing.

Based on these factors, the requested alternate schedule is warranted.

A list of the files being submitted on the enclosed CDs is contained in Attachment 2. Westinghouse requests that the 90 day acceptance review period for these documents be reduced as much as possible as has been discussed with NRC. The focused nature of the changes and the NRC review that has already taken place should permit an accelerated acceptance review.

If you have any additional questions concerning this submittal, please contact me at 412-374-4652 or Mr. Tracy Chance at 314-810-3329.

Regards,



A. Joseph Nardi, Supervisory Engineer
Environment, Health and Safety

Attachments:

- 1 - Summary of Changes to Decommissioning Plan and Revised Support Documents.
- 2 - Listing of the Files Being Submitted on Enclosed CDs.

Enclosures:

- 2 CD's
 - 1 CD - Decommissioning Plan & Key Supporting Documents
 - 1 CD - Supplements

cc: Amy Snyder, NRC Headquarters (with enclosure)
E. Kurt Hackmann, Westinghouse, Project Director (with enclosure)
Tracy Chance, Westinghouse, RSO (with enclosure)
James Cameron, NRC RIII (no enclosure)
G. M. McCann, NRC RIII (with enclosure)
Ben Moore, MDNR (with enclosure)

Summary of Changes to Decommissioning Plan and Revised Support Documents

HEMATITE DECOMMISSIONING PLAN, REV. 3

1.0 EXECUTIVE SUMMARY

- The scenario used to develop soil DCGLs for the central site tract has been changed from industrial worker to resident gardener. Justification for use of the resident gardener scenario has been added.
- Plans to potentially leave some Hematite facility buildings on site at the time of license termination have been changed to demolish and remove all facility buildings. The section on building DCGLs has been removed, and the description of dose allocation among the various site dose components has been revised to remove the dose component from building surfaces. Building demolition has been removed from the Decommissioning Plan (DP) schedule. Building demolition will be performed under a pending NRC license amendment.
- Reference to the Remedial Investigation (RI) draft report has been removed, and pertinent information from this report has been incorporated into the DP and the *Hematite Radiological Characterization Report*.

2.0 FACILITY OPERATING HISTORY

- Section 2.3.5 has been added that describes previous decommissioning activities involving contaminated soil removal adjacent to Building 240 in 1988–1989.
- An explanation has been added in Section 2.5 on why the estimated amount of total uranium placed in the Burial Pits is considered high because of the measurement system used.

3.0 FACILITY DESCRIPTION

- Clarification has been provided in Section 3.1 on the location and status of the three private residences located on the site property.
- Figures have been improved and enlarged.
- Extensive information and numerous figures have been incorporated from the draft RI report in the areas of regional geology (Section 3.5), surface water hydrology (Section 3.6), and groundwater hydrology (Section 3.7).
- Appendices A and B have been added to provide boring logs and slug test and pump test data.

4.0 RADIOLOGICAL STATUS OF FACILITY

- Section 4.1 on contaminated structures has been modified to indicate the removal of all facility buildings.
- Figures have been improved and enlarged.
- Sum-of-fractions (SOF) information in Section 4.3.2.3 on soil contamination depth profile has been revised as a result of using DCGLs developed for the resident gardener scenario.
- A new section (Section 4.3.3) has been added on soil area sum-of-fractions and radionuclide dose contributions. This section addresses how the various mixtures of radionuclides in the different site areas of concern can be combined into a SOF that shows the overall level of

contamination in comparison to the release criteria for the site. This section references a new Appendix C that provides a graphical presentation of the SOF data for individual samples of soil and groundwater.

- Section 4.5 on the radiological status of groundwater has been revised to include information on the disequilibrium among the uranium isotopes in groundwater. The information was added to explain that the disequilibrium is due, in part, to natural processes.

5.0 DOSE MODELING

- Section 5.0 was revised and a new Appendix D has been added to provide justification for removing various radionuclides from consideration as radionuclides of concern on the site.
- The section on building surface release criteria has been removed.
- Building surfaces have been removed from the dose allocation approach described in Section 5.1.3.

6.0 ENVIRONMENTAL INFORMATION

- The *Environmental Report for Hematite Site Decommissioning* has undergone extensive revisions as summarized in another section of this attachment.
- Minor clarification and editorial changes have been made to the DP section.

7.0 ALARA ANALYSIS

- Reference to an ALARA analysis for building surface remediation has been removed from this section.

8.0 PLANNED DECOMMISSIONING ACTIVITIES

- The decommissioning scope described in Section 8.0 has been revised to remove decontamination and survey of buildings that might have been left on site and to indicate that additional buried waste characterization studies are being proposed in a site license amendment prior to beginning remediation of the Burial Pits.
- Several additions were made to Section 8.3.2.1 on remediation of Burial Pit material including:
 - A description of a characterization investigation that will provide more detailed information on the buried waste and facilitate the evaluation of factors that will affect the remedial alternatives. This work is the subject of a pending license amendment request.
 - Additional information on how chemical and other safety issues will be addressed during remediation of the Burial Pits.
 - A new section (Section 8.3.2.1.1) on water management and treatment during Burial Pit remediation.
- Section 8.3.2.2 has been revised to provide a description of plans to leave one of the building slabs in place temporarily to provide an impervious foundation for conducting waste treatment and storage activities for materials removed from the pits. Also, additional information has been added on the further characterization of under-building utilities during remedial action surveys following floor slab removal.
- Additional information has been added to Section 8.3.2.3 on the further characterization of under-building soil during remedial action surveys following floor slab removal.
- The decommissioning schedule in Section 8.5 has been revised to remove the Burial Pit characterization studies, which will be addressed in a pending license amendment request, and to remove building decontamination and survey.

9.0 PROJECT MANAGEMENT AND ORGANIZATION

- Minor clarification and editorial changes have been made to this section.

10.0 HEALTH AND SAFETY PROGRAM DURING DECOMMISSIONING

- Minor clarification and editorial changes have been made to this section.

11.0 ENVIRONMENTAL MONITORING AND CONTROL PROGRAM

- Minor clarification and editorial changes have been made to this section.

12.0 RADIOACTIVE WASTE MANAGEMENT PROGRAM

- Minor clarification and editorial changes have been made to this section.

13.0 QUALITY ASSURANCE PROGRAM

- No changes have been made to this section.

14.0 FACILITY RADIATION SURVEYS

- In Sections 14.2.1–14.2.15, descriptions of several historical site investigations have been added to better demonstrate the extent of characterization that has been performed on the site. A revision was also made to Section 14.2 to point out that a comprehensive site environmental monitoring program consisting of routine well water sampling, surface water sampling, and soil sampling has been in effect for several decades.
- Section 14.3.5 on instrumentation has been revised to provide a discussion of two recent studies to demonstrate that field scanning should be capable of detecting residual radioactivity in soil at the operational DCGLs.
- Section 14.6 has been removed. This section described the use of a final dose assessment based on the recalculation of the RESRAD model using the probabilistic method available.

15.0 FINANCIAL ASSURANCE

- A reference was added to indicate that a detailed cost estimate to support the funding level has been prepared and submitted to the NRC under separate cover.

HEMATITE SOIL SURVEY PLAN, REV. 3

1.0 INTRODUCTION

- The description of dose allocation among the various site dose components in Section 1.2 has been revised to remove the dose component from building surfaces.
- The discussion in Section 1.2 on developing a technical basis document based on the “AAR approach” to sample and assess volumetric soil concentrations has been removed.
- The discussion in Section 1.2 of a final dose assessment based on the recalculation of the RESRAD model using the probabilistic method available has been removed.
- Section 1.5 on technical basis documents has been removed.

4.0 CLASSIFICATION OF SURVEY AREAS AND UNITS

- Figures 4-1 and 4-2 have been combined into Figure 4-1 in Section 4.1. The description of Figure 4-1 has been revised accordingly.
- The discussion of soil DCGLs based on an industrial worker scenario has been removed from Section 4.2.2. The resident gardener scenario now applies to the entire site.
- Building surfaces have been removed from the dose allocation approach described in Section 4.2.3.
- In Section 4.2.4, the reference to a technical basis document based on the survey method used for the AAR Site has been removed and has been replaced with a method based on Appendix G.2.1 of NUREG-1757, Volume 2. Additional information is provided on how the final status survey would be performed for a volumetric source of contamination that does not need to be excavated. Appendix C, which is referenced in this section, has been revised to recalculate the soil area factors using the resident gardener scenario.

5.0 FINAL STATUS SURVEY DESIGN

- Section 5.3 has been revised to remove the reference to a technical basis document that was to be prepared to establish appropriate background concentrations for the radionuclides of interest. Table 5-2 has been added along with an explanation of how the data in the table will be used with the WRS test to demonstrate compliance with the established DCGLs by comparison to the reference areas.
- Section 5.4 has been revised to remove the reference to a technical basis document to evaluate the use of surrogate radionuclides. New information has been added on a new report that has been prepared based on characterization results to establish the surrogate radionuclides and the ratios to be used during final status surveys. The scaling factor results are presented in a new Table 5-3.

6.0 SURVEY INSTRUMENTATION AND MEASUREMENT TECHNIQUES

- Section 6.1 has been revised to remove the reference to a technical basis document to compile the relative dose contribution fractions. The example Table 6-1 in Section 6.1 has been replaced with a new Table 6-1 that provides the relative dose contribution for the mixture of radionuclides determined for the evaporation ponds, where the surrogate radionuclides are those that are measured by relatively inexpensive gamma spectrometry analysis techniques. The description of this table has been revised accordingly.
- Section 6.2 on field instrumentation has been revised to remove the reference to a technical basis document on the analysis of survey instruments and detector capabilities. New information has been added on two recent studies to demonstrate that field scanning should be capable of detecting residual radioactivity in soil at the operational DCGLs. The reference to a technical basis document to determine if scan MDC values for selected detectors are adequate to detect the operational DCGL_w has been removed and replaced with description of the calculation that will be used to determine if scan MDC values for selected detectors are adequate to detect the operational DCGL_w.
- The reference in Section 6.4.1.2 to a technical basis document on the discrete point measurement approach has been removed and replaced with an explanation of how the detection sensitivity of the measurements will be calculated if the discrete point measurement approach is used.

9.0 DATA ASSESSMENT

- New information has been added in Section 9.4 on the special treatment required for the low DCGL value for Th-232 and its natural presence in background.

ENVIRONMENTAL REPORT FOR HEMATITE SITE DECOMMISSIONING, REV. 1

- Various sections were added to ensure consistency with the document outline specified in NUREG-1748. New sections include the following:
 - Alternatives Considered But Eliminated
 - Cumulative Effects
 - Comparison of Predicted Environmental Impacts
- Some sections were rearranged to ensure that information was presented in a logical and appropriate manner. For example, descriptive information that was previously presented in the *Environmental Impacts* section was moved to the *Description of the Affected Environment* section, monitoring information that was previously presented in the *Description of the Affected Environment* section was moved to the *Environmental Measurements and Monitoring Programs* section, and control measures that were previously presented in the *Description of the Affected Environment* section were moved to the *Mitigation Measures* section.
- Additional detail was added throughout the report to better describe various subject areas including the following:
 - Need for the proposed action;
 - Description of the proposed action, including burial pit excavation and waste treatment;
 - Consultations with regulatory agencies;
 - Cumulative impacts of operational and remedial activities at the site;
 - Current use of land and water resources;
 - Physical site features;
 - General nature and extent of radiological and non-radiological contamination in soil, groundwater, surface water, and sediment;
 - Ecological resources;
 - Impacts of the no-action alternative and the proposed action on the affected environment;
 - Mitigation measures for minimizing potential impacts; and
 - Monitoring program for measuring the impacts to air and water effluents, and to ecological resources.
- Figures were revised to reflect current conditions, including the locations of onsite residences and the fence surrounding the central site tract. Two new figures were added to illustrate the site topography and ecological habitats.
- General editorial revisions were made to improve readability.
- References were added to document the sources of new information that were added.

HEMATITE RADIOLOGICAL CHARACTERIZATION REPORT, REV. 1

- Revision 0 of the Radiological Characterization Report (RCR) did not include data from a groundwater sampling event and from the collection of off-site soil samples that were collected after the issuance of the report. Revision 2 of the Decommissioning Plan did include the summary table and figures for this additional data, but the RCR did not include all of the available characterization data. Revision 1 to the RCR incorporates that data and makes other changes as follows:
 - Numerous changes to the text have been made primarily to reflect the additional data. These changes are identified by bars in the margin.

- Revision 0 included only the radiological data in Attachments 1 through 5. These attachments have been replaced by Attachment 1, which incorporates many tables that include both the radiological and chemical data. These tables are a direct copy of the tables provided in Appendix H of the draft Remedial Investigation report.
- A new Attachment 2 is included that provides an overview of the distribution of volatile organic compounds in groundwater.
- Table 8 has been revised to incorporate the additional groundwater data. Table 10 has been added to include the radiological data for the off-site soil samples collected. Other tables are unchanged.
- Extensive changes have been made to the figures and additional figures have been added to make them consistent with the figures in the draft Remedial Investigation report.

**DERIVATION OF SITE-SPECIFIC DCGLs FOR WESTINGHOUSE ELECTRIC COMPANY
HEMATITE FACILITY (GROUNDWATER) – Revision 0**

This report is unchanged from its initial submittal on 8/31/05.

**DERIVATION OF SITE-SPECIFIC SOIL DCGLs FOR WESTINGHOUSE ELECTRIC
COMPANY HEMATITE FACILITY (RESIDENT GARDENER) – Revision 3**

This report has been changed to incorporate an expanded sensitivity analysis that has been prepared in response to NRC comments given during the meeting held January 25, 2006.

ATTACHMENT 2

Listing of the Files Being Submitted on Enclosed CDs

Documents Contained on CD1

001_DecomPlan.pdf
002_Appendix A.pdf
003_Appendix B thru J.pdf
004_Key Support Documents.pdf
 Hematite Radiological Characterization Report
 Derived Concentration Guideline Reports for Soil and Groundwater
 Environmental Report for Hematite Site Decommissioning
 Soil Survey Plan
 Decommissioning Cost Estimate (Submitted Separately)
 DP Checklist

Documents Contained on CD2

SD01_KdReport_Determination of Distribution Coefficients.pdf
SD02_Gamma Survey Data Evaluation.pdf
SD03_Historic Site Assessment.pdf
SD04_Surrogate Evaluation Report.pdf
SD05_Site Specific Soil Parameters.pdf
SD06_Evaluating Methods for Performing Final Status Surveys for Land Areas.pdf
SD07_Evaluation of a 2x2 inch NAI-Ti Fidler Detector.pdf
SD08_Task Specific Work Plan – Burial Pits.pdf
SD09_Geophysical Survey – Feb 2005.pdf