

December 12, 2003

Mr. Hank A. Sepp
Director, Decommissioning
Westinghouse Electric Company, LLC
Hematite Fuel Manufacturing Facility
3300 State Road P
Festus, MO 63028

SUBJECT: WESTINGHOUSE/HEMATITE - NRC SPECIAL INSPECTION REPORT
NO. 070-00036/2003-006(DNMS)

Dear Mr. Sepp:

On November 12-14, 2003, the NRC completed a special inspection at the Hematite Fuel Manufacturing facility. The purpose of the inspection was to evaluate actions taken by Westinghouse in response to the Confirmatory Action Letter (CAL No. 3-03-001) issued by the NRC on September 4, 2003. Specifically, the inspection examined activities in regard to improving management oversight, procedures, quality assurance and quality control (QA/QC), and corrective actions for previously identified problems. At the conclusion of the inspection on November 14, 2003, the NRC inspectors discussed the findings with members of your staff.

This inspection consisted of an examination of decommissioning activities at the Hematite facility as they relate to safety and compliance with the Commission's rules and regulations. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities in progress, and interviews with personnel.

Based on the results of this inspection, the NRC did not identify any violations. Westinghouse actions to address specific items in the CAL were acceptable for all but two items which involve future activities. The closure of specific CAL items will be addressed by separate correspondence.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter will be available in the public electronic reading room of the NRC's Agency-Wide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC web site at <http://www.nrc.gov/reading-rm/adams.html>.

H. Sepp

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We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

Christopher G. Miller, Chief
Division of Nuclear Materials Safety

Docket No. 07000036
License No. SNM-00033

Enclosure: Inspection Report 07000036/2003-006(DNMS)

cc w/encl: K. R. Hayes, Manager, Environment Health and Safety
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cc w/o encl: S. Mahfood, Director, Missouri Department of Natural Resources
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.: 07000036

License No.: SNM-00033

Report No.: 070-00036/2003-006(DNMS)

Licensee: Westinghouse Electric Company, LLC

Facility: Hematite Fuel Manufacturing Facility

Location: 3300 State Road P
Festus, Missouri

Dates: November 12 through 14, 2003

Inspector: W. Snell, Health Physics Manager
G. Bonano, Decommissioning Inspector

Approved by: Christopher G. Miller, Chief, Decommissioning Branch
Division of Nuclear Materials Safety, Region III

EXECUTIVE SUMMARY

**Westinghouse Electric Company, LLC
Hematite Fuel Manufacturing Facility
NRC Inspection Report 07000036/2003-006(DNMS)**

On November 12-14, 2003, the NRC conducted an onsite inspection to evaluate the licensee's progress in addressing items identified in a Confirmatory Action Letter (CAL) issued on September 4, 2003. The inspection activities involved a site tour, interviews with licensee and contractor management and personnel, and a review of procedures and other pertinent documents.

Inspection of Confirmatory Action Letter Corrective Actions

Based on the inspection findings, the licensee's actions to address the items identified in the CAL were determined to be acceptable for all but two items which involve future activities. For these two remaining items, the licensee must: (1) provide additional information regarding identification of small containers and other sources of special nuclear material (SNM) once the major interference removal contract is awarded (CAL Item 4.c); and (2) develop a detailed plan (Enhanced Work Plan (EWP)) for the processing of any remaining zirconium tubes (CAL Item 4.e). (Section 3.0)

Report Details

1.0 Introduction

The NRC issued a Confirmatory Action Letter (CAL) dated September 4, 2003, to the Westinghouse Electric Company (Westinghouse). The CAL listed corrective actions that Westinghouse agreed to take regarding incidents at their Hematite Fuel Manufacturing Facility in Festus, Missouri. The incidents included the inadvertent shipment of 168 fuel pellets to a scrap metal recycling facility located in Brampton, Ontario, Canada, in July 2003, as well as other previous problems with material control and accounting of special nuclear material (SNM). These incidents prompted the NRC to conduct a special inspection (Inspection Report No. 07000036/2003004(DNMS)) at the Hematite facility from July 31 through August 21, 2003. During the special inspection, the inspectors identified a number of issues that impacted the licensee's ability to effectively execute its decommissioning program. The issues included weaknesses in management oversight, procedures, quality assurance and quality control (QA/QC), and corrective actions for previously identified problems, as well as poor procedural adherence. As a result, the NRC determined that additional actions were necessary for Westinghouse to address the issues and concerns identified during the special inspection.

2.0 November 4, 2003 Management Meeting

In response to the September 4, 2003, Confirmatory Action Letter (CAL), Westinghouse initiated numerous corrective actions including: stopping decommissioning and decontamination work; holding all shipments of decommissioning related material from the site; hiring a quality control (QC) Engineer; conducting an Independent Assessment Team review; generating new procedures related to decommissioning and decontamination; revising existing procedures related to decommissioning and decontamination; and training licensee and contractor personnel on procedural compliance.

On November 4, 2003, Westinghouse and NRC Region III conducted a management meeting to discuss the events that led to the CAL, as well as the corrective actions Westinghouse was taking to address the CAL issues. The visual aids presented by Westinghouse during the management meeting were provided to the NRC in a letter dated November 12, 2003 (ML033240021).

3.0 Inspection of CAL Corrective Actions (88104)

On November 12-14, 2003, the NRC conducted an onsite inspection to evaluate the licensee's progress in addressing items specified in the September 4, 2003, CAL. The inspection included a review of three Westinghouse letters to the NRC responding to CAL items, dated September 30, 2003, October 2, 2003, and November 6, 2003. The inspection findings are discussed as follows:

CAL Item 1

Action: Westinghouse will take action to enhance management and quality oversight of licensed activities.

- a. Implement enhanced management oversight of Westinghouse and contractor groups for onsite work activities involving the handling, shipment, and/or discovery of SNM.

Finding: The inspectors reviewed three new licensee procedures that were prepared to control and document contractor oversight activities in the areas of Operations, Environmental Health and Safety (EH&S) and Radiation Protection. The new procedures were: PR-DO-007, "Oversight of Contractor Operations," Revision 1, PR-HP-015, "Oversight of Contractor Health Physics," Revision 0, and PR-EHS-012, "EH&S Oversight of Occupational Safety," Revision 0. The inspectors determined that the procedures clearly defined oversight activities, and contained an appropriate method for the documentation of oversight activities. The licensee and contractor management personnel who were interviewed understood the content and purpose of the procedures. The inspectors concluded that the procedures would enhance oversight of contractor activities. The licensee's actions adequately addressed this item.

- b. Implement additional QA/QC oversight of field activities during performance of Enhanced Work Procedures (EWPs), operating procedures, and other procedures used for decontamination and decommissioning, package preparation, and shipping activities.

Finding: The inspectors reviewed procedure PR-QA-005, "QC Oversight/Surveillances and Audits," Revision 0. The licensee revised the procedure to more clearly define the requirements for audits, surveillance and oversight of licensee and contractor programs and procedures. The licensee modified the procedure to incorporate elements of the American Society of Mechanical Engineers (ASME) document NQA-1, "Quality Assurance Program Requirements for Nuclear Facilities," and addressed EWPs, operating procedures, other procedures used for decontamination and decommissioning, package preparation, and shipping. The licensee's actions adequately addressed this item.

- c. Develop and fill the position of QC Engineer to provide additional QC oversight, including having responsibility for the development of a QC oversight procedure incorporating the elements of NQA-1.

Finding: The licensee developed a position for, and employed a full-time QC Engineer. The QC Engineer began work on September 2, 2003, and assisted the QA Manager in the revisions to procedure PR-QA-005, "QC Oversight/Surveillances and Audits." The licensee's actions adequately addressed this item.

CAL Item 2

Action: Westinghouse will take action to improve procedure adherence and procedure quality.

- a. Add requirements for additional management oversight and/or quality assurance reviews (including cross functional reviews from radiation protection, QA, decommissioning operations, criticality controls, and

security) to strengthen the procedure development process. Clearly specify the level of reviews that are required for each procedure or procedure group.

Finding: The licensee had increased management oversight through the preparation and implementation of procedures PR-DO-007, "Oversight of Contractor Operations," PR-HP-015, "Oversight of Contractor Health Physics," and PR-EHS-012, "EH&S Oversight of Occupational Safety," (See Section 1.a.). In addition, the Project QA Plan revisions contained quality assurance requirements that addressed cross functional reviews and clearly specified the levels of required reviews, and required oversight of licensee and contractor programs. These provisions were defined in procedures PO-QA-001, "Hematite Quality Assurance Program Plan," Revision 0, PR-QA-001, "Content and Format of Policies and Procedures," Revision 0, and PR-QA-002, "Review of Project Documents," Revision 0. The licensee's actions adequately addressed this item.

- b. Establish clear expectations for procedural adherence. Provide additional remedial training on procedural adherence requirements and expectations for all personnel performing work on site.

Finding: Based on a review of a random selection of licensee procedures, the inspectors determined that the procedures adequately addressed the licensee's expectations for "verbatim compliance." In addition, the licensee management emphasized the need for procedural compliance during meetings, on August 20 and 21, 2003, and training sessions, on August 26 and September 12, 2003, with licensee and contractor management and staff. The licensee's actions adequately addressed this item.

- c. Enhance procedural adherence training requirements for newly hired Westinghouse employees and contractors.

Finding: The inspectors reviewed procedures PO-GM-002, "Training Plan," Revision 1, and PR-GM-002, "Training of Hematite FFCF Project Personnel," Revision 0, which the licensee modified to address the need for verbatim compliance. The inspectors also reviewed the training slides that were generated for use in training personnel on the need for procedural compliance. The training procedures and materials were acceptable. The licensee's actions adequately addressed this item.

CAL Item 3

Action: Westinghouse will inform the NRC verbally within four hours and in writing within five days of any of the following Material Controls and Accounting (MC&A) findings, notwithstanding any other reporting requirements.

- a. The finding of any additional fuel pellets (or significant fractions thereof) at the Mississauga Metals and Alloys (MM&A) facility by MM&A while completing the processing of the remaining boxes of zirconium tubes that were originally shipped from the Westinghouse Hematite facility on June 18 and 25, 2003. (Note: The shipment dates of June 18 and 25, 2003, were incorrectly specified in the CAL as July 18 and 25, 2003.

These dates were based on a Westinghouse letter to the NRC dated July 30, 2003, in which the July dates were provided. The licensee verified the correct shipment dates were June 18 and 25, 2003, in its November 6, 2003, response to the CAL).

Finding: The NRC received verbal and written notification from Westinghouse that additional pellets had been found at the MM&A facility subsequent to the issuance of the CAL. Westinghouse notified the NRC of these discoveries in letters dated September 9 and 12, 2003. Mississauga Metals and Alloys has completed the inspection and recycling of the zirconium tubes located at its facility. The shipment of all fuel pellets located at the MM&A facility to the Westinghouse Columbia facility in South Carolina is contingent on MM&A receiving the required export licenses. Westinghouse has committed to provide advance notice to the NRC of the date the pellets will be shipped. The licensee's actions adequately addressed this item.

- b. The finding of any fuel pellets (or significant portions thereof) by any other receiver of shipped material from the Hematite facility.

Finding: Based on discussions with the licensee, the inspectors determined that there were no other recent unauthorized transfers of SNM from the Hematite facility. The inspectors reviewed the licensee's Material Control and Accounting (MC&A) procedure, PR-MCA-004, "DOE/NRC Form 741," Revision 0, which specified the reporting requirements in the event "of the unanticipated discovery of any fuel pellets or significant portion thereof by any receiver of shipped material from the Hematite site." The procedure indicated that the NRC would be notified verbally within four hours and in writing within five days if fuel pellets were discovered. The licensee's actions adequately addressed this item.

- c. The quantity and planned disposition of any fuel pellets identified by MM&A at their facility, along with the disposition of any other fuel pellets identified in shipments to other entities. Such notifications are to be made before any follow-up action is implemented to allow for NRC review.

Finding: The inspectors reviewed a Westinghouse letter to the NRC dated September 12, 2003, which documented the quantity and planned disposition of the material collected at the MM&A facility. No concerns were identified regarding the information provided in the letter. The licensee committed to notify the NRC of the schedule for any shipments of recovered fuel pellets from the MM&A facility to the Westinghouse Columbia facility. The inspectors reviewed MC&A procedure, PR-MCA-004, "DOE/NRC Form 741." The procedure specified the reporting protocols for changes to the source material and special nuclear material (SNM) inventories for the decommissioning project. The licensee's actions adequately addressed this item.

- d. The quantities, types, and planned disposition of any unanticipated SNM identified during further cleanup activities at the Hematite facility. Such notifications are to be made before any follow-up action is implemented to allow for NRC review. A weekly written report of SNM found during decommissioning activities will be provided to the NRC.

Finding: The inspectors reviewed licensee procedure PR-MCA-001, "Material Control & Accountability," Revision 0. PR-MCA-001 documented the requirement to report the quantities, types, and planned disposition of any unanticipated SNM found during further cleanup activities at the Hematite facility. The licensee's procedure also documented the requirements for notifying the NRC, if any unanticipated SNM is found, before any follow-up action is implemented. The licensee was issuing a letter to the NRC on a weekly basis to communicate the status of the MC&A program, indicating whether or not SNM was found. The licensee's actions adequately addressed this item.

CAL Item 4

Action: Westinghouse will take action to enhance MC&A practices. This action is to be completed by October 1, 2003.

- a. Provide for sufficient MC&A staff expertise on site to properly implement the MC&A program.

Finding: The licensee's management indicated that a consultant MC&A engineer was hired to provide the expertise needed to implement the MC&A program. The consultant replaced the previous MC&A engineer, who transferred to the Westinghouse Columbia facility. The MC&A engineer was not available during the NRC inspection, but planned to be on site when decommissioning activities resumed. Discussions with licensee management revealed that additional MC&A resources will come from redistributing MC&A responsibilities to existing licensee and contractor staff. The licensee's actions adequately addressed this item.

- b. Assign separate individuals to perform the functions of the MC&A Manager, MC&A Engineer, Nuclear Material Management and Accounting (NMM&A) Specialist, and Health Physics Supervisor Material Controls Audits to ensure adequate functional independence is maintained. (One individual shall not perform more than one of these functions.)

Finding: Based on discussions with licensee and contractor management, the inspectors determined that adequate functional independence was incorporated into the licensee's organizational structure. The Environmental Health and Safety (EH&S) manager is also the MC&A manager, the consultant MC&A engineer will report to the MC&A manager, health physics personnel will perform the periodic MC&A audits while being supervised by the consultant MC&A engineer, and the Nuclear Materials Management and Accounting (NMM&A) specialist will manage the SNM item accountability with the consultant MC&A engineer providing oversight. The inspectors reviewed the licensee's procedures, PO-MCA-001, "Fundamental Nuclear Material Control Plan," Revision 4, and PR-MCA-002, "Scale Calibration," Revision 0, which documented the licensee's commitment to ensure adequate functional independence. The licensee indicated that the consultant MC&A engineer was the only person who was qualified and possessed the skills to conduct scale calibrations. The QA/QC oversight for the scale calibrations was required by procedure. The licensee's actions adequately addressed this item.

- c. Provide the results of the inspection effort at your Hematite facility to identify small containers and other sources of SNM. (Reference slide 37 of the licensee presentation at the June 19, 2003 meeting with the NRC.) Provide a current list, sorted by the level of risk, of equipment and plant locations that may contain SNM. Include a schedule for determining the content of SNM for each identified location and/or piece of equipment. Additional details regarding schedule for determining content will be provided to the NRC after the major interference removal contract (RFP-IR-009) is awarded.

Finding: The inspectors reviewed the Westinghouse letter dated September 30, 2003, with attachment titled, "Effectiveness Review Evaluation," which documented the licensee's inspection efforts to identify small containers and other sources of SNM. The attachment provided a current list, sorted by risk level, of equipment and plant locations that could contain SNM. The list was reviewed by the licensee's management to confirm the adequacy of the inspection effort. The inspectors identified no concerns with the information provided, and noted that the list appeared thorough in scope and content. The licensee committed to provide additional information once the major interference removal contract (RFP-IR-009) was awarded. This item will remain open pending receipt and review by the NRC of the additional information.

- d. Provide detailed procedures and guidance on how to inventory, report, and disposition small quantities of SNM found during routine operations and during decommissioning activities. Specify cutoff levels for entering SNM into the inventory system, detailed steps for resolving inventory discrepancies, and detailed steps for inventories to be performed during the decommissioning phase of operations.

Finding: The inspectors reviewed the licensee's procedure PR-MCA-001, "Material Control & Accountability," Revision 0, PR-MCA-003, "Physical Inventory," Revision 0, and PR-MCA-005, "Investigating Indications of SNM Loss or Theft," Revision 0. The procedures provided guidance to licensee personnel regarding how to document inventory, report, and disposition small quantities of SNM found during routine operations and during decommissioning activities. The procedures also specified cutoff levels for entering SNM into the inventory system, detailed steps for resolving inventory discrepancies, and detailed steps for inventories to be performed during the decommissioning phase of operations. The licensee's actions adequately addressed this item.

- e. Develop a plan for the processing of any remaining zirconium tubes to ensure that any uranium products are properly classified and dispositioned. Provide a detailed plan and schedule for completion of these activities to the NRC prior to performing the activities.

Finding: The inspectors discussed with licensee management their plans for the processing of any remaining zirconium tubes. The licensee indicated that the plans for the processing of zirconium tubes (those already identified to contain SNM and any further discoveries) will ensure that any uranium products are properly classified and dispositioned. The licensee has not yet developed a detailed plan (Enhanced Work Plan (EWP)) for this activity, but has committed to

notify the NRC when a plan and schedule have been developed. This item will remain open pending completion of the EWP and further NRC review.

Conclusion:

Based on the inspection findings, the licensee's actions to address the CAL items were determined to be acceptable for all but two items which involve future activities. For these two remaining items, the licensee must: (1) provide additional information regarding identification of small containers and other sources of SNM once the major interference removal contract is awarded (Item 4.c); and (2) develop a detailed plan (Enhanced Work Plan (EWP)) for the processing of any remaining zirconium tubes (Item 4.e).

4.0 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on November 14, 2003. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Westinghouse Corporation

- * T. Dent, Decommissioning Director
- * K. Craig, Licensing and QA Manager
- * P. Malich, D&D Project Manager
- * K. Hayes, Environmental Health and Safety Manager
- * C. Horton, Radiation Safety Officer

* Denotes those present at the exit meeting on November 14, 2003

INSPECTION PROCEDURES USED

IP 88104 Decommissioning Inspection Procedure for Fuel Cycle Facilities

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

| | |
|-------|--|
| ASME | American Society of Mechanical Engineers |
| ADAMS | Agency-Wide Documents Access and Management System |
| CAL | Confirmatory Action Letter |
| CFR | Code of Federal Regulations |
| D&D | Decontamination and Decommissioning |
| DNMS | Division of Nuclear Material Safety |
| EH&S | Environmental Health and Safety |
| EWP | Enhanced Work Plan |
| FNMCP | Fundamental Nuclear Material Control Plan |
| MC&A | Material Control & Accountability |
| MM&A | Mississauga Metals and Alloys |
| NMM&A | Nuclear Material Measurement and Accounting |
| NRC | Nuclear Regulatory Commission |
| PDR | Public Document Room |
| QA/QC | Quality Assurance/Quality Control |
| SNM | Special Nuclear Material |