UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352
September 10, 2014

Ms. Gay Fussell, Deputy Director
Hematite Decommissioning Project
Westinghouse Electric Company
3300 State Road P
Festus, Missouri 63028

SUBJECT: NRC INSPECTION REPORT 07000036/2014003(DNMS) – WESTINGHOUSE ELECTRIC COMPANY (HEMATITE)

Dear Ms. Fussell:

On August 12, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Westinghouse Hematite facility located near Festus, Missouri. The purpose of the inspection was to determine whether decommissioning activities were conducted safely and in accordance with NRC requirements. Specifically, the inspection focused on management organization and controls, radiation protection, radioactive waste management, effluent control and environmental protection, and closeout inspection and surveys. The enclosed report presents the results of this inspection, which were discussed with you and other members of your staff during an exit teleconference on August 12, 2014.

The inspection consisted of an examination of decommissioning activities at the Westinghouse 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, representative records, and interviews with personnel.

Based on the results of this inspection, the NRC has determined two Severity Level IV violations of NRC requirements occurred. The violations are being treated as Non-Cited Violations (NCV's), consistent with Section 2.3.2 of the Enforcement Policy. The NCV's are described in the subject inspection report. If you contest the violations or significance of the NCV's, you should provide a response within 30 days of the date of this inspection report, with the basis for you denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, RIII; and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at http://www.nrc.gov/reading-rm/adams.html.

We will gladly discuss any questions you may have regarding this inspection. If you have questions, please feel free to contact Michael LaFranzo of my staff at 630-829-9865.

Sincerely,

/RA/

Robert J. Orlikowski, Chief
Materials Control, ISFSI
and Decommissioning Branch
Division of Nuclear Materials Safety

Docket No. 070-00036
License No. SNM-00033

Enclosure:
IR 07000036/2014003(DNMS)

cc w/encl: Hematite Service List

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cc w/encl: Hematite Service List

ADAMS Accession Number: ML14254A119
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U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Docket No.:	07000036
License No.:	SNM-00033
Report No.:	07000036/2014003(DNMS)
Licensee:	Westinghouse Electric Company, LLC
Facility:	Former Hematite Fuel Manufacturing Facility
Location:	3300 State Road P Festus, Missouri
Inspection Period:	May 14, 2014 through August 12, 2014
NRC Inspector:	Michael M. LaFranzo, Senior Health Physicist
Approved By:	Robert J. Orlikowski, Chief Materials Control, ISFSI, and Decommissioning Branch Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Westinghouse Electric Company, LLC
Hematite Fuel Manufacturing Facility (Decommissioning)
NRC Inspection Report 07000036/2014003(DNMS)

Management Organization and Controls

The licensee has continued to perform scheduling analysis to determine a more accurate decommissioning completion date. The NRC will continue to monitor the licensee's schedule to properly assess the amount of resources necessary to complete all decontamination and demobilization in accordance with NRC requirements. (Section 1.1)

Radiation Protection

The NRC did not identify any significant deficiencies in the licensee's radiological safety program during this inspection period. (Section 2.0)

Radioactive Waste Management

The inspector identified one violation of NRC requirements for failure to survey and/or sample and analyze sediments for fissile material in sediment tanks (NCV07000036/2014003-01). The licensee entered the issue into the Corrective Action Prevention and Learning (CAPAL) system after the issue was identified by the inspectors. (Section 3.0)

Effluent Control and Environmental Protection

The inspector found that the licensee's effluent program was being implemented in accordance with NRC requirements. (Section 4.0)

Closeout Inspection and Survey

The inspector identified one violation of NRC requirements for failure to not take additional FSS measurements from an off-site borrow location that was previously tested and determined to be non-impacted (NCV07000036/2014003-02). The licensee is continuing to implement appropriate corrective actions after the issue was identified by the NRC. (Section 5.1)

The NRC is continuing to review the licensee's regulatory justification for non-impacted borrow off-site soil (IFI07000036/2014003-01). (Section 5.2)

The NRC considers IFI07000036/2014001-01 closed. (Section 5.3)

Report Details

1.0 Management Organization and Controls (88005)

1.1 Hematite Decommissioning Project (HDP) Schedule

a. Inspection Scope

The inspector reviewed and discussed the licensee's timetables regarding HDP schedule.

b. Observations and Findings

During the last inspection period, the licensee had ceased principle remediation activities on site which primarily included the removal of soil in remediation pits. As of May 2014, the licensee had reached its full restart complement of staff on site, approximately 110 individuals.

The licensee is continuing to modify its radiological schedule completion date. As of the end of this inspection period, the licensee had informed the NRC that licensee senior executives were to review the plan and would inform the NRC of the final plan at a future date. The NRC is interested in the plan as it will provide timeframes where NRC can conduct inspections and perform radiological confirmatory surveys to support NRC's review of the licensee's final status survey.

No findings of significance were identified.

c. Conclusions

The licensee has continued to perform scheduling analysis to determine a more accurate decommissioning completion date. The NRC will continue to monitor the licensee's schedule to properly assess the amount of resources necessary to complete all decontamination and demobilization in accordance with NRC requirements.

2.0 Radiation Protection (83822)

a. Inspection Scope

The inspector performed site tours to assess radiological conditions and controls. The inspector interviewed licensee staff and technicians involved in radiation protection activities to determine if they had adequate knowledge to ensure safety and compliance with NRC requirements.

b. Observations and Findings

The inspector observed health physics practices, such as personnel radiological surveys, donning and doffing personnel protective gear and radiological analysis of contaminated soil. The inspector also interviewed licensee staff associated with those activities.

No findings of significance were identified.

c. Conclusions

The NRC did not identify any significant deficiencies in the licensee's radiological safety program during this inspection period.

3.0 Radioactive Waste Management (88035)

a. Inspection Scope

The inspector performed site tours of the licensee solid waste storage area and the waste water treatment system. The inspector interviewed licensee staff and technicians involved in radioactive waste activities to determine if they had adequate knowledge to ensure safety and compliance with NRC requirements.

b. Observations and Findings

Condition 9 of License SNM-33 states, in part, that the authorized usage of licensed material is described in the August 12, 2009, Decommissioning Plan (DP) and associated supporting documents noted in Hematite DP Safety Evaluation Report (ML112101630).

Section 13.0 titled "Quality Assurance Program" in the August 12, 2009, DP and associated supporting documents noted in the Hematite DP SER (ML112101630) states, in part, that the Hematite facility specific Quality Assurance (QA) plan for decommissioning is detailed in the WEC document number HDP-PO-QA-001, Project Quality Plan (PQP). All work related to the Hematite facility decommissioning is required to comply with the PQP. The PQP and its implementing procedures establish the requirements that personnel are required to take for quality related activities.

Procedure HDP-PO-QA-001, Section 12, "Instructions, Procedures and Drawings," states, in part, activities affecting quality are prescribed by and performed in accordance with documented policies, procedures, plans, and/or drawings of a type appropriate to the circumstance.

Section 1.3.6 titled "Collection of Sediments from Tanks" of NSA-TR-09-13 DinD states, in part, that the "sediments will be radiologically surveyed and/or sampled and analyzed for fissile contamination before removal from the holding tank and at least once a month during tank operations. The survey or sample affects quality as results could indicate that the subject solids contain an effective average concentration exceeding 0.1 g235U/L which would be designated as *non-NCS Exempt Material* and must be recovered directly into Collared Drums (CDs)."

In September 2013, the tanks T1-a and T1-b were not surveyed or sampled for fissile material and in the months of January, February and March 2014, tank T-1b was not sampled for fissile material. The licensee informed the NRC that during those time

periods, both tanks were in operation and accepting water from locations where fissile material was located. **Failure to survey and/or sample and analyze sediments for fissile material in sediment tanks is a violation of NRC requirements. (NCV 07000036/2014003-01).**

The licensee informed the NRC that tanks T1-a and T1-b were not sampled or surveyed for fissile material in September 2013 because the area where the tanks were located, at the time the licensee had intended to conduct the sample or survey, was surrounded by water and the licensee did not reschedule the sample or survey for another day in September. Also, T1-b was not surveyed for fissile material in January, February or March 2014 because the water in the tank was frozen as of the day the sample was to be taken. However, during those months the licensee continued to place radiologically contaminated water containing sediment into tank T1-b.

As part of the licensee's corrective actions, the failure was documented into the CAPAL system and the licensee committed to ensure that each tank is analyzed or sampled as required by license. The NRC will review the licensee's corrective actions at a future time.

c. Conclusions

The inspector identified one violation of NRC requirements for failure to survey and/or sample and analyze sediments for fissile material in sediment tanks (NCV07000036/2014003-01). The licensee entered the issue into CAPAL system after the issue was identified by the inspectors.

4.0 Effluent Control and Environmental Protection (88045)

a. Inspection Scope

The inspector reviewed the licensee's effluent monitoring program related to remediation efforts to ensure water leaving burial pits or other areas where licensed material may be in the soil are monitoring prior to discharge.

b. Observations and Findings

The inspector reviewed the licensee's liquid effluent program and analysis of effluent data. The inspector did not find any abnormal issues related to the licensee effluent program or data analysis.

No findings of significance were identified.

c. Conclusions

The inspector found that the licensee's effluent program was being implemented in accordance with NRC requirements.

5.0 Closeout Inspection and Survey (83890)

5.1 Soil Backfill

a. Inspection Scope

The inspector reviewed the licensee's final status survey program relating to off-site soil to be used as backfill.

b. Observations and Findings

Condition 9 of License No. SNM-00033 requires that the licensee use licensed material as described in the August 12, 2009 Decommissioning Plan and associated supporting documents noted in Hematite Decommissioning Plan SER (ML112101630). Hematite Decommissioning Plan SER (ML112101630) references Decommissioning Plan, Sections 8 through 15 (ML092330132).

Section 14.4.4.1.6.2 of the Decommissioning Plan (ML092330132) states, in part, that "Upon completion of backfill, no further FSS (Final Status Survey) samples or measurements are necessary. This is because: (1) soil obtained from an approved off-site borrow location was previously tested and determined to be non-impacted; or (2) soil originating from the site that has been identified for re-use has already undergone extensive evaluations."

In January 2013, the licensee took 2 soil samples for radiological analysis from an off-site borrow (off-site soil) location. The samples results were to support the licensee's use of the soil for backfill within the burial pits once radiological surveys were completed. The two samples collected had a result that was greater than the Minimal Detectable Activity (MDA).

Between February 19-26, 2014, the licensee transported soil from the borrow location where the two above referenced soil samples were taken to an on-site burial pit designated LSA 10-05 to support the licensee's Final Status Survey.

HEM-14-31 dated March 13, 2014, "Hematite Decommissioning Project: Radiological Testing of Backfill Soil from an Off-Site Borrow Location (License No. SNM-00033; Docket No. 070-00036)" page 6 of 7 states, in part, that Tc-99 samples from an off-site borrow location had "trace detections in 2 samples were at a concentration that was only slightly above their respective MDA's." The licensee determined that the results were acceptable "considering that they are less than 4 percent of the most restrictive Derived Concentration Guideline Level (DCGL) for Tc-99." Thereby, the licensee determined the borrow soil to be radiologically non-impacted.

Between March and April 2014, the NRC had questions regarding the HEM-14-31 results as well as the justifications for whether the licensee could defend whether the borrow material was suitable for backfill at the licensee's facility. Specifically, the NRC questioned why there were any trace detections of Tc-99 in the off-site borrow samples

since Tc-99 is not normally found in background either naturally or via human injection into the biosphere.

The licensee determined that additional analysis was necessary on the two borrow samples that showed elevated Tc-99 as there were questions on whether the soil was considered non-impacted. Specifically, the Tc-99 results that were reported above the MDC could have been an indication that the borrow soil was radiologically impacted. On May 28, 2014, the licensee initiated a second analysis of the two samples which were identified as having Tc-99 concentrations above the MDA. The results indicated that Tc-99 in those samples were below the MDA. However, the licensee was required to make additional measurements to ensure that Tc-99 concentrations were accurately reported to the NRC and that the borrow soil was non-impacted to support the licensee's Final Status Survey. **Failure to not take additional FSS measurements from an off-site borrow location that was previously tested and determined to be non-impacted is a violation of NRC requirements.**

In August 2014, the licensee performed an off-site visit of the analytical laboratory and found that the detection system used to detect Tc-99 for those two samples was malfunctioning and that the new results were a more accurate representation of the Tc-99 in the soil. The licensee entered the issue into CAPAL and is developing procedures and policies to ensure proper sampling and analysis is performed by the licensee prior to determining off-site borrow soil is considered non-impacted.

c. Conclusions

The inspector identified one violation of NRC requirements for failure to not take additional FSS measurements from an off-site borrow location that was previously tested and determined to be non-impacted (NCV07000036/2014003-02). The licensee is continuing to implement appropriate corrective actions after the issue was identified by the NRC.

5.2 Radiological Testing of Backfill Soil from an Off-site Borrow Location

a. Inspection Scope

The NRC reviewed a document HEM-14-13 dated March 13, 2014, titled "Hematite Decommissioning Project: Radiological Testing of Backfill Soil from an Off-site Borrow Location (License No. SNM-00033, Docket No. 070-00036)" to determine the licensee radiological survey adequacy of the off-site borrow material as non-impacted.

b. Observations and Findings

During review of HEM-14-13 dated March 13, 2014, titled "Hematite Decommissioning Project: Radiological Testing of Backfill Soil from an Off-site Borrow Location (License No. SNM-00033, Docket No. 070-00036)," the inspector had questions regarding the content of the report which were not answered during the inspection period. These were: (1) Why is the licensee using DCGL's as the baseline for determination of the soil to be non-impacted? (2) What is the statistical or other NRC regulatory basis for a single sample to represent 3000 cubic yards of

borrow soil? and (3) What is the regulatory basis for only analyzing nuclides Ra-226, Th-232, U-235, U-238 and Tc-99 for determination of the borrow soil to be non-impacted?

The NRC is continuing to review the licensee's responses to these issues to ensure the off-site borrow soil is non-impacted and that the licensee does not add an unintended radiological source term to the burial pits (IFI07000036/2014003-01).

No findings of significance were identified.

c. Conclusions

The NRC is continuing to review the licensee's regulatory justification for non-impacted borrow off-site soil (IFI07000036/2014003-01).

5.3 Final Status Surveys

a. Inspection Scope

The inspector continued to review the licensee's final status survey documents.

b. Observations and Findings

The inspector continues to review the licensee's final status survey plans and results. At this time, the LSA 10-05 sample results are being reviewed as part of a totality of the licensee's final status survey program. The NRC will address any further concerns or discussions in a future inspection report. Therefore, the NRC considers IFI07000036/2014001-01 closed.

No findings of significance were identified.

c. Conclusions

The NRC considers IFI07000036/2014001-01 closed.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Westinghouse Electric Company

J. Smetanka, Managing Director, Hematite Decommissioning Project
G. Fussell, Deputy Director, Hematite Decommissioning Project
K. Pallagi, Licensing Manager
J. Miller, ES&H Manager
W. Clark, Radiation Safety Officer
R. Neveau, Rad Engineer/FSS
W. Mattern, Security Manager

INSPECTION PROCEDURES

IP 88005 Management Organization and Controls
IP 83822 Radiation Protection
IP 88035 Radioactive Waste Management
IP 88045 Effluent Control and Environmental Protection
IP 83890 Closeout Inspection and Survey

ITEMS OPENED, CLOSED AND DISCUSSED

Opened	Type	Summary
NCV07000036/2014003-01	NCV	Failure to Survey Sediments for Fissile Material
NCV07000036/2014003-02	NCV	Failure to not take FSS measurements from an off-site borrow location that was previously tested and determined to be non-impacted
IFI07000036/2014003-01	IFI	Regulatory justification for non-impacted borrow off-site soil.

Closed	Type	Summary
NCV07000036/2014003-01	NCV	Failure to Survey Sediments for Fissile Material
NCV07000036/2014003-02	NCV	Failure to not take FSS measurements from an off-site borrow location that was previously tested and determined to be non-impacted
IFI07000036/2014001-01	IFI	LSA 10-05 Sample Results

DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather, that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

HDP-PR-HP-413 - ISOCS Operation and Data Verification Rev 15 ISOCS Operation and Data Verification

HDP-PR-HP-6O1 - Remedial Action Support Surveys Rev 26

HDP-PR-HP-605 - Visual Inspections and Radiological Surveys in the Waste Evaluation Area and Material Assay Area Rev 7

HDP-PR-WM-903 - Waste Material Control and Tracking Rev 3

HDP-PO-EHS-003 “Emergency Action Plan” Rev 8 and 7

HDP-PO-GM-004, "Project Oversight Committee Charter,"

HDP-PR-HP-603 “Radiological Surveys of the Water Treatment System” Rev 5

HDP-PR-LI-004 - License Possession Quantity Evaluation Rev 6

HDP-PR-QA-020 - HDP Corrective Actions Process Rev 3

HDP-TBD-HP-403 - ISOCS Radioactivity Measurement ISOCS Radioactivity Measurement Rev 2

HDP-TBD-WM-910 “Radium Filter Plate Activity Assignment” Rev 1

HDP-WP-OPS-505 - Excavation and Exhumation Rev 0

HEM-13-MEMO-093 – Evaluation of the Radium Plates from the North 1 Burial Area

HEM-13-MEMO-098, Rev 1 – Remediation of Soil in the Radium Area Located in LSA-10-02 at the Westinghouse Hematite Site

HEM-14-31 dated March 13, 2014 “Hematite Decommissioning Project: Radiological Testing of Backfill Soil from an Off-Site Barrow Location (License No. SNM-00033; Docket No. 070-00036)”

HEM-14-39 dated April 15, 2014 “Hematite Decommissioning Project – Resume for Interim Change in Hematite Radiation Safety Officer (License No. DNM-00033, Docket No. 070-00036)”

HEM-14-59 dated July 11, 2014 “Hematite Decommissioning Project: Notification Pursuant to condition 18 of SNM-33 for Revision 1 to HDP-WP-ENG-804 (License No. SNM-00033, Docket No. 070-00036)”

HEM-14-65 dated July 29, 2014 “Hematite Decommissioning Project – Hematite Radiation Safety Officer Assignment (License No. SNM-00033, Docket No. 070-00036)”

NSA-TR-09-13 DinD “Nuclear Criticality Safety Assessment of Water Collection and Treatment Activities at the Hematite Site” Rev 3

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CAPAL	Corrective Action Prevention and Learning
CD	Collared Drum
CFR	Code of Federal Regulations
DCGL	Derived Concentration Guideline Level
DNMS	Division of Nuclear Materials Safety
DP	Decommissioning Plan
FSS	Final Status Survey
HDP	Hematite Decommissioning Project
IFI	Information Follow-Up Item
IP	Inspection Procedure
IR	Inspection Report
MDA	Minimal Detectable Activity
NCS	Nuclear Criticality Safety
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
PQP	Project Quality Plan
QA	Quality Assurance
SER	Safety Evaluation Report
SNM	Special Nuclear Material
WEC	Westinghouse Electric Company