



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

June 6, 2014

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

**SUBJECT: NRC INSPECTION REPORT 07000036/2014002(DNMS) – WESTINGHOUSE
ELECTRIC COMPANY (HEMATITE)**

On May 13, 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, environmental monitoring, final status surveys, and Occupational Safety and Health Administration (OSHA) related issues. 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 May 13, 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 a Severity Level IV violation of NRC requirements occurred. The violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your 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>.

G. Fussell

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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 07000036/2014002(DNMS)

cc w/encl: Hematite Service List

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.: 07000036

License No.: SNM-00033

Report No.: 07000036/2014002(DNMS)

Licensee: Westinghouse Electric Company, LLC
Facility: Former Hematite Fuel
Manufacturing Facility

Location: 3300 State Road P
Festus, Missouri

Inspection Period: February 15, 2014 through May 13, 2014

NRC Inspectors: Michael M. LaFranzo, Senior Health Physicist
Peter J. Lee, Health Physicist, Ph.D., CHP
David A. Spackman, NSPDP

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

EXECUTIVE SUMMARY

Westinghouse Electric Company, LLC Hematite Fuel Manufacturing Facility (Decommissioning) NRC Inspection Report 07000036/2014002(DNMS)

This routine decommissioning inspection evaluated the Westinghouse Electric Company's (WEC) on-going decommissioning activities at its Hematite facility in Festus, Missouri. This routine decommissioning inspection focused on management organization and controls, radiation protection, environmental monitoring, final status surveys, and Occupational Safety and Health Administration (OSHA) related issues.

Management Organization and Control

The licensee continued to perform scheduling analysis to determine a more accurate completion date. The U.S. Nuclear Regulatory Commission (NRC) will continue to monitor the licensee's schedule to properly assess the amount of time necessary to complete all decontamination and demobilization efforts. (Section 1.0)

Radiation Protection

The inspectors determined that the licensee had adequate radiological controls in place for work being conducted on site. (Section 2.0)

Effluent Control and Environmental Protection

The NRC determined that radiological effluent releases for the time period inspected were within NRC regulatory limits. (Section 3.0)

Closeout Inspection and Survey

The NRC believes that the ISO-PACIFIC S3 soil sorting system's alarm set points were adequate to ensure compliance with licensee procedures and NRC requirements. The NRC did not identify any additional issues and considers IFI07000036/2014001-02 closed. (Section 4.1)

The NRC inspectors reviewed report HDP-RPT-EM-006 dated January 27, 2014, and did not identify any additional issues. The NRC considers IFI07000036/2013002-02 closed. The report may be used by the NRC during future inspections of the licensee's Final Status Survey activities. (Section 4.2)

The inspectors identified one violation of NRC requirements for failure to establish adequate procedures implementing requirements of the Project Quality Plan (PQP) that apply to its work (NCV07000036/2014002-01). The licensee implemented appropriate corrective actions after the issue was identified by the inspectors. (Section 4.3)

The inspectors continue to review radiological surveys from LSA 10-05 to ensure compliance with regulatory limits. Consequently, IFI07000036/2014001-01 remains open. (Section 4.4)

OSHA Interface Activities

The inspectors determined that the licensee had experienced industrial safety challenges as a result of a significant rain event on April 3, 2014. The licensee was able to adequately identify and correct these issues. The NRC did not identify any issues where interface with OSHA was necessary. (Section 5.0)

Report Details

1.0 Management Organization and Controls (88005)

1.1 Hematite Decommissioning Project (HDP) Schedule

a. Inspection Scope

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

b. Observations and Findings

On March 3, 2014, the licensee ceased principle remediation activities on site which primarily included the removal of soil in remediation pits. Transportation of radiologically and chemically contaminated soil via rail continued until mid-March 2014. The licensee's reason for the cessation of principle remediation activities was to perform a re-evaluation of the costs and timetables of the project. As a result of the cessation of remediation activities on site, the licensee reduced staffing levels from a peak of approximately 160 to 50-60 site personnel.

As part of the licensee's re-evaluation, the licensee developed a procedure and hired a contractor to perform additional radiological and non-radiological characterization of certain areas on site. This activity was started in late April and, at the time of the exit meeting, was approximately 60 percent complete. The NRC will review the implementation and effectiveness of the licensee's characterization procedures during the next inspection.

The licensee informed the NRC that they expect to hire additional staff, to a peak of approximately 110-120 staff, and have them fully trained to perform remediation activities by June 2014.

No findings of significance were identified.

c. Conclusions

The licensee continued to perform scheduling analysis to determine a more accurate 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 inspectors performed site tours to assess radiological conditions and controls. The inspectors 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.

Radiation protection program procedures and radiation work permits were reviewed to determine if they were consistent with regulatory requirements and included appropriate limits, precautions and controls.

b. Observations and Findings

On March 3, 2014, the licensee had voluntarily and significantly reduced the amount of remediation activities on site. In addition, the licensee reduced its total staffing levels from approximately 110 to 50 in mid-March 2014. Consequently, this affected the amount of decommissioning work that was performed at the site.

The inspectors observed health physics practices, such as personnel radiological surveys, donning and doffing personnel protective gear and storage of radiological material such as the radium-226 plates, and radiological analysis of enriched uranium and other material such as radiologically contaminated equipment and soil. The inspectors also interviewed licensee staff associated with those activities. The inspectors did not find any significant deficiencies regarding the licensee radiation protection practices.

No findings of significance were identified.

c. Conclusions

The inspectors determined that the licensee had adequate radiological controls in place for work being conducted on site.

3.0 Effluent Control and Environmental Protection (88045)

a. Inspection Scope

On April 3, 2014, a significant rain event occurred in and around the licensee's facility that deposited 2-3 inches of rain within a 24 hour period. The inspectors reviewed the impact the rain event caused within and around the remediation pits and on-site pond.

b. Observations and Findings

On or around April 3, 2014, the licensee's facility experienced a rain event of 2-3 inches in a 24 hour period. This caused a significant amount of water to collect within the remediation pits which stopped all work activities in the pits.

During the rain event, rain water was flowing through excavated and potentially radiologically contaminated areas north of the site pond, through the site pond and past an overflow dam where the licensee had a water sampling station to monitor water outflow. The licensee had taken continuous water samples as well as grab samples in accordance with their procedures. The NRC reviewed the licensee's procedures and radiological results and determined that the licensee had adequately implemented its procedures and radiological effluent was within NRC regulatory limits.

Over a period of several weeks, the licensee pumped water out of the remediation pits through its water treatment system. The inspectors reviewed the licensee's radiological

analysis results post water treatment and found releases were within NRC regulatory limits.

No findings of significance were identified.

c. Conclusions

The NRC determined that radiological effluent releases for the time period inspected were within NRC regulatory limits.

4.0 Closeout Inspection and Survey (83890)

4.1 Reuse Soil Stockpiles Resurvey Process

a. Inspection Scope

As documented in Section 5.4 titled "Reuse Soil Stockpiles Resurvey Process" within IR 07000036/2014001, the licensee was resurveying reuse stockpiles 1 through 7 as a result of identifying discrete material (fuel pellets) in the reused soil stockpiles. As a result, the licensee decided that the soil within those stockpiles could not be used as backfill without additional radiological characterization. The licensee subsequently decided that the resurvey process would use an ISO-PACIFIC S3 soil sorting system using NaI detectors. Also within that section, the NRC had questions and concerns regarding alarm set points within the system (IFI070000362014001-02).

The NRC inspectors performed additional reviews of the licensee procedures and processes to determine if the alarm set points were adequate to ensure detection of licensed material at predefined levels.

b. Observations and Findings

The NRC inspectors interviewed licensee staff and reviewed documentation associated with the ISO-PACIFIC S3 soil sorting system's alarm set points. The NRC inspectors determined that the alarm set points were adequate to ensure detection of licensed material at predefined levels. The NRC did not identify any additional issues and considers IFI 07000036/2014001-02 closed.

No findings of significance were identified.

c. Conclusions

The NRC believes that the ISO-PACIFIC S3 soil sorting system's alarm set points were adequate to ensure compliance with licensee procedures and NRC requirements.

4.2 Joachim Creek Flash Flood Event

a. Inspection Scope

The inspectors reviewed the licensee's "Joachim Creek Flash Flood Event" technical report and other radiological data to determine radiological impact on surrounding land resulting from a rain and flooding event which occurred on April 18, 2013.

b. Observations and Findings

On April 18, 2013, a significant rainfall event occurred which allowed water to enter where radiological remediation efforts were being conducted and leave through the same surface pathway. To address the impacts of the rain event, the licensee developed report HDP-RPT-EM-006, "JOACHIM CREEK FLASH FLOOD EVENT", dated January 27, 2014, (IFI 07000036/2013002-02).

Within the report, the licensee determined that no significant quantities of licensed material were released from the site. However, the licensee determined that some areas classified as "unimpacted" where the water flowed from the burial pits could no longer maintain that Multi-Agency Radiation Survey and Site Investigation Manual classification. Therefore, the licensee determined that those areas would require additional environmental radiological surveys prior to release.

The NRC did not identify any issues regarding the report and will use the information during future inspections of Final Status Survey activities. The NRC did not identify any issues and considers IFI07000036/2013002-02 closed.

No findings of significance were identified.

c. Conclusions

The NRC inspectors reviewed report HDP-RPT-EM-006, "JOACHIM CREEK FLASH FLOOD EVENT" dated January 27th, 2014, and did not identify any issues. The report may be used by the NRC during future inspections of the licensee's Final Status Survey activities.

4.3 Soil Sorting System

a. Inspection Scope

The inspectors reviewed the implementation of licensee procedure HDP-ECC13-WP-010, "Soil Sorting System," which was used to support the licensee's reuse soil radiological surveys.

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, 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, that each organization performing activities covered by the QA Program shall establish adequate procedures implementing the requirements of the PQP that apply to its work.

During the site inspection in March 2014, the NRC reviewed procedure HDP-ECC13-WP-010 associated with the reuse soil sorter operations. During the review, the NRC noted that there were three individuals that were operationally breaking up soil and looking for discrete material within the soil. When found, the discrete material was then being removed from the belt. When the NRC asked why the material was being removed, the technicians responded that it could be radioactive. When removed from the belt, the material was placed in a container destined for radiological disposal.

Section 5.9 of HDP-ECC13-WP-010 makes no mention of those individuals, their jobs to remove material that may be considered radioactive, or the methods to remove and dispose of potentially radioactive material. Because the procedure did not include guidance for this additional screening of material, the NRC inspectors determined that the procedure was not adequate in that additional actions were required to ensure that potentially radioactive material was found and removed during the screening of reuse soil. **Failure to establish adequate procedures implementing the requirements of this PQP that apply to its work is a violation of NRC requirements. (NCV 0700036/2014002-01)**

As part of the licensee's corrective actions, the NRC understands that the licensee changed the procedure to address the actual processes that have occurred in the field within two working days. The issue was also entered into the licensee Corrective Action Program system. As of May 13, 2014, the soil sorter had been removed from the site and the HDP-ECC13-WP-010 procedure is no longer being implemented at the site.

c. Conclusions

The inspectors identified one violation of NRC requirements for failure to establish adequate procedures implementing requirements of the PQP that apply to its work (NCV 0700036/2014002-01). The licensee the licensee implemented appropriate corrective actions after the issue was identified by the inspectors.

4.4 South Burial Pit Confirmatory Surveys

a. Inspection Scope

The inspectors reviewed final status survey and confirmatory surveys associated with LSA 10-05.

b. Observations and Findings

The inspectors noted that IR07000036/2014001 referenced confirmatory surveys and soil sampling associated with LSA 10-05. At the time of the inspection report exit, the Oak Ridge Associated Universities report had not been issued and the NRC stated that it would review that report when issued (IFI07000036/2014001-01).

On April 3, 2014, the licensee experienced a significant rain event which caused potentially contaminated water from adjacent remediation pits to spill on to LSA 10-05. Consequently, the licensee's final status surveys were compromised as potentially an unknown quantity of licensed material may have been deposited on already surveyed LSA 10-05.

The licensee performed additional radiological surveys to confirm LSA 10-05 met all release criteria. The radiological survey analysis results were not available at the end of this inspection. The NRC will review the radiological survey results of LSA 10-05 when they are available.

No findings of significance were identified.

c. Conclusions

The inspectors will review the radiological surveys from LSA 10-05 when they are available to determine whether they are in compliance with regulatory limits. Consequently, IFI 07000036/2014001-01 remains open.

5.0 OSHA Interface Activities (93001)

a. Inspection Scope

The inspectors reviewed activities related to occupational safety and health to determine whether interface was necessary with the Occupational Safety and Health Administration (OSHA) regulatory body.

b. Observations and Findings

During the inspection period, the licensee had been challenged regarding a significant rain event on April 3, 2014 in which large quantities of water were not removed from remediation pits. The water in the remediation pits, in some cases 10 feet deep, caused erosion of the pit walls which, in one area, compromised the stability of a road which transported large vehicles. There were also electrical cords which were partially underwater, potentially causing an electrical hazard, and the threat of individuals accidentally falling into deep water. However, the licensee's program did identify and correct these issues.

The inspectors noted the licensee was in compliance with all recordable and reportable events involving OSHA regulations.

No findings of significance were identified.

c. Conclusions

The inspectors determined that the licensee had experienced industrial safety challenges as a result of a significant rain event on April 3, 2014. The licensee was able to adequately identify and correct these issues. The NRC did not identify any issues where interface with OSHA was necessary.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Westinghouse Electric Company

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

INSPECTION PROCEDURES

IP 88005 Management Organization and Controls
IP 83822 Radiation Protection
IP 88045 Effluent Control and Environmental Protection
IP 83890 Closeout Inspection and Survey
IP 93001 OSHA

ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</u>	<u>Type</u>	<u>Summary</u>
NCV07000036/2014002-01	NCV	Failure to establish adequate procedures implementing the requirements of the PQP
<u>Closed</u>	<u>Type</u>	<u>Summary</u>
NCV07000036/2014002-01	NCV	Failure to establish adequate procedures implementing the requirements of the PQP
IFI07000036/2014001-02	IFI	Soil Sorting System Set Point Change Review
IFI07000036/2013002-02	IFI	Flash Flood Event Report Review
<u>Discussed</u>	<u>Type</u>	<u>Summary</u>
IFI07000036/2014001-01	IFI	LSA 10-05 Sample Results

DOCUMENTS REVIEW

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors 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-ENG14-WP-002 Rev 1 "Supplemental Waste Characterization"

HEM-14-31 "Hematite Decommissioning Project: Radiological Testing of Backfill Soil from an Off-site Borrow Location"

HDP-RPT-EM-006 "JOACHIM CREEK FLASH FLOOD EVENT"

HEM-14-22 "Hematite Decommissioning Project: Notification Pursuant to Condition 18 of SNM-33 for Revision 1 to HDP-ECC13-WP-013"

Letter dated February 20, 2014 titled: "LETTER REPORT FOR ANALYTICAL RESULTS FOR SIX SOIL SAMPLES ASSOCIATED WITH THE WESTINGHOUSE HEMATITE DECOMMISSIONING PROJECT IN HEMATITE MISSOURI"

HDP-ECC13-WP-010, "Soil Sorting System"

HDP-ECC13-WP-013, "Sanitary Wastewater Treatment Plant Sludge Pumping & Filter Press Operation,"

CAPS # 14-078-W006, "Inaccurate inventory for waste box"

HEM-13-MEMO-094, "Evaluation of the ISO-PACIFIC S3 Soil Sorting System," dated November 12, 2013

HEM-13-MEMO-097, "Evaluation of the ISO-Pacific S3 Soil Sorting System," dated November 15, 2013

HEM-13-MEMO-102, "Evaluation of the ISO-Pacific 53 Soil Sorting System"

HEM-14-MEMO-010, "Estimate of Type II Error (false negative) Rate of the ISO-Pacific 53 Soil Sorting System for Uranium Pellet Fragments in Soil"

HEM-14-MEMO-O41 "Contingency Plan for Excessive Storm Water Runoff at Hematite Decommissioning Project (HDP)"

HDP-INST-FSS-LSA10-05, "Final Status Survey Plan and Instructions for Survey Area & Unit: LSA 10-05,"

HDP-PO-HP-100, "Radiation Protection Plan," Rev. 2

HDP-PS-QA-001, "Project Quality Plan (PQP)," Rev. 1

HDP-PR-HP-311, "Radiological Surveys," Rev. 1

HDP-TBD-HP-406, "Preliminary Evaluation and Test Plan for ISO 3 for Assaying and Segregating Soil at HDP that is Potentially Contaminated with Uranium," Rev. 0

ISO-01, Appendix A, "Hematite Calibration Procedure," dated November 11, 2013

Attachment 17 to HEM-11-96, Appendix A. DP Chapter 11, RAI 11-11, Site Effluent Limits

G. Fussell

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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 07000036/2014002(DNMS)

cc w/encl: Hematite Service List

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