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

November 27, 2015

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

SUBJECT: NRC INSPECTION REPORT 07000036/2015003(DNMS) WESTINGHOUSE ELECTRIC COMPANY (HEMATITE) AND NOTICE OF VIOLATION

Dear Ms. Fussell:

On October 15, 2015, 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 radiation protection, closeout inspection and surveys, and environmental protection. 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 October 15, 2015.

Based on the results of this inspection, the NRC has determined that four Severity Level IV violations of NRC requirements occurred. These violations were evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's website at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited in the Notice because they were identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The guidance in NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be useful in preparing your response. You can find the Information Notice on the NRC's website at: http://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1996/in96028.html. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

The NRC is concerned of an event during the inspection period whereby radioactive material was identified by the NRC in a previously licensee surveyed area that was being prepared for unrestricted release. The licensee subsequently identified that the radioactive material was transported via a rain storm event from an adjacent survey unit. This issue resulted in a violation of NRC requirements. Since June 2012, the NRC has identified seven instances where isolation controls had been discussed in inspection reports as an issue that needed addressing or a violation of NRC requirements. In the seven instances noted, NRC did not identify a significant impact to public health and safety. The latest isolation controls issue

concerning water management resulted in radioactive material being transported via storm water to an area the licensee had already performed Final Status Surveys (FSS). This area ultimately would have been released for unrestricted use. In addition, the previous inspection identified a similar issue and the licensee's corrective actions were ineffective to prevent recurrence. In addition to the licensee's response to the enclosed Notice, the NRC is requesting the licensee provide an extent of condition document relating to any and all potential or actual isolation control breaches, which would include storm water control, in any areas where Final Status Surveys had been performed and radioactive material could have been impacted and the licensee's response to each event, considering any and all radiological conditions.

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, its enclosures, and your response will be made 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. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

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

Enclosures:
1. Notice of Violation
2. IR No. 07000036/2015003(DNMS)

cc w/encl: Hematite Service List

concerning water management resulted in radioactive material being transported via storm water to an area the licensee had already performed Final Status Surveys (FSS). This area ultimately would have been released for unrestricted use. In addition, the previous inspection identified a similar issue and the licensee's corrective actions were ineffective to prevent recurrence. In addition to the licensee's response to the enclosed Notice, the NRC is requesting the licensee provide an extent of condition document relating to any and all potential or actual isolation control breaches, which would include storm water control, in any areas where Final Status Surveys had been performed and radioactive material could have been impacted and the licensee's response to each event, considering any and all radiological conditions.

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, its enclosures, and your response will be made 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 t the NRC's website at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

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NOTICE OF VIOLATION

Westinghouse Electric Company (Hematite) Docket No. 070-00036
Festus, Missouri License No. SNM-00033

During an U.S. Nuclear Regulatory Commission (NRC) inspection conducted between June 25 and October 15, 2015, four violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

1. 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 Westinghouse Electric Company (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 8.2.3 of HDP-PR-HP-602 Revision 3 references Work Package HDP-WP-ENG-803 titled "Isolation and Control Measures."

   Section 4.1 of HDP-WP-ENG-803 states, in part, that BMP's (Best Management Practices) concerning storm water and surface water management are detailed in HDP-WP-OPS-503 "Construction Storm Water Management."

   Section 3.0 "Structural BMP's" of Appendix B "Best Management Practices" of HDP-WP-OPS-503 states, in part, that storm water and surface water will be prevented from entering excavated areas: by maintaining of improving existing grade surrounding the excavation; installing diversionary berms and dikes around the areas of the excavation; installing silt fencing or equivalent filtering control; and constructing temporary barriers to slow flow velocity.

   Contrary to the above on or about August 30, 2015, the licensee failed to prevent storm water from entering excavated area LSA 02-01. Specifically, storm water transported 15 radiologically contaminated items from LSA 05-04 to LSA 02-01.

   This is a Severity Level IV violation (Section 6.3)

2. 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 (SER) (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" or 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 (Project Quality Plan) that apply to its work.

   Contrary to the above, the licensee failed to establish adequate procedures implementing the requirements of this PQP (Project Quality Plan) that apply to its work. Specifically, HDP-PO-FSS-700 did not address licensee actions if a rain event occurred and water and/or sediment could have entered previously Final Status Surveyed area. On or about August 30, 2015, a rain event occurred and moved 15 radiologically contaminated items into LSA 02-01, a previously Final Status Surveyed area.

   This is a Severity Level IV violation (Section 6.3).

3. 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 14.4.4.1.6.2 titled "Sub-surface Soil" in the August 12, 2009, DP and associated supporting documents noted in the Hematite DP SER (ML112101630) states, in part, the Final Status Survey (FSS) will consist of Gamma Walkover Survey's (GWS) of 100 percent of the excavated surfaces to be included in the survey unit, or portion of a survey unit.

Contrary to the above on May 29, 2015, the licensee did not perform a 100 percent GWS of LSA 10-01 and 10-02 of the excavated surfaces that were included in the survey unit, as documented in HEM-15-52, dated May 29, 2015.

This is a Severity Level IV violation (Section 6.3).

4. 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 Westinghouse Electric Company (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 2.0 titled “MODELING AND CALCULATION” of HDP-TBD-FSS-003, Revision 1 states, in part, the instructions given to FSS technicians are to survey as close as possible to the ground surface, (nominally one inch, but not to exceed three inches distance from the surface).

   Section 6.6 of HDP-PO-FSS-700, Revision 4 titled “Final Status Survey Program” states, in part, that Health Physics Technicians are responsible for performing and documenting FSSs in accordance with the applicable site procedures and survey package instruments.

   Contrary to the above on September 30, 2015, the licensee failed to survey as close as possible to the ground surface. Specifically, the licensee was performing gamma walk-over surveys of LSA 11-01 and the survey meter detector distance to the ground surface was not adjusted when surveying a sloped area.

   This is a Severity Level IV violation (Section 6.3).

Pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (CFR) 2.201, Westinghouse Electric Company (Hematite) is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region III, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation” and should include for each violation:

(1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued requiring information as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001. Your response will be made available electronically for public inspection in the NRC's Public Document Room or in 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. To the extent possible, your response should not include any personal privacy, proprietary or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 27th day of November, 2015.

U.S NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.:	07000036
License No.:	SNM-00033
Report No.:	07000036/2015003(DNMS)
License:	Westinghouse Electric Company, LLC
Facility:	Former Hematite Fuel Manufacturing Facility
Location:	3300 State Road P Festus, Missouri
Inspection Period:	June 25, 2015 through October 15, 2015
NRC Inspectors:	Michael M. LaFranzo, Senior Health Physicist Eugenio A. Bonano, Health Physicist Daniel C. Strohmeyer, Health Physicist, CHP
Approved By:	Robert J. Orlikowski, Chief Materials Control, ISFSI, and Decommissioning Branch Division of Nuclear Materials Safety

Enclosure 2

EXECUTIVE SUMMARY

Westinghouse Electric Company, LLC
Hematite Fuel Manufacturing Facility (Decommissioning)
NRC Inspection Report 07000036/2015003(DNMS)

Radiation Protection

The NRC did not identify any significant deficiencies in the licensee's personnel radiological safety during this inspection period. (Section 1.0)

Closeout Inspection and Survey

The NRC determined that the licensee failed to prevent storm water from entering excavated areas of LSA 02-01 on or about August 30, 2015 (VIO 07000036/2015003-001) and failed to establish adequate procedures implementing the requirements of this PQP (Project Quality Plan) that apply to its work (VIO 07000036/2015003-002). (Section 2.1)

The NRC determined that the licensee failed to perform a 100 percent GWS of LSA 10-01 and 10-02 (VIO 07000036/2015003-003) and failed to survey as close as possible to the ground surface, (nominally one inch, but not to exceed three inches distance from the surface) (VIO 07000036/2015004). (Section 2.2)

Based upon information provided to NRC, the IFI 07000036/2015001-001 remains open. However, IFI 07000036/2015001-002, IFI 07000036/2015001-003 and IFI 07000036/2015001-004 are considered closed. (Section 2.3)

During the inspection period, the NRC performed confirmatory surveys in LSA's 02-01, 02-02, 02-03, 03-01, re-use soil pile in 03-01, 04-02, 04-03, 05-01, 05-02, 05-03, 05-04, 06-02, 11-01, 11-03, 11-04, and 11-05. NRC did not identify any elevated radiation readings while performing gamma walk-over surveys. At a future date, ORAU will provide the NRC, in two separate reports, confirmatory survey data performed in May 2015 of LSA's 10-01, 10-02, 10-03, and 10-04; and September 2015 of LSA's 02-01, 02-02, and 02-03. (Section 2.4)

Environmental Protection

The NRC considers violation IR 07000036/2015002-001 closed. (Section 3.0)

1.0 Radiation Protection (83822)

a. Inspection Scope

The inspectors performed site tours and observed licensee activities associated with personnel radiological surveys. The inspectors interviewed licensee staff and technicians in personnel radiation protection activities to determine if they had adequate knowledge to ensure safety and compliance with U.S. Nuclear Regulatory Commission (NRC) requirements.

b. Observations and Findings

The inspectors observed personnel health physics practices, such as personnel radiological surveys, donning and doffing personnel protective gear and handling of potentially contaminated soil for radiological analysis.

No findings of significance were identified.

c. Conclusions

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

2.0 Closeout Inspection and Survey (83890)

2.1 Final Status Survey Isolation Controls

a. Inspection Scope

The inspectors reviewed the licensee's past and current radiological isolation control program to determine if those controls were adequate and effective to ensure compliance with NRC requirements.

b. Observations and Findings

.1 On June 1, 2012, the NRC issued IR 07000036/12-001(DNMS) (ML12157A407). Within the report, the NRC noted that the licensee had not developed adequate procedures to prevent an unmonitored off-site release should a significant storm event occur.

On August 29, 2013, the NRC issued IR 07000036/13002(DNMS) (ML13241A252). Within the report, the NRC noted that, in April 2013, a flash flood had caused water to enter the burial pit area and leave from the east of the site along the creek area. NRC confirmatory sampling noted slightly elevated readings on one of the samples. On June 6, 2014, the NRC issued IR 07000036/2014002(DNMS) (ML14160B134). Within the report, the NRC noted that the licensee determined that some areas classified as "unimpacted" where the water flowed from the burial pits as a result of the April 2013 flash flood could no longer maintain that Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) classification. Consequently, the licensee reclassified some areas east of the site which required radiological surveys.

Also noted in IR 07000036/13002(DNMS), NRC noted the licensee failed to follow procedures to implement isolation and control measures.

Also contained with IR 07000036/2014002(DNMS), the NRC noted that a significant rain event potentially caused contaminated water from adjacent remediation pits to spill onto LSA 10-05, an area which the licensee had already performed a Final Status Survey.

On August 5, 2015, the NRC issued IR 07000036/2015002 and a Notice of Violation (ML15218A328) which documented the licensee's failure to ensure a berm or equivalent was placed to physically prevent water flow into an isolated area from surface water that could cause cross contamination (VIO 07000036/2015002-002). The licensee's immediate corrective actions were to create soil berms separating the specific areas mentioned in the report.

On September 2, 2015, the NRC was conducting confirmatory surveys with Oak Ridge Associated Universities (ORAU) in LSA 02-01 and identified 15 items located on the surface of soil that were radiologically contaminated. An analysis of the radiological content by the ORAU identified that the items were contaminated with U-235, enrichment of approximately 60 percent, with a total U-235 weight of approximately 0.22 grams. The licensee stated on that on or about August 30, 2015, the facility had a rain event which caused silt fence and straw waddle barriers to fail allowing significant quantities of storm water and the 15 contaminated items to enter LSA 02-01, an area previously FSS'd, from LSA 05-04, an area still under radiological remediation.

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 Westinghouse Electric Company (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 8.2.3 of HDP-PR-HP-602, Revision 3 references Work Package HDP-WP-ENG-803 titled "Isolation and Control Measures."

Section 1.0 of HDP-WP-ENG-803, Revision 0 states, in part, that "The scope of this work package is to establish isolation and control measures to support Final Status Survey (FSS) and confirmatory sampling activities in Land Survey Areas (LSAs). Work includes the design, installation, periodic inspection, and maintenance of isolation and

control measures required to prevent cross contamination during the life-cycle of remediation: Remediation Phase, Pre-FSS Confirmatory Sampling & Surveys, Final Status Surveys, and Backfill Operations."

Section 4.1 of HDP-WP-ENG-803 states, in part, that BMP's (Best Management Practices) concerning storm water and surface water management are detailed in HDP-WP-OPS-503 "Construction Storm Water Management."

Section 3.0 "Structural BMP's" of Appendix B "Best Management Practices" of HDP-WP-OPS-503 states, in part, that storm water and surface water will be prevented from entering excavated areas by maintaining or improving the following: Existing grade surrounding the excavation; installing diversionary berms and dikes around the areas of the excavation; installing silt fencing or equivalent filtering control; and constructing temporary barriers to slow flow velocity.

Failure to prevent storm water from excavated areas LSA 02-01 on or about August 30, 2015 is a potential violation of NRC requirements. Specifically on or about August 30, 2015, the storm water transported 15 radiologically contaminated items from LSA 05-04 to LSA 02-01. (VIO 07000036/2015003-001)

.2 As noted above on or about August 30, 2015, storm water moved 15 radiologically contaminated items from LSA 05-04 to LSA 02-01. In a licensee evaluation of the reasons why such material was found in a previously excavated and FSS'd area (LSA 02-01), the licensee stated that a rain event moved "the radiologically contaminated items but that, at the time, no potential for cross contamination was suspected based on a visual inspection performed on August 31, 2015 of existing BMPs, the visual inspection did not identify that the integrity of the BMPs had been overwhelmed, and a determination was made that storm water did not exceed the height of the silt fence, and straw bales."

Based upon the licensee's failure to identify the 15 radiologically contaminated items in LSA 02-01 after a storm event on or about August 30, 2015, the licensee's visual inspection and Best Management Practices (BMP's) were determined to be inadequate. The NRC also noted that, although Section 11.0 titled "Final Status Survey Implementation" of HDP-PO-FSS-700, Revision 4 does address resurveys during FSS, it does not address conditions where a visual or radiological survey would be necessary after FSS is complete and adjacent contaminated areas could have compromised the FSS process.

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 (SER) (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" or 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 (Project Quality Plan) that apply to its work.

During the site inspection, the NRC reviewed HDP-PO-FSS-700 which did not address the licensee actions if a rain event occurs and water/sediment could enter previously FSS's areas. Based upon NRC's findings, such a procedure is warranted since 15 radiologically contaminated items were found after a rain event in LSA 02-01 from LSA 05-04.

Failure to establish adequate procedures implementing the requirements of the PQP (Project Quality Plan) that apply to its work is a potential violation of NRC requirements. (VIO 07000036/2015003-002)

As noted above between mid-2012 to present, the NRC identified seven instances where the NRC had noted deficiencies in the licensee's program to adequately either maintain isolation controls or develop procedures to adequately maintain isolation controls. The NRC will continue to review the licensee's isolation and control program to ensure radiological conditions at the site are ultimately adequate to ensure the release of the site in accordance with NRC regulations.

c. Conclusions

The NRC determined that the licensee failed to prevent storm water from entering excavated areas of LSA 02-01 on or about August 30, 2015 (VIO 07000036/2015003-001) and failed to establish adequate procedures implementing the requirements of this PQP (Project Quality Plan) that apply to its work (VIO 07000036/2015003-002).

2.2 Final Status Surveys – Gamma Walkover

a. Inspection Scope

The inspectors reviewed the licensee's Gamma Walkover Survey (GWS) program to determine whether the licensee's actions were in compliance with NRC requirements.

b. Observation and Findings

.1 In January 2015, the licensee developed and approved document HEM-15-52, Submittal of "HDP-RPT-FSS-202 SARR for LSA 10-01 and LSA 10-02 – distribute.pdf." The licensee stated for Final Status Surveys of LSA 10-02 that "Although 100 percent of accessible areas underwent GWS, certain small areas of the LSA 10-02 interior could not be accessed for GWS due to overly steep side slopes or especially tall interior pit sidewalls." The licensee informed the NRC that certain small areas of the LSA 10-01 also could not be accessed for GWS due to overly steep side slopes or especially tall interior pit sidewalls.

During discussions with licensee personnel, the licensee did not identify conditions within the licensee's Decommissioning Plan which allow for these areas to be not surveyed because they were inaccessible.

In addition, the licensee did not provide any justification on why overly steep side slopes or especially tall interior sidewalls could not be surveyed. Specifically, the licensee did not mention or document why engineering equipment, e.g.: using pole extensions for survey instruments or mechanical lifting devices, was not used to survey those areas.

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 14.4.4.1.6.2 titled "Sub-surface Soil" in the August 12, 2009, DP and associated supporting documents noted in the Hematite DP SER (ML112101630) states, in part, the FSS will consist of a GWS of 100 percent of the excavated surfaces to be included in the survey unit, or portion of a survey unit.

Failure to Perform a 100 percent GWS of LSA 10-01 and 10-02 is a Violation of NRC Requirements. (VIO 07000036/2015003-003)

During the inspection period, the NRC requested the licensee perform an "extent of condition" report. For the STP concerning its failure to perform a 100% GWS of LSA 10-01 and 10-02. On or about September 29, 2015, the licensee provided NRC with information which documented that a 100 percent GWS coverage was not attained after Final Status Surveys were complete in LSA 10-03, LSA 10-04, LSA 10-12, LSA 10-13, LSA 10-14, LSA 01-01, LSA 02-02 and LSA 02-03. The NRC understands that areas LSA 10-01, LSA 10-02, LSA 10-03, LSA 10-04, LSA 10-12, LSA 10-13 and LSA 10-14 have already been backfilled with clean soil. Consequently, the licensee was unable to perform a 100 percent GWS coverage in those areas at the conclusion of this inspection period.

.2 During the inspection on September 30, 2015, the NRC noticed that during Final Status Surveys in LSA 11-01, an individual performing a gamma walk over survey was traversing a slope with a survey meter and did not adjust the height of the survey meter to the changing ground elevation. Consequently, the inspector observed that, in certain locations, the survey meter detector was greater than 3 inches from the surface of the soil.

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 Westinghouse Electric Company (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 2.0 titled "MODELING AND CALCULATION" of HDP-TBD-FSS-003, Revision 1 states, in part, the instructions given to FSS technicians are to survey as close as possible to the ground surface, (nominally one inch, but not to exceed three inches distance from the surface).

Section 6.6 of HDP-PO-FSS-700, Revision 4 titled "Final Status Survey Program" states, in part, that Health Physics Technicians are responsible for performing and documenting FSSs in accordance with the applicable site procedures and survey package instruments.

Failure to survey as close as possible to the ground surface, (nominally one inch, but not to exceed three inches distance from the surface) is a potential violation of NRC requirements. (VIO 07000036/2015003-004)

The licensee's corrective actions included performing resurveys of potentially affected areas where the distance between the soil and survey meter may have been greater than 3 inches. The action has been completed.

c. Conclusions

The NRC determined that the licensee failed to perform a 100 percent GWS of LSA 10-01 and 10-02 (VIO 07000036/2015003-003) and failed to survey as close as possible to the ground surface, (nominally one inch, but not to exceed three inches distance from the surface) (VIO 07000036/2015003-004).

2.3 Information Follow-up Items from IR 07000036/2015001(DNMS) and IR 07000036/2015002(DNMS)

a. Inspection Scope

The inspectors reviewed the four Information Follow-up Items (IFI's), as documented in IR 07000036/2015001(DNMS) and IR 07000036/2015002(DNMS), with the licensee.

b. Observations and Findings

The NRC documented four IFI's in IR070-00036/2015001(DNMS). In summary, these were: Contaminated Soil under the Natural Gas Pipeline (**IFI 07000036/2015001-001**); Derived Concentration Guideline Levels (DCGL's) relating to Gamma Walk-Over Surveys (**IFI 07000036/2015001-002**); Burial Pit Identification (**IFI 07000036/2015001-003**); and Soil Sampling in with Survey Units (**IFI 07000036/2015001-004**).

Concerning the contaminated soil under the Natural Gas Pipeline IFI (**IFI 7000036/2015001-001)**, the licensee is still having discussions with the pipeline operator/owner. The NRC is still awaiting the results of those discussions to determine if the pipeline operator/owner will request a former review of the licensee's analysis.

During the course of the inspection concerning the issues of DCGL's relating to Gamma Walk-Over Surveys (**IFI 07000036/2015001-002**); Burial Pit Identification (**IFI 07000036/2015001-003**) and Soil Sampling within Survey Units (**IFI 07000036/2015001-004)**, the NRC had numerous discussions with the licensee regarding the licensee's ability to demonstrate that each survey unit, for which one or more of the IFI's are applicable, could be radiologically released under NRC's release criteria.

At the end of the inspection period, the licensee modified its procedures and provided NRC additional clarity to the licensee's procedural implementation as required by the Decommissioning Plan to provide confidence that the NRC's release criteria could be met when submitted in a Final Status Survey Report. The NRC considers **IFI 07000036/2015001-002, IFI 07000036/2015001-003 and IFI 07000036/2015001-004** closed.

No findings of significance were identified.

c. Conclusions

Based upon information provided to NRC, the **IFI 07000036/2015001-001** remains open. However, **IFI 07000036/2015001-002, IFI 07000036/2015001-003** and **IFI 07000036/2015001-004** are considered closed.

2.4 NRC Confirmatory Survey

a. Inspection Scope

During on-site inspections on May 4 through 7, 2015, September 1 through 4, 2015 and September 28, 2015 through October 1, 2015, the NRC and/or ORAU conducted confirmatory surveys of numerous Land Survey Areas (LSA's).

b. Observations and Findings

During the May 2015 on-site inspection, ORAU performed confirmatory surveys of survey units LSA's 10-01, 10-02 10-03, and 10-04. ORAU performed walk-over surveys of all LSAs; and in LSAs 10-03 and 10-04, obtained several soil samples which were sent to ORAU for radiological analysis. ORAU will provide NRC a final report on the radiological contents of those samples which will be placed into ADAMS.

During an on-site inspection on September 1 through 4, 2015, the NRC had ORAU personnel perform confirmatory surveys in LSA's 02-01, 02-02 and 02-03. During that inspection, ORAU identified, through detection with 2x2 sodium-iodide detectors, 15 pieces of asphalt type material in LSA 02-01, which is the site pond area, with elevated count rates.

ORAU's laboratory was provided the largest piece with the highest count rate to analyze; this was the only piece analyzed. Initial ORAU assessment had enrichment of 57.9 percent. The material looked like slag but had a tar substance to it which made it appear to be roofing material and may have originated from the red roof burn pit, which would have been in or near LSA 05-04. The 15 pieces of material were spread around 183 m^2 all of which was contained in LSA 02-01. The maximum gross count rate found on the largest piece using a 2x2 NaI detector was approximately 41kcpm. The licensee had performed the FSS in LSA 02-01 in late July. An analysis of the material by ORAU indicated that the largest piece would not have been detected when covered by 3 inches of soil, the smallest piece was 3 inches across, the density of the material was 2.3 g/cc and the concentration of U-235 was 195 pCi/g, that of U-234 was 5,950 pCi/g and that of U-238 was 21.7 pCi/g.

The licensee removed the other 14 pieces of radioactive material and disposed of them as radioactive waste. The NRC reviewed the licensee's response to the findings in HEM-15-MEMO-064 dated September 17, 2015 and Revision 1 dated October 8, 2015. The NRC's response to this issue is documented in Section 2.1 of this report.

ORAU performed gamma walk-over scans and soil sampling analysis in LSA 02-01, 02-02 and 02-03. ORAU's report will be placed into ADAMS when received by the NRC.

During an on-site inspection on September 28, 2015, through October 1, 2015, NRC inspectors performed confirmatory surveys in LSA's 03-01, re-use soil pile 03-01, 04-02, 04-03, 05-01, 05-02, 05-03, 05-04, 06-02, 11-01, 11-03, 11-04, and 11-05. The NRC inspectors did not identify elevated radiation readings during the gamma walk-over surveys. The NRC inspectors took 36 soil samples from the above survey units and sent them to ORAU for analysis. ORAU's final analysis of the soil samples will be placed into ADAMS when received by the NRC.

No findings of significance were identified.

c. Conclusions

During the inspection period, the NRC performed confirmatory surveys in LSA's 02-01, 02-02, 02-03, 03-01, re-use soil pile in 03-01, 04-02, 04-03, 05-01, 05-02, 05-03, 05-04, 06-02, 11-01, 11-03, 11-04, and 11-05. NRC did not identify any elevated radiation readings while performing gamma walk-over surveys. At a future date, ORAU will provide the NRC, in two separate reports, confirmatory survey data performed in May 2015 of LSA's 10-01, 10-02, 10-03, and 10-04; and September 2015 of LSA's 02-01, 02-02, and 02-03.

3.0 Environmental Protection (88045)

a. Inspection Scope

The inspectors reviewed the licensee's corrective actions associated with water control measures as identified and documented in IR 07000036/2015002-001.

b. Observations and Findings

The inspectors reviewed the licensee's corrective actions and determined they were adequate to prevent recurrence. During the inspection period, the inspectors noted that there were not recurrences of the licensee's previous failure to collect water from remediated areas in settling and holding tanks and not treat and/or sample and process the water prior to discharge.

No findings of significance were identified.

c. Conclusions

The NRC considers violation IR 07000036/2015002-001 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. Mobley, Field Operations Manager
W. Clark, Radiation Safety Officer
W. Mattern, Security Manager

INSPECTION PROCEDURES

IP 83822 Radiation Protection
IP 88045 Environmental Protection
IP 83890 Closeout Inspection and Survey

ITEMS OPENED, CLOSED AND DISCUSSED

Opened	Type	Summary
VIO 07000036/2015003-001	VIO	Storm Water in LSA 02-01
VIO 07000036/2015003-002	VIO	Inadequate Survey Procedures
VIO 07000036/2015003-003	VIO	100 Percent of GWS
VIO 07000036/2015003-004	VIO	GWS 3-inch Distance

Closed	Type	Summary
IFI 07000036/2015001-002	IFI	Gamma Walk-Over Surveys: DCGL
IFI 07000036/2015001-003	IFI	Burial Pit Identification
IFI 07000036/2015001-004	IFI	Survey Unit: Soil Sampling

Discussed	Type	Summary
IFI 07000036/2015001-001	FI	Contaminated Soil Under Natural Gas Pipeline
VIO 07000036/2015002-002	VIO	Survey Unit Isolation Control

DOCUMENTS REVIEWED

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 report.

HEM-15-MEMO-064 dated September 17, 2015, "Discrete Contaminated Items Identified in Site Pond LSA 02-01 by ORAU"

HEM-15-MEMO-064, Revision 1 dated October 8, 2015, "Discrete Contaminated Items Identified in Site Pond LSA 02-01 by ORAU"

HEM-15-52 dated May 29, 2015, "Westinghouse Hematite Decommissioning Project – Submittal of Technical Report HDP-RPT-FSS-202, Survey Area Release Record for Land Survey Area 10, Survey Units 01 and 02 (LSA 10-01 and LSA 10-02) in Support of Hematite Decommissioning Project License Termination"

HDP-WP-OPS-503, Revision 0, "Construction Stormwater Management"

HDP-WP-ENG-803, Revision 0, "Isolation and Control Measures"

HDP-PR-HP-602, Revision 3, "Data Package Development and Isolation and Control Measures to Support Final Status Survey"

"Westinghouse – NRC Public Teleconference Agenda Topic. Clarification of intent regarding the "100% Gamma Walkover Survey" performed in Class 1 Survey Units at HDP" provided to NRC via email on September 29, 2015

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
BMP	Best Management Practices
CFR	Code of Federal Regulations
DCGL	Derived Concentration Guideline Levels
DNMS	Division of Nuclear Materials Safety
DP	Decommissioning Plan
FSS	Final Status Survey
GWS	Gamma Walkover Survey
HDP	Hematite Decommissioning Project
IFI	Information Follow-up Item
IP	Inspection Procedure
IR	Inspection Report
LSA	Land Survey Area
NRC	U.S. Nuclear Regulatory Commission
ORAU	Oak Ridge Associated University
PQP	Project Quality Plan
QA	Quality Assurance
SER	Safety Evaluation Report
SNM	Special Nuclear Material
VIO	Violation