



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

August 5, 2015

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

**SUBJECT: NRC INSPECTION REPORT 07000036/2015002(DNMS) WESTINGHOUSE
ELECTRIC COMPANY (HEMATITE) AND NOTICE OF VIOLATION**

Dear Ms. Fussell:

On June 24, 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, 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 June 24, 2015.

During this inspection, the NRC staff examined activities conducted under your license as they relate to public health and safety to confirm compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has determined that two 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 Web site 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. For your consideration and convenience, an excerpt from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is enclosed. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

G. Fussell

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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 Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site 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. Inspection Report No. 07000036/2015002(DNMS)

cc w/encl: Hematite Service List

G. Fussell

-2-

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NOTICE OF VIOLATION

Westinghouse Electric Company (Hematite)
Festus, Missouri

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

During an U.S. Nuclear Regulatory Commission (NRC) inspection conducted between March 14, 2015, and June 24, 2015, two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

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).

1. Section 8.6.1 of the Decommissioning Plan states, in part, that Remediation areas will be graded such that water will drain to designated capture points and sumps. Collected water will be pumped into settling and holding tanks. Water collected in settling and holding tanks will be treated and/or sampled and processed and the analytical results compared to the liquid effluent discharge limits. Once sampling confirms collected and/or processed water is below the discharge limits, it will be discharged.

Contrary to the above on March 31, 2015, the licensee failed to collect water from remediation areas into settling or holding tanks and treat and/or sample and process the water and compare the analytical results to the liquid effluent discharge limits prior to discharge. Specifically, water from LSA 05-04, a remediation area, was discharged without comparing analytical results prior to discharge.

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

2. 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 procedure HDP-PR-HP-602, "Data package development and isolation and control measure to support final status survey" states "Ensure the area is isolated and controlled" and had an addition statement that "NOTE: In areas

where surface water flow could cause cross contamination, a berm or equivalent shall be placed to physically prevent water flow into the isolated area.”

Contrary to the above on March 31, 2015, the licensee failed 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. Specifically, the licensee had placed a silt fence and straw bales between Area 1 and Area 3 which did not prevent water flow into Area 1, an isolated area, from Area 3, a potentially contaminated 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 Public Document Room or in the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site 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 5th day of August, 2015.

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.: 07000036

License No.: SNM-00033

Report No.: 07000036/2015002(DNMS)

License: Westinghouse Electric Company, LLC

Facility: Former Hematite Fuel
Manufacturing Facility

Location: 3300 State Road P
Festus, Missouri

Inspection Period: March 14, 2015 through June 24, 2015

NRC Inspectors: Michael M. LaFranzo, Senior Health Physicist
Eugenio A. Bonano, Health Physicist
Navid N. Tehrani, Health Physicist
Daniel C. Strohmeyer, Health Physicist

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 07000036/2015002(DNMS)

Radiation Protection

The U.S. Nuclear Regulatory Commission (NRC) did not identify any significant deficiencies in the licensee's radiological safety program during this inspection period. (Section 1.0)

Environmental Protection

The inspectors identified one violation of NRC requirements for failure to collect water from remediation areas in settling and holding tanks and not treat and/or sample and process the water prior to discharge (Violation (VIO) 07000036/2015002-001). The licensee took immediate corrective actions while the inspector was on site. (Section 2.0)

Closeout Inspection and Survey

The inspectors identified one violation of NRC requirements for failure to prevent water flow into an isolated area with a berm or equivalent that could cause cross contamination (VIO 07000036/2015002-002). The licensee took immediate corrective actions while the inspector was on site. (Section 3.1)

The licensee has not demonstrated that the NRC's release criteria could be met in survey units where one or more of the IFI's are applicable (IFI 07000036/2015001-001, IFI 07000036/2015001-002, IFI 07000036/2015001-003, IFI 07000036/2015001-004). The NRC will continue to discuss and monitor licensee actions to ensure NRC's release criteria can be met in all appropriate survey areas. (Section 3.2)

NRC Confirmatory Survey

The inspectors determined that the radiological conditions of LSA 10-11, 10-13, and 10-14 were consistent with the requirements of the DP; specifically, the inspectors concluded that the contractor's final status surveys of LSA 10-11 was conducted in accordance with the DP and NRC regulations. (Section 3.3)

Report Details

1.0 Radiation Protection (83822)

a. Inspection Scope

The inspectors performed site tours to assess radiological conditions and controls. The inspectors interviewed licensee staff and technicians in 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 health physics practices, such as personnel radiological surveys, donning and doffing personnel protective gear and handling of 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 radiological safety program during this inspection period.

2.0 Environmental Protection (88045)

a. Inspection Scope

The inspectors toured the licensee's facility to determine if water control measures were being implemented to ensure compliance with NRC requirements.

b. Observations and Findings

On March 31, 2015, the inspectors observed water being transferred from an area northwest of the site pond, a remediation area, posted as a "radioactive material area," into the pond drainage by-pass. The water was being transferred by two water pumps. The licensee informed the inspectors that the water was mostly from breaches in a pipe which was to transfer local spring water through the area posted as "radioactive material area." These breaches in the pipe allowed water from the spring to enter the radioactive material area. To limit the amount of water in the area, the licensee was using the two water pumps, placed strategically within low points where the water collected, to drain the water to an area outside of the radioactive material area.

The licensee informed the inspectors that the water being pumped from the radioactive material area was "clean" and that monitored discharges near the pond outfall indicated that the water discharges from this area in combination with other areas on-site were less than NRC limits. However, the licensee stated that no batch samples for the purposes of radioactive nuclide or activity identification had been taken of the water and the water had not been processed through the Water Treatment System (WTS).

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 8.6.1 of the DP states, in part, that "Remediation areas will be graded such that water will drain to designated capture points and sumps. Collected water will be pumped into settling and holding tanks. Water collected in settling and holding tanks will be treated and/or sampled and processed and the analytical results compared to the liquid effluent discharge limits. Once sampling confirms collected and/or processed water is below the discharge limits, it will be discharged."

Failure to collect water from remediation areas in settling and holding tanks and not treat and/or sample and process the water prior to discharge is a violation of NRC requirements. (VIO 07000036/2015002-001)

The licensee immediately ceased the flow of water from the radioactive materials area into the pond drainage by-pass.

c. Conclusions

The inspectors identified one violation of NRC requirements for failure to collect water from remediation areas in settling and holding tanks and not treat and/or sample and process the water prior to discharge (VIO 07000036/2015002-001). The licensee took immediate corrective actions while the inspector was on site.

3.0 Closeout Inspection and Survey (83890)

3.1 Final Status Survey Isolation Controls

a. Inspection Scope

The inspectors reviewed the licensee survey unit isolation control program concerning isolated areas that could be potentially cross-contaminated from areas that contain licensed material.

b. Observations and Findings

The inspectors noted that the licensee had completed its FSS on Area 1. However the licensee had not completed its FSS in Area 3. During a walk-down of the site, the inspectors noted that water from Area 3, which is higher in elevation than Area 1, had washed into Area 1 potentially causing a cross-contamination issue. It was unclear how much water had moved into the area but a ditch into Area 1 was emanating from Area 3 which appeared to be caused by water intrusion. A berm, consisting of a silt fence and several hay bales were to be used to hold back the water; however the evidence of water intrusion indicated that the silt fence and hay bale was insufficient to prevent water from Area 3 to enter Area 1.

Condition 9 of License SNM-33 states, in part, that the authorized usage of licensed material is described in the August 12, 2009, 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 8.2.3 of procedure HDP-PR-HP-602 states that the licensee shall "Ensure the area is isolated and controlled" and had an addition statement that "NOTE: In areas where surface water flow could cause cross contamination, a berm or equivalent shall be placed to physically prevent water flow into the isolated area."

Failure to prevent water flow into an isolated area with a berm or equivalent that could cause cross contamination is a violation of NRC requirements. (VIO 07000036/2015002-002)

The licensee informed the NRC that potentially contaminated water could have been transferred from Area 3 to Area 1. In prevent this occurrence, the licensee created two soil berms between Area 3 and Area 1. At the time of the inspection, the licensee had not ascertained whether Area 1 required additional remediation or radiological surveys. The licensee was continuing to review other areas of the site where similar situations could exist.

c. Conclusions

The inspectors identified one violation of NRC requirements for failure to prevent water flow into an isolated area with a berm or equivalent that could cause cross contamination (VIO07000036/2015002-002). The licensee took immediate corrective actions while the inspector was on site.

3.2 Information Follow-up Items from IR 070-00036/2015001(DNMS)

a. Inspection Scope

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

b. Observations and Findings

The NRC documented four IFI's in IR 070-00036/2015001(DNMS). In summary, these were: Contaminated Soil under the Natural Gas Pipeline (IFI 07000036/2015001-001);

DCGL's relating to Gamma Walk-Over Surveys (IFI 07000036/2015001-002); Burial Pit Identification (IFI 07000036/2015001-003); and Soil Sampling with Survey Units (IFI 07000036/2015001-004).

Concerning the Contaminated Soil under the Natural Gas Pipeline IFI (IFI 07000036/2015001-001), the licensee informed the NRC that discussions with the pipeline operator/owner have continued. Additional discussions with the pipeline operator/owner are scheduled for August 2015.

The NRC shall continue to monitor the licensee actions regarding the appropriate methods to properly analyze or remediate soil under the 8-inch diameter high pressure natural gas pipeline.

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 demonstration that each survey unit, for which one or more of the IFI's are applicable, can be radiologically released under NRC's release criteria.

At the end of the inspection period, the licensee could not demonstrate to the NRC that NRC's release criteria could be met in survey units where the issues relating to DCGL's relating to Gamma Walk-Over Surveys, Burial Pit Identification, and Soil Sampling within Survey Units were applicable. The licensee and NRC are planning additional discussions to ensure that each survey unit shall meet the NRC's release criteria in accordance with NRC regulations.

No findings of significance were identified.

c. Conclusions

The licensee has not demonstrated that the NRC's release criteria could be met in survey units where one or more of the IFI's are applicable. The NRC will continue to discuss and monitor licensee actions to ensure NRC's release criteria can be met in all appropriate survey areas.

3.3 NRC Confirmatory Survey

a. Inspection Scope

During the on-site inspection on April 21 through 23, 2015, NRC inspectors performed confirmatory surveys of survey units LSA 10-11, 10-13, and 10-14; in addition, the inspectors surveyed and collected two "background" samples off-site at a selected open field north of the Missouri Army National Guard complex located 2 miles north of the Hematite decommissioning site. Inspectors also collected sediment samples from Joachim Creek to determine the radiological concentration levels in the creek. NRC inspectors observed the licensee's contractor perform final status surveys, and interviewed contractor/licensee technical, training, and management staff regarding their final status surveys.

b. Observations and Findings

Inspectors completed the confirmatory surveys using calibrated Ludlum 2241-3 survey meters with Ludlum 44-10, "Sodium Iodide 2x2" detectors; survey meters were also coupled to a Global Positioning System (GPS) Trimble unit, and GPS maps were generated of the inspectors' walkover surveys in each of the survey units (see ADAMS ML15194A246). Walkover surveys of LSA 10-11, 10-13, and 10-14 indicated radiation levels within background count variability (i.e., between 6,000 to 18,000 cpm).

Inspectors collected a total of 34 samples; Table 1 summarizes the samples collected and calculated Sum-of-Fractions (SOF): 1) Joachim Creek: five sediment samples; 2) LSA 10-11: thirteen soil samples, which includes two split samples with the licensee's contractor, "Permafix"; 3) North open field of Missouri Army National Guard (ANG) complex: two soil samples were collected; 4) LSA 10-13: ten soil samples; 5) LSA 10-14: four soil samples which included one biased sample.

The samples were sent to the NRC's contract laboratory, Oak Ridge Associated University (ORAU) for analysis (see ADAMS ML15194A246 regarding the NRC Form 303, "Request for Analysis and Chain of Custody"). As reported by ORAU's analytical report (see ADAMS ML15159A565); ORAU analyzed samples for the isotopes of concern (i.e., U-235, U-238, Tc-99, Th-232, and Ra-226) by gamma spectroscopy; and five samples by alpha spectroscopy. Inspectors inferred the activity for U-234 from the gamma spectroscopy U-235 and U-238 data. The Tc-99, Th-232, and Ra-226 isotopes were background corrected for all samples reported below.

Table 1: SUMMARY OF SAMPLES COLLECTED

<i>NRC SAMPLE ID</i>	<i>SAMPLE DESCRIPTION/LOCATION</i>	<i>SOF</i>
*HEM-15-1-01	Joachim Creek, downstream; Lat.: 38.20728, Long.: -9047022	0.01
*HEM-15-1-02	Joachim Creek, downstream; Lat.: 38.20615, Long.: -9047253	0.01
*HEM-15-1-03	Joachim Creek, midway between site creek injection point and sample #2 location	0.01
*HEM-15-1-04	Joachim Creek, site creek injection point	0.04
*HEM-15-1-05	Joachim Creek, 110 yards upstream of site creek injection point – Background Sample	0.01
HEM-15-1-06	LSA 10-11	0.19
HEM-15-1-07	LSA 10-11	0.16
HEM-15-1-08	LSA 10-11	0.23
HEM-15-1-09	LSA 10-11	0.39
HEM-15-1-10	LSA 10-11	0.44
HEM-15-1-11	LSA 10-11	0.27
HEM-15-1-12	LSA 10-11	0.15
HEM-15-1-13	LSA 10-11	0.28
HEM-15-1-14	LSA 10-11	0.24
HEM-15-1-14B	LSA 10-11	0.13
HEM-15-1-15	LSA 10-11, Split Sample	0.30

HEM-15-1-16	LSA 10-11, Split Sample	0.20
HEM-15-1-16B	LSA 10-11	0.19
HEM-15-1-17	North open field of ANG complex	0.01
HEM-15-1-18	North open field of ANG complex	0.14
HEM-15-1-19	LSA 10-13	0.19
HEM-15-1-20	LSA 10-13	0.43
HEM-15-1-21	LSA 10-13	0.29
HEM-15-1-22	LSA 10-13	0.27
HEM-15-1-23	LSA 10-13	0.51
HEM-15-1-24	LSA 10-13	0.31
HEM-15-1-25	LSA 10-13	0.28
HEM-15-1-26	LSA 10-13	0.51
HEM-15-1-27	LSA 10-13	0.41
HEM-15-1-28	LSA 10-13	0.29
HEM-15-1-29	LSA 10-14	0.49
HEM-15-1-30	LSA 10-14, biased sample, "Hotspot"	1.71
HEM-15-1-31	LSA 10-14	0.39
HEM-15-1-32	LSA 10-14	0.43

*Note 1: See ML15194A246 for the Joachim Creek sample locations map.

The NRC inspectors and the licensees' contractor, "Permafix" collected two split samples in LSA 10-11; results are in statistical agreement:

LSA 10-11, SPLIT SAMPLES - 1st SET

NRC Sample ID: HEM-15-1-15

Enrichment: 0.3%; SOF: 0.21

Isotope	DCGL _w	Units	Result	Total Uncertainty +/-	MDC
U-234 _{inferred}	195.4	pCi/g	0.57	--	--
U-235	51.6	pCi/g	0.02	0.14	0.33
U-238	168.8	pCi/g	1.22	0.50	0.92
*Th-232	2.0	pCi/g	0.24	0.18	0.19
*Tc-99	25.1	pCi/g	0.00	0.18	0.32
*Ra-226	1.9	pCi/g	0.15	0.10	0.09

**Licensee Sample ID: L10-11-18-B-R-B-00

Enrichment: 1.6%; SOF: 0.08

Isotope	DCGL _w	Units	Result	Total Uncertainty +/-	MDC
U-234 _{inferred}	195.4	pCi/g	1.62	--	--
U-235	51.6	pCi/g	0.086	0.15	0.23
U-238	168.8	pCi/g	0.836	0.31	0.95
*Th-232	2.0	pCi/g	0.110	0.17	0.09
*Tc-99	25.1	pCi/g	0.129	0.06	0.26
*Ra-226	1.9	pCi/g	0.00	0.14	0.08

LSA 10-11, SPLIT SAMPLES - 2nd SET

NRC Sample ID: HEM-15-1-16

Enrichment: 0.2%; SOF: 0.17

Isotope	DCGL _w	Units	Result	Total Uncertainty +/-	MDC
U-234 _{inferred}	195.4	pCi/g	0.45	--	--
U-235	51.6	pCi/g	0.01	0.16	0.37
U-238	168.8	pCi/g	1.46	0.91	1.95
*Th-232	2.0	pCi/g	0.32	0.16	0.16
*Tc-99	25.1	pCi/g	0.04	0.19	0.32
*Ra-226	1.9	pCi/g	0.01	0.08	0.09

**Licensee Sample ID: L10-11-19-B-R-B-00

Enrichment: 1.6%; SOF: 0.03

Isotope	DCGL _w	Units	Result	Total Uncertainty +/-	MDC
U-234 _{inferred}	195.4	pCi/g	2.08	--	--
U-235	51.6	pCi/g	0.11	0.16	0.25
U-238	168.8	pCi/g	1.09	0.59	0.92
*Th-232	2.0	pCi/g	0.00	0.18	0.12
*Tc-99	25.1	pCi/g	0.16	0.09	0.27
*Ra-226	1.9	pCi/g	0.00	0.13	0.08

*Background corrected.

**Note: Reported results were derived from the licensee's data analytical reports (see amended report ML15196A584) and rounded to two significant digits.

One "Hotspot" was detected in LSA 10-14 with count rates greater than 24,000 cpm; inspectors collected a biased sample from same location for analysis (i.e., HEM-15-1-30):

LSA 10-14, Biased Sample "Hotspot"

NRC Sample ID: HEM-15-1-30

Enrichment: 61.5%; SOF: 1.71

Isotope	DCGL _w	Units	Result	Total Uncertainty +/-	MDC
U-234 _{inferred}	195.4	pCi/g	219.62	--	--
U-235	51.6	pCi/g	8.30	0.56	0.35
U-238	168.8	pCi/g	0.84	0.56	1.24
*Th-232	2.0	pCi/g	0.49	0.19	0.19
*Tc-99	25.1	pCi/g	0.21	0.18	0.31
*Ra-226	1.9	pCi/g	0.32	0.10	0.09

Note: Direct field readings were greater than 24,000 cpm at sample location

*Background corrected.

In an e-mail message dated April 29, 2015 (see ML15196A582), the licensee remediated, re-surveyed the area and confirmed the removal of the elevated count rates.

Inspectors collected two randomly selected “background” samples off-site for comparison against the site sample results:

**Open Field Location, North of
Army National Guard Complex**

NRC Sample ID: HEM-15-1-17

Enrichment: 1.2%; SOF: 0.01

Isotope	DCGL _w	Units	Result	Total Uncertainty +/-	MDC
U-234 _{inferred}	195.4	pCi/g	1.56	--	--
U-235	51.6	pCi/g	0.08	0.12	0.28
U-238	168.8	pCi/g	1.05	0.63	1.33
*Th-232	2.0	pCi/g	0.00	0.11	0.12
*Tc-99	25.1	pCi/g	0.00	0.18	0.33
*Ra-226	1.9	pCi/g	0.00	0.07	0.06

NRC Sample ID: HEM-15-1-18

Enrichment: 1.6%; SOF: 0.14

Isotope	DCGL _w	Units	Result	Total Uncertainty +/-	MDC
U-234 _{inferred}	195.4	pCi/g	3.59	--	--
U-235	51.6	pCi/g	0.19	0.09	0.20
U-238	168.8	pCi/g	1.86	0.80	1.52
*Th-232	2.0	pCi/g	0.11	0.13	0.13
*Tc-99	25.1	pCi/g	0.04	0.19	0.32
*Ra-226	1.9	pCi/g	0.11	0.08	0.07

Note: Direct field measurements were between 8,000 to 12,500 cpm

*Background corrected.

The inspectors determined that the site confirmatory sample results were consistent with the samples collected off-site at the ANG complex.

Based on the confirmatory surveys results, the inspectors did not identify radiological conditions in survey units LSA 10-11, 10-13, and 10-14 that exceed the release criteria.

Based on the Joachim Creek sample results, the inspectors determined that the radiological concentration levels in the creek were within background levels (i.e., less than or equal to NRC Background Sample HEM-15-1-05).

The licensee’s contractor, “Permafrix,” performed final status surveys (FSS) in LSA 10-11 (i.e., 100% walk-over surveys and sample collection); and the technical/management staff demonstrated knowledge and understanding of the DP and FSS procedural requirements in performing radiological MARSSIM based surveys. The inspectors determined that the licensee’s observed FFS activities were consistent with the DP, FSS procedures, and NRC regulatory requirements for conducting adequate surveys.

No findings of significance were identified.

c. Conclusions

The inspectors determined that the radiological conditions of LSA 10-11, 10-13, and 1-14 were consistent with the requirements of the DP; specifically, the inspectors concluded that the contractor's final status surveys of LSA 10-11 was conducted in accordance with the DP and NRC regulations.

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
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

<u>Opened</u>	<u>Type</u>	<u>Summary</u>
VIO 07000036/2015002-001	VIO	Water Control
VIO 07000036/2015002-002	VIO	Survey Unit Isolation Control
<u>Closed</u>	<u>Type</u>	<u>Summary</u>
None	--	--
<u>Discussed</u>	<u>Type</u>	<u>Summary</u>
IFI 07000036/2015001-001	IFI	Contaminated Soil under Natural Gas Pipeline
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

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-14-97 dated December 17, 2014 "Hematite Decommissioning Project – Request for Review of Approach for Unrestricted Release of Soil in the Vicinity of the Former Evaporation Ponds that Structurally Support an 8-Inch Diameter High Pressure Natural Gas Pipeline at the Hematite Decommissioning Project (License No. SNM-00033, Docket No. 070-00036)"

HEM-15-3 dated January 15, 2015 "Hematite Decommissioning Project – Natural Gas Pipeline Supplemental Information (License No. SNM-0003, Docket No. 070-00036)"

HDP-PR-GM-008, Correspondence Rev. 4; Document No. HEM-15-LaCledeGas-0305-23 dated March 5, 2015.

Missouri Department of Natural Resources letter dated April 8, 2015; "Westinghouse Electric Company, LLC Hematite Radioactive Site (Festus, Mo) Proposal for fate of materials surrounding the Laclede Gas Company's Natural Gas Pipeline"

Discrete Issue/Suggestion for Improv. HDP document: Issue ID 100198244 submitted April 8, 2015 "Cross Contamination Between Areas Via Water"

HEM-15-19 dated March 24, 2015: "Hematite Decommissioning Project – Corrective Actions in Response to Erroneous Tc-99 Results Identified During Radiological Testing of Backfill Soil from an Off-site Borrow Location"

HEM-15-52 dated May 29, 2015: HDP-RPT-FSS-202 SARR for LSA 10-01 and LSA 10-02

HDP-PR-HP-602 Rev. 2 "Data Package Development and Isolation and Control Measures to Support Final Status Survey"

HDP-PO-EM-004 Rev. 2 "Water Management Plan"

HDP-PO-QA-001 Rev. 1 "Project Quality Plan"

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ANG	Army National Guard
CFR	Code of Federal Regulations
CPM	Counts Per Minute
DCGL	Derived Concentration Guideline Levels
DNMS	Division of Nuclear Materials Safety
DP	Decommissioning Plan
FSS	Final Status Survey
GPS	Global Positioning System
GWS	Gamma Walkover Survey
HDP	Hematite Decommissioning Project
HP	Health Physics
IFI	Information Follow-up Item
IP	Inspection Procedure
IR	Inspection Report
MDC	Minimum Detectable Concentration
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
SOF	Sum Of Fractions
VIO	Violation
WTS	Water Treatment System