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Our ref: HEM-09-104
Date: September 23, 2009

Subject: Clarifications for NRC Inspection Report of the Hematite Decommissioning
Project (License No. SNM-00033, Docket No. 070-00036)

Reference: NRC (S. A. Reynolds) letter to WEC (E. K. Hackmann), dated July 23, 2009,
"NRC Inspection Report 070-00036/08-02(DNMS) - Westinghouse Electric
Company (Hematite) and Notice Of Violation"

Although Westinghouse Electric Company LLC (WEC) does not dispute the problematic issues
addressed in the apparent violations of the inspection report, WEC offers several clarifications
concerning certain statements of the referenced NRC report. The WEC clarifications are
provided in the attachment to this letter with the intention of ensuring that the record is accurate.

If you have any questions concerning this subject, please contact Gerard Couture, Hematite
Licensing Manager, at 803-647-2045.

Sincerely,

A handwritten signature in black ink that reads "Ron Dutt FOR EKH".

E. Kurt Hackmann
Director, Hematite Decommissioning Project

Attachment: Clarifications for NRC Inspection Report of the Hematite Decommissioning Project

cc: S. A. Reynolds, NRC Region III/DNMS
J. J. Hayes, NRC/FSME/DWMEP/DURLD
J. W. Smetanka, Westinghouse
W. G. Snell, NRC Region III/DNMS/DB
R. Tadesse, NRC/FSME/DWMEP/DURLD

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**Clarifications for NRC Inspection Report of the Hematite Decommissioning
Project**

- References:
- 1 NRC (S. A. Reynolds) letter to WEC (E. K. Hackmann), dated July 23, 2009, "NRC Inspection Report 070-00036/08-02(DNMS) - Westinghouse Electric Company (Hematite) and Notice Of Violation"
 - 2 ORISE (E. N. Bailey) letter to NRC (B. Watson), dated March 18, 2009, "Final Report – Independent Confirmatory Survey Summary and Results for the Hematite Decommissioning Project, DCN 1768-SR-01-0 (Docket 070-036; TAC No. J00344; NRC F1008; RFTA No. 08-005)"
 - 3 ORISE (D. Condra) letter to NRC (B. Watson), dated March 18, 2009, "Letter Report Comparing Analytical Data for the Hematite Decommissioning Project, Festus, Missouri (Docket No. 070-036, RFTA No. 08-004) DCN: 1768-LR-02-0"

The following information provides citations from the Reference 1 NRC inspection report's Enclosure 2. The referenced paragraph numbers are those of the subsections of the enclosure's "Report Details". The referenced page numbers are those of the report's Enclosure 2. The citations are given to locate the statements of interest; they should be read in context of the actual report. Italics have been added for emphasis. A WEC clarification is given for the statements within the inspection report.

Emergency Response (88005)

- 2.0 b. Observation and Findings (3rd paragraph, page 9)

"Emergency Response Team members received HAZWOPER Practical Factors training on *February 23, 2009*, and HAZWOPER Refresher Scenarios on *February 27, 2009*."

WEC Clarification

WEC clarifies that the correct dates that Emergency Response Team members performed HAZWOPER Practical Factors was February 23, 2009 and March 27, 2009. Also, the Emergency Response Team members received Table Top Exercise training on February 23, 2009 and March 27, 2009. The actual date the Emergency Response Team members received training on HAZWOPER Refresher Scenarios is March 27, 2009.

Environmental Monitoring (88045)

- 3.0 b. Observations and Findings (3rd paragraph, page 11)

"The differences in the Tc-99 analyses were most likely *due to the differences in procedures used (analyzing the samples dry verses wet) . . .*"

(4th paragraph, page 11)

"The lab WEC sent samples to performed Tc-99 *analysis on wet samples* and the WEC results were now consistent with ORISE results, *resolving the Tc-99 underreporting issue*."

WEC Clarification

WEC letter dated 5/14/09 (HEM-09-49, "Comments on Recent ORISE Reports") noted that Reference 2 contained the same statement as in the NRC's recent inspection report citation concerning analyses of samples wet versus dry. However, that WEC letter also noted that Reference 3 stated "For Tc-99, the ORISE wet weight result and the Test America dry weight result are in general agreement." WEC understands that NRC is in agreement that the WEC lab results and the ORISE results are consistent.

Radiation Protection Program (83822, 88035, 86740)

• Radiological Surveys (1st paragraph, page 16)

"On September 8, 2008, during a bi-weekly status call between the NRC and Westinghouse, the licensee indicated that a walkdown of the Process Buildings had identified 12 fuel pellets underneath a conveyor. The total U-235 discovered was 2.8 grams. *An additional fuel pellet was subsequently discovered in the leg of a piece of equipment.*"

WEC Clarification

WEC clarifies that the additional fuel pellet was not discovered subsequent to the discovery of the 12 fuel pellets as discussed on September 8, 2008. This fuel pellet was identified during HDP radiological surveys on the floor of a recently emptied waste shipping container as recorded on Radiological Survey Report Log Number 0434 S 080506 dated May 6, 2008.

• Radiological Surveys (2nd paragraph, page 16 and 17)

". . . 2) the licensee was not able to locate any previous micro-R survey records for the pipes in question, . . ."

WEC Clarification

WEC informed NRC that previous process building surveys had been located in WEC letter dated 12/12/08 (HEM-08-107, Attachment, Item I.G., Issues 19 and 20, 2nd paragraph), but not necessarily for the pipes in question. The surveys had been performed using a micro-R meter, and in some instances, a sodium iodide detector. However, as stated in the letter, sufficient information was not available to establish a link between specific items surveyed and specific measurements that were made using the ISOCS.

• Radiological Surveys (2nd paragraph, page 17)

"The failure to estimate the U-235 mass in some Schedule 40 piping as indicated by LVI-HP-50, WI-023 and HP-05-008 was inconsistent with Section 2.7 of Chapter 2 of the license application *which states that procedures are mandatory and followed during work activities.*"

WEC Clarification

WEC believes that the work activities and surveys were procedurally compliant. The reason the residual U-235 was not identified in the process pipes was because a comprehensive survey in the process buildings following the Primary Interference Removal Project was not part of the work scope. This is not related to the application of the estimation methods provided in the cited procedures. The procedures did not contain instructions for such a survey. The focus of the work scope was characterization to the extent necessary to support equipment removal rather than the creation of an inventory of material left in place.

- Radiological Surveys (6th paragraph, page 18)

“In a December 12, 2008, Westinghouse letter (ML083500576), *the licensee stated that the records of ISOCS measurements found to date had assumed a thickness of contamination of 0.3 and 0.4 inch.*”

WEC Clarification

WEC intended that this sentence be interpreted somewhat differently than the NRC has stated. What it was intended to convey is that two separate 1-inch diameter pipes had source thicknesses of 0.3 and 0.4 inches, respectively. It does not mean all measurements found to date had assumed a thickness of contamination of 0.3 to 0.4 inch.

- Radiological Surveys (6th paragraph, page 18)

“The inspectors determined that the procedure [HP-05-008] *was technically inadequate* in that the procedure relied on the manufacturer’s templates for calibration and source geometries and assumed source configurations.”

WEC Clarification

WEC believes that technical basis document HP-05-008 was technically adequate, as it required the ISOCS to be used as specified by the manufacturer. The ISOCS manufacturer’s instructions specify that the manufacturer’s geometry templates be used to perform measurements. The ISOCS software includes 20 templates in a wide variety of sample configurations. As discussed in HP-05-008, the geometry template is selected by matching the most appropriate template to the actual conditions. Physical sample parameters are then entered into the template to define the source-detector geometry. An efficiency calibration file is then created and used during the spectral analysis to calculate item activity.

Per the ISOCS Calibration Software User’s Manual, the ISOCS measurement process is as follows:

- *Acquire the spectral data.*
- *Determine the dimensions and physical composition of the measured object.*

- *Select an appropriate ISOCS template using the Geometry Composer and entering the required input parameters, including the geometry definition.*
- *Generate an efficiency calibration file for the specified counting configuration.*
- *Use these efficiency results to analyze the acquired spectra.*

These measurement process steps are also discussed in HP-05-008 Section 4.3 “Basic Set-Up Steps” and are the same as those specified by the manufacturer.

- Radiological Surveys (6th paragraph, page 18)

“To accurately assess uranium holdup using In-situ Gamma Spectroscopy, a technically defensible verification process and test measurement plan was necessary.”

WEC Clarification

The ISOCS was used as a method to estimate U-235 in specified equipment/items to demonstrate nuclear criticality safety criteria was satisfied or to support waste characterization related to transportation and disposal (Ref. HP-05-008, Section 2.0). It is WEC’s belief that HP-05-008 was technically adequate to achieve these objectives.

- Radiological Surveys (7th paragraph, page 18)

“During the review, the inspectors determined that the licensee continued to use the ISOCS in various field measurements for shipments that were returned from the Mississauga, Metals & Alloys Company in Canada, in spite of gain shifts and source check failures.”

WEC Clarification

The gain shift issue that occurred in early 2007 with respect to measurements taken at MM&A, was self-identified in January 2009 and corrected as documented in the WEC Corrective Action Program (IR 09-028-W006-07). WEC has reviewed all the data generated since 2007. WEC determined that of the 311 items measured at MM&A, 50 were affected during a three day period in January 2007. WEC determined that no other measurements were adversely affected by a gain shift for the balance of 2007, 2008 and to date in 2009.

The following corrective actions were taken to address this:

- The U-235 mass was re-calculated for the 50 items with a gain shift.
- The HDP MC&A and waste inventory were updated.
- A letter was sent to MM&A to inform them of the inventory differences.

- Radiological Surveys (7th paragraph, page 18)

“It was also noted that although the Mississauga packages were returned to Hematite in March 2007, significant discrepancies had been noted (*measurements were low by as much as a factor of 17x*) in U-235 gram measurements as early as February 2007 in a licensee Root Cause Analysis.”

WEC Clarification

WEC believes that the 17x measurement to which the NRC is referring is that of intermodal MHFU-001104, which had a U-235 mass estimate of 116 grams when shipped to MM&A, and four subsequent U-235 mass estimates ranging from 7 to 22 grams.

The initial estimate of 116 grams was performed in 2005 and based on the summation of U-235 masses from many individual items prior to loading into containers. The masses of those individual items were determined by converting a surface contamination measurement to mass; and there were a limited number of measurements using ISOCS. The four subsequent U-235 mass estimates from 2007 were determined solely by ISOCS measurements of the shipping containers. Since the initial and four subsequent U-235 mass estimate methods were different, it is not unexpected that results would differ.

- Radiological Surveys (8th paragraph, page 18)

“*The continued use of the ISOCS system during 2007 and 2008, in spite of failed channel and . . .*”

WEC Clarification

WEC evaluation concludes the ISOCS was operating within acceptable tolerances during the period 2007 and 2008, other than the three days at MM&A. WEC has corrected affected data and in 2008 implemented procedures to prevent recurrence.

During an ISOCS training course and accompanying program review provided by Canberra in February 2008, the instructor noted that the Eu-155 and Na-22 activities were not being decay-corrected during the source checks. In addition, several outlier values were improperly retained in the QA files. This was self-identified and corrected.

The lack of decay-correction and the inclusion of 0 values in the QA files, which are both used to establish QA source check parameters, allowed for a wide QA source check range. This was self-identified and corrected.

The previous QA measurements were decay-corrected and reviewed. This evaluation indicates the ISOCS was operating appropriately and within acceptable tolerance.

- Radiological Surveys (3rd and 4th paragraphs, page 19)

“Neither one of these individuals had any formal education or training in health physics.”

WEC Clarification

WEC clarifies that of the two technicians referenced, one technician attended training sessions while at a FUSRAP site from 2001 to 2004. In 2005, the other technician attended weekly HP technician continuing training sessions that were provided by SAIC during the equipment removal phase as a precursor to his assignment as a health physics technician. This information is now documented for both technicians in the personnel training files.

- Radiological Survey (4th paragraph, page 19)

“One had a degree in agriculture and only very limited experience at another nuclear site...”

WEC Clarification

WEC clarifies that this individual had previously performed very similar health physics technician duties at FUSRAP sites for several years. This experience is relevant to the role of health physics technician in general and is specifically pertinent to the responsibilities for health physics technicians at the HDP.