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Our ref: HEM-09-41  
Date: April 24, 2009

Subject: 30 Day Reportable Event – Contaminated Equipment (License No. SNM-33,  
Docket No. 070-00036)

Dear Sirs:

Westinghouse Hematite Decommissioning Project (HDP) hereby submits a report of an event in accordance with 10 CFR 20.2203(a)(3)(ii). As a result of recently conducted routine radiation surveys, two contaminated items (i.e., a “wire cage” and a diaphragm pump) were found in an unposted area outside a restricted area (but within a controlled access area). The details of this event are provided in the enclosure in accordance with 10 CFR 20.2203(b).

If you have any questions concerning this letter or the attached report, please contact Gerard Couture, Hematite Licensing Manager, at 803-647-2045.

Sincerely,

A handwritten signature in black ink, appearing to read "E. Kurt Hackmann".

E. Kurt Hackmann  
Director, Hematite Decommissioning Project

Enclosure: Equipment Contamination Report per 10 CFR 20.2203(a)(3)(ii)

cc: J. J. Hayes, NRC/FSME/DWMEP/DURLD  
C. Lipa, NRC Region III/DNMS/MCID  
G. M. McCann, NRC Region III/DNMS/MCID  
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W. G. Snell, NRC Region III/DNMS/MCID

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Enclosure to HEM-09-41  
Date: April 24, 2009

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ENCLOSURE

**Equipment Contamination Report per 10 CFR 20.2203(a)(3)(ii)**

### **Regulatory Requirements for Report**

On March 26, 2009 and on April 16, 2009, while conducting radiological surveys at the Hematite Decommissioning Project (HDP) in support of the unconditional release of materials, two items (i.e., a "wire cage" and a diaphragm pump) stored in an unrestricted area were identified as exceeding the site release criteria. After evaluation, the amount of radioactivity present on each of the two items was determined to be in excess of 10 times the values of 10 CFR 20 Appendix C, Quantities of Licensed Material Requiring Labeling (contrary to 10 CFR 20.1902(e)). The following 30 day report is provided in accordance with the requirements of 10 CFR 20.2203(a)(3)(ii) and §20.2203(b).

The necessity of reporting this event is specified in 10 CFR 20.2203(a)(3)(ii):

"(a) *Reportable events.* In addition to the notification required by § 20.2202, each licensee shall submit a written report within 30 days after learning of any of the following occurrences: . . .

(3) Levels of radiation or concentrations of radioactive material in-- . . .

(ii) An unrestricted area in excess of 10 times any applicable limit set forth in this part . . ."

The contents of required reports are specified in 10 CFR 20.2203(b) as:

"(b) *Contents of reports.*

(1) Each report required by paragraph (a) of this section must describe the extent of exposure of individuals to radiation and radioactive material, including, as appropriate:

(i) Estimates of each individual's dose; and

(ii) The levels of radiation and concentrations of radioactive material involved; and

(iii) The cause of the elevated exposures, dose rates, or concentrations; and

(iv) Corrective steps taken or planned to ensure against a recurrence, including the schedule for achieving conformance with applicable limits, ALARA constraints, generally applicable environmental standards, and associated license conditions.

(2) Each report filed pursuant to paragraph (a) of this section must include for each occupationally overexposed individual . . ."

### **Context of the Event**

The radioactive material involved in this event was approximately 14.5  $\mu\text{Ci}$   $\text{U}^{234}$  and 0.85  $\mu\text{Ci}$   $\text{U}^{235}$  of primarily fixed contamination or contamination on inaccessible internal surfaces of equipment. There was no release of any of this material and no measurable dose to any member of the HDP staff or the public.

### **Background**

The HDP was formerly a fuel fabrication facility, which ceased all principle activities by letter dated September 11, 2001. HDP is currently undergoing decommissioning pursuant to 10 CFR 70.38. During the interference removal portion of the decommissioning, certain outdoor areas within the Controlled Access Area inside the security fence were designated as restricted areas for radiological control purposes. At the conclusion of the interference removal phase, these areas and the included tools and equipment were released from these controls. Subsequently, in preparation for unconditional release, the two previously mentioned items were surveyed in accordance with the license (License Application §1.6(b)).

### **Event Description**

On March 26, 2009, a HP technician surveyed a wire cage that had been stored on a concrete pad outside Building 230 in an unrestricted area within the Controlled Access Area. The HP Technician identified elevated alpha and beta readings and notified HP Supervision. Initial readings indicated surface contamination levels in excess of the unconditional release criteria. The highest total beta and alpha contamination levels were approximately 66,000 dpm/100  $\text{cm}^2$  and 3400 dpm/100  $\text{cm}^2$ , respectively. The highest removable beta and alpha surface contamination levels were approximately 242 dpm/100  $\text{cm}^2$  and 350 dpm/100  $\text{cm}^2$ , respectively.

Subsequent to the identification of the wire cage contamination, on April 16, 2009, a HP technician requested that a pump located on the same concrete pad as the wire cage be disassembled for evaluation prior to unconditional release. Upon disassembly, contamination was detected on the interior surfaces in the area of the diaphragm and the interior surface of the steel plate covering the diaphragm, and dry sediment was found in the pump casing. The highest total beta and alpha contamination levels identified were approximately 9000 dpm/100  $\text{cm}^2$  and 275 dpm/100 $\text{cm}^2$ , respectively. The highest removable beta and alpha surface contamination levels were approximately 35 dpm/100 $\text{cm}^2$  and 45 dpm/100 $\text{cm}^2$ , respectively.

The results of the two evaluations conducted on these two pieces of equipment indicated that the activity exceeded 10 times the value of 0.001  $\mu\text{Ci}$  of 10 CFR 20 Appendix C, and therefore is reportable pursuant to 10 CFR 20.2203(a)(3)(ii).

### **Cause of the Event**

The probable cause of the event was the lack of an adequate survey prior to release of the equipment to an unrestricted area.

### **Corrective Actions Taken**

Upon identification, both items were immediately isolated by placing them in a properly posted sealand container.

Both items were thoroughly evaluated:

- On April 1, 2009, an additional evaluation of the wire cage was conducted using the In-Situ Objective Counting System (ISOCS). The results indicated an activity of 14.5  $\mu\text{Ci U}^{234}$  and 0.8  $\mu\text{Ci U}^{235}$ .
- On April 16, an additional evaluation of the pump and the dry sediment from the pump interior was conducted. The sediment was found to weigh approximately 1000 grams and contained approximately 11 pCi/gm  $\text{U}^{235}$ . The total of the contamination on the interior surfaces of the pump and in the sediment was approximately 0.025 grams of  $\text{U}^{235}$  (0.05  $\mu\text{Ci U}^{235}$ ).

The remaining equipment in the area has been isolated pending completion of radiological surveys. Any additional items found to be above release limits will be segregated and properly controlled.

Surveys of the equipment in this area will be completed by April 30, 2009.