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Our ref: HEM-08-86
Date: August 22, 2008

U.S. Nuclear Regulatory Commission
Region III
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

Subject: Hematite Effluent Monitoring Report for the Period January 1, 2008 Through
June 30, 2008 (License No. SNM-33, Docket No. 70-36)

Reference: 10 CFR 70.59, "Effluent monitoring reporting requirements"

Dear Sirs:

In accordance with 10 CFR 70.59, this letter transmits the effluent monitoring report for
Hematite Decommissioning Project (Hematite), License Number SNM-33. The report, provided
as an attachment to this letter, covers the period from January 1, 2008 through June 30, 2008.

If you have any questions concerning this letter or the attached report, please contact Gerald
Rood, Project Radiation Safety Officer, at (314) 810-3382.

Sincerely,

A handwritten signature in black ink, appearing to read 'E. Kurt Hackmann', with a long, sweeping underline.

E. Kurt Hackmann
Director, Hematite Decommissioning Project

Attachment

cc: J. J. Hayes, NRC/FSME/DWMEP/DURLD
B. A. Watson, NRC/FSME/DWMEP/DURLD
C. A. Lipa, NRC Region III/DNMS/DB
G. M. McCann, NRC Region III/DNMS/DB
A. M. Bramnik, NRC Region III/DNMS/DB
E. J. Gilstrap, MDNR

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NMS55

Hematite Decommissioning Project Effluent Monitoring Report
For the Period from January 1, 2008, Through June 30, 2008

I. Introduction

Pursuant to 10 CFR 70.59, this report summarizes the results of radiological effluent monitoring at the Hematite Decommissioning Project for the period from January 1, 2008, through June 30, 2008. This report includes the information specified in 10 CFR 70.59, which states in part:

The report must specify the quantity of each of the principal radionuclides released to unrestricted areas in liquid and gaseous effluents during the previous six months of operation, and such other information as the Commission may require to estimate maximum potential annual radiation doses to the public resulting from effluent releases. If quantities of radioactive materials released during the reporting periods are significantly above the licensee's design objectives previously reviewed as part of the licensing action, the report must cover this specifically.

II. Effluent Monitoring Report

A. Liquid Effluents

The quantity of radioactivity released to unrestricted areas in liquid effluents from January 1, 2008, through June 30, 2008, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 440 grams of uranium was released to unrestricted areas in liquid effluents during the reporting period.

As indicated in Table 1, quantities of radioactive materials (i.e., uranium) released during the reporting period are significantly below the control limits specified by the Hematite Decommissioning Project License Number SNM-33. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 18 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 34 percent of the annual effluent limit based on gross activity results. This data confirms that the maximum potential radiation dose to the public resulting from liquid effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.

Table 1
 Liquid Effluent Monitoring Summary Data
 Reporting Period January - June, 2008

	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Avg. Conc. ($\mu\text{Ci/ml}$)	Avg. Fract. of Limit	Quantity Disch. (Ci)	Avg. Conc. ($\mu\text{Ci/ml}$)	Avg. Fract. of Limit	Quantity Disch. (Ci)
Site Dam	1.1E-09	3.8E-03	8.2E-04	4.1E-09	8.2E-04	3.0E-03
Sewage Treat. Outfall	5.4E-08	1.8E-01	5.5E-05	1.3E-07	2.5E-02	1.3E-04
Total Quantity of Gross Radioactivity Disch. (μCi)	8.8E+02			3.1E+03		
Total Quantity of Uranium Discharged (grams) ¹	440 grams					
Maximum Concentrations for Sampling Period						
	Sewage Treatment Outfall			Site Dam		
Dissolved Gross Alpha ($\mu\text{Ci/ml}$)	9.5E-08			3.0E-09		
Suspended Gross Alpha ($\mu\text{Ci/ml}$)	8.2E-09			1.1E-09		
Total Alpha ($\mu\text{Ci/ml}$)	1.0E-07			4.1E-09		
Max. Fraction of Alpha Limit	3.4E-01			1.4E-02		
Dissolved Gross Beta ($\mu\text{Ci/ml}$)	5.0E-07 ³			8.6E-09		
Suspended Gross Beta ($\mu\text{Ci/ml}$)	N/A			1.7E-09		
Total Beta ($\mu\text{Ci/ml}$)	5.0E-07			1.0E-08		
Max. Fraction of Beta Limit	1.0E-01			2.1E-03		
U-233/234 ($\mu\text{Ci/ml}$)	1.2E-07			N/A ²		
U-235 ($\mu\text{Ci/ml}$)	3.6E-09			N/A ²		
U-238 ($\mu\text{Ci/ml}$)	1.4E-08			N/A ²		

Note 1: The estimated mass of uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of two $\mu\text{Ci/g}$ which is representative of the enrichments present during this period.

Note 2: Consistent with the guidance provided in Regulatory Guide 4.16, isotopic analysis was not performed for samples collected from the Site Dam during these reporting periods in consideration of the operational knowledge regarding radionuclide composition; and the low individual sample concentrations which did not exceed ten percent of the annual effluent limit.

Note 3: The maximum total (sum of dissolved and suspended) gross beta concentration was 5.0E-07 uCi/mL. The dissolved and suspended gross beta concentrations were not analyzed separately for this sample.

B. Gaseous (Airborne) Effluents

There was no measurable radioactivity released to unrestricted areas in airborne effluents from January 1, 2008, through June 30, 2008. Consistent with the current stage of facility decommissioning, there were no activities performed during the reporting period that had any reasonable potential for significant airborne effluents. It is noted that the only air effluent sampling requirements remaining in the Hematite Effluent Control and Monitoring Program are for building exhaust stacks, and these stacks have been removed.¹ Thus, there was no air sampling required or performed during the reporting period as part of the Hematite Effluent Control and Monitoring Program.

Notwithstanding the above, the results of air sampling performed as part of the Hematite Environmental Monitoring Program confirm that the average air concentrations were within the statistical range of background levels. As indicated in Table 2 below, the highest average concentration measured in environmental air samples was less than the minimum detectable concentration for the analysis, which is 10 percent of the annual effluent limit. Based on these results and the fact that there were no activities performed during the reporting period that had any reasonable potential for significant airborne effluents, it is concluded that there was no measurable quantity of uranium released to unrestricted areas in airborne effluents during the reporting period.

Table 2
Environmental Monitoring Program Air Sampling Summary Data

Reporting Period January – June, 2008	Average Concentration ($\mu\text{Ci}/\text{ml}$)	Average Fraction of Limit
Air Sample -1	1.5E-15	0.03
Air Sample -2	1.5E-15	0.03
Air Sample -3	1.9E-15	0.04
Air Sample -4	1.5E-15	0.03
Air Sample -5	1.5E-15	0.03

¹ By Westinghouse Electric Company LLC Letter No. HEM-08-8 dated February 15, 2008, Westinghouse submitted a license amendment request to the NRC. This request included changes to remove the requirements for exhaust stack air effluent sampling that no longer apply, and to add air effluent control and monitoring requirements that are considered conservatively appropriate for any potential air effluents resulting from remaining decommissioning activities. These include work control and discrete point effluent sampling requirements designed to ensure that once active decommissioning activities begin, the 10 CFR 20 effluent limits and site ALARA goals are satisfied.

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials released from Hematite in liquid and gaseous effluents during the reporting period are significantly below License limits for liquid and gaseous effluents. Thus, the maximum potential radiation dose to the public resulting from liquid and gaseous effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.