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Our ref: HEM-08-44
Date: April 29, 2008

U.S. Nuclear Regulatory Commission
Region III
2443 Warrenville Road, Suite 210
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Subject: Hematite Effluent Monitoring Reports for the Ten Reporting Periods From
July 1, 2002, Through June 30, 2007 (License No. SNM-33, Docket No. 70-36)

- Reference:
1. 10 CFR 70.59, "Effluent monitoring reporting requirements"
 2. Westinghouse Electric Company LLC (Westinghouse) Letter
No. HEM-08-15, "Hematite Effluent Monitoring Report for the Period
from July 1, 2007, Through December 31, 2007 (License No. SNM-33,
Docket No. 70-36)," dated February 29, 2008
 3. Westinghouse Letter No. HEM-08-37, "Hematite Effluent Monitoring
Reports for the Ten Reporting Periods From July 1, 2002, Through
June 30, 2007 (License No. SNM-33, Docket No. 70-36)," dated
April 27, 2008

Dear Sirs:

This letter transmits to the Nuclear Regulatory Commission (NRC) ten separate Hematite Decommissioning Project effluent monitoring reports containing the information specified in 10 CFR 70.59 (Reference 1). The reports, provided as attachments to this letter, cover each semi-annual reporting period from July 1, 2002, through June 30, 2007. Submittal of these reports fulfills Westinghouse's commitment to provide these reports to the NRC by April 30, 2008, as specified in Westinghouse Letter No. HEM-08-15 dated February 29, 2008 (Reference 2).

The attached effluent monitoring reports replace in their entirety the interim draft versions of these reports that inadvertently were transmitted to the NRC by Westinghouse Letter No. HEM-08-37 dated April 27, 2008 (Reference 3). Westinghouse regrets any inconvenience resulting from this administrative error, and hereby respectfully requests to withdraw the draft reports transmitted by the April 27, 2008 letter.

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If you have any questions concerning this letter or the attached reports, please contact Matt Featherston, Hematite Licensing Manager, at 314-810-3361.

Sincerely,

Heath J. Rood for EK Hackmann

E. Kurt Hackmann
Director, Hematite Decommissioning Project

Attachments

cc: J. J. Hayes, NRC/FSME/DWMEP/DURLD
B. A. Watson, NRC/FSME/DWMEP/DURLD
P. L. Loudon, NRC Region III/DNMS/DB
G. M. McCann, NRC Region III/DNMS/DB
E. Gilstrap, MDNR
J. A. McCully, Westinghouse

ATTACHMENT 1 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2002, Through December 31, 2002

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2002, Through December 31, 2002

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 July 1, 2002, through December 31, 2002. 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 July 1, 2002, through December 31, 2002, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 395g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 13 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 41 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)
July - December, 2002						
Site Dam	5.8E-09	1.9E-02	7.2E-04	8.6E-09	1.7E-03	1.1E-03
Sewage Treat. Outfall	4.0E-08	1.3E-01	7.0E-05	3.0E-08	6.0E-03	5.2E-05
Total Quantity of Gross Alpha/Beta Discharged			7.9E+02 μCi			1.2E+03 μCi
Total Quantity of Uranium Discharged ^{Note 1}			395 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall ($\mu\text{Ci/ml}$)		Site Dam ($\mu\text{Ci/ml}$)			
Gross Alpha (Dissolved)	1.2E-07	Max. Fraction of Limit	1.9E-08	Max. Fraction of Limit		
Gross Alpha (Suspended)	8.0E-10	4.1E-01 (alpha)	1.1E-09	6.7E-02 (alpha)		
Gross Beta (Dissolved)	7.4E-08	2.8E-02 (beta)	2.0E-08	4.3E-03 (beta)		
Gross Beta (Suspended)	6.5E-08		1.3E-09			
U-233/234	Note 2		Note 3			
U-235	Note 2		Note 3			
U-238	Note 2		Note 3			

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 $\mu\text{Ci/g}$, which is representative of the enrichments present during this period.

Note 2: Isotopic data not available.

Note 3: 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.

B. Gaseous (Airborne) Effluents

The quantity of radioactivity released to unrestricted areas in airborne effluents from July 1, 2002, through December 31, 2002, is summarized in Tables 2 and 3 below, for the third and fourth quarters of 2002, respectively.

As indicated in Tables 2 and 3, quantities of radioactive materials (i.e., uranium) released during the reporting period are significantly below 10 CFR 20 limits. Based on the activity measurements, the average quantity released in airborne effluents was approximately 13 percent of the quarterly effluent limit. This data confirms that the maximum potential radiation dose to

the public resulting from airborne effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.

Table 2

Stack Exhaust Air Sampling Summary Data for Third Quarter, 2002

Reporting Period Quarter 3 July - September, 2002	Quarter 3			
	Average Conc. ($\mu\text{Ci}/\text{ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 052	1.7E-14	3.5E-01	2.5E-01	1.7E-03
Stack 053	1.2E-14	2.4E-01	2.6E-01	1.7E-03
Stack 054	5.5E-15	1.1E-01	6.4E-02	4.3E-04
Stack 055	1.9E-14	3.8E-01	5.0E-01	3.3E-03
Stack 121	2.4E-14	4.7E-01	1.3E+00	8.6E-03
Stack 228	2.6E-14	5.3E-01	7.3E-01	4.9E-03
Stack 240	4.3E-14	8.7E-01	1.4E+00	9.1E-03
Stack 241	1.7E-13	3.5E+00	5.4E+00	3.6E-02
Stack 242	2.0E-13	4.0E+00	3.5E+00	2.4E-02
Stack 243	1.7E-13	3.3E+00	1.6E+00	1.0E-02
Stack 301	1.3E-14	2.5E-01	3.8E-02	2.5E-04
Stack 302	3.9E-14	7.8E-01	1.3E-01	8.6E-04
Stack 303	6.9E-15	1.4E-01	3.4E-01	2.3E-03
Stack 304	5.4E-14	1.1E+00	2.2E+00	1.4E-02
Stack 305	2.5E-15	5.0E-02	5.4E-02	3.6E-04
Stack 401	5.2E-15	1.0E-01	1.3E-01	8.6E-04
Stack 501	4.8E-14	9.5E-01	6.3E-01	4.2E-03
Stack 601	1.4E-16	2.8E-03	2.3E-03	1.6E-05
Stack 602	9.7E-16	1.9E-02	1.6E-02	1.1E-04
Total Quantity Released	18 μCi			
Fraction of Quantity Limit	0.12			

Table 3

Stack Exhaust Air Sampling Summary Data for Fourth Quarter, 2002

Reporting Period Quarter 4 October - December, 2002	Quarter 4			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 052	9.9E-15	2.0E-01	1.6E-01	1.0E-03
Stack 053	5.7E-15	1.1E-01	1.2E-01	8.3E-04
Stack 054	6.8E-15	1.4E-01	7.6E-02	5.0E-04
Stack 055	1.2E-14	2.4E-01	3.4E-01	2.2E-03
Stack 121	9.3E-15	1.9E-01	4.8E-01	3.2E-03
Stack 228	4.7E-14	9.3E-01	1.2E+00	8.0E-03
Stack 240	1.0E-13	2.0E+00	3.2E+00	2.1E-02
Stack 241	2.6E-13	5.2E+00	8.4E+00	5.6E-02
Stack 242	1.7E-14	3.5E-01	3.1E-01	2.1E-03
Stack 243	4.1E-13	8.3E+00	4.0E+00	2.6E-02
Stack 302	3.6E-14	7.1E-01	3.9E-01	2.6E-03
Stack 303	1.0E-14	2.0E-01	5.5E-01	3.7E-03
Stack 304	1.0E-14	2.0E-01	3.5E-01	2.3E-03
Stack 305	5.6E-15	1.1E-01	1.0E-01	6.9E-04
Stack 401	5.3E-15	1.1E-01	1.4E-01	9.2E-04
Stack 501	3.4E-14	6.7E-01	4.7E-01	3.1E-03
Stack 601	1.6E-15	3.1E-02	2.4E-02	1.6E-04
Stack 602	2.0E-15	4.0E-02	3.1E-02	2.1E-04
Total Quantity Released	20 μCi			
Fraction of Quantity Limit	0.14			

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 2 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2003, Through June 30, 2003

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2003, Through June 30, 2003

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, 2003, through June 30, 2003. 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, 2003, through June 30, 2003, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table note, it is estimated that approximately 676g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 12 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 47 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)
January - June, 2003						
Site Dam	2.2E-09	7.3E-03	1.3E-03	5.9E-09	1.2E-03	3.5E-03
Sewage Treat. Outfall	3.6E-08	1.2E-01	5.1E-05	3.3E-08	6.6E-03	4.6E-05
Total Quantity of Gross Alpha/Beta Discharged			1.4E+03 μCi			3.5E+03 μCi
Total Quantity of Uranium Discharged ^{Note 1}			676 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall ($\mu\text{Ci/ml}$)		Site Dam ($\mu\text{Ci/ml}$)			
Gross Alpha (Dissolved)	3.7E-08	Max. Fraction of Limit	1.4E-08	Max. Fraction of Limit		
Gross Alpha (Suspended)	1.0E-07	4.7E-01 (alpha)	1.4E-09	5.0E-02 (alpha)		
Gross Beta (Dissolved)	6.4E-08	2.3E-02 (beta)	2.0E-08	4.3E-03 (beta)		
Gross Beta (Suspended)	5.5E-08		1.3E-09			
U-233/234	2.3E-08		3.2E-10			
U-235	7.4E-10		6.8E-11			
U-238	3.3E-09		4.2E-10			

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 $\mu\text{Ci/g}$, which is representative of the enrichments present during this period.

B. Gaseous (Airborne) Effluents

The quantity of radioactivity released to unrestricted areas in airborne effluents from January 1, 2003, through June 30, 2003, is summarized in Tables 2 and 3 below, for the first and second quarters of 2003, respectively.

As indicated in Tables 2 and 3, quantities of radioactive materials (i.e., uranium) released during the reporting period are significantly below 10 CFR 20 limits. Based on the activity measurements, the average quantity released in airborne effluents was approximately 5 percent of the quarterly effluent limit. This data confirms that the maximum potential radiation dose to the public resulting from airborne effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.

Table 2

Stack Exhaust Air Sampling Summary Data for First Quarter, 2003

Reporting Period Quarter 1 January - March, 2003	Quarter 1			
	Average Conc. ($\mu\text{Ci}/\text{ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 052	2.7E-15	5.5E-02	4.3E-02	2.9E-04
Stack 053	5.0E-15	9.9E-02	1.1E-01	7.2E-04
Stack 054	4.5E-15	9.0E-02	5.0E-02	3.3E-04
Stack 055	4.2E-15	8.4E-02	1.1E-01	7.6E-04
Stack 121	4.8E-15	9.6E-02	2.5E-01	1.6E-03
Stack 228	2.4E-14	4.8E-01	3.3E-01	2.2E-03
Stack 240	2.3E-15	4.6E-02	7.3E-02	4.8E-04
Stack 241	3.6E-13	7.2E+00	1.1E+01	7.2E-02
Stack 242	5.4E-15	1.1E-01	9.5E-02	6.3E-04
Stack 243	1.3E-13	2.7E+00	4.2E-01	2.8E-03
Stack 302	5.5E-15	1.1E-01	1.2E-01	7.9E-04
Stack 303	2.9E-15	5.7E-02	1.3E-01	8.6E-04
Stack 304	2.3E-15	4.6E-02	6.6E-02	4.4E-04
Stack 305	2.5E-15	5.0E-02	4.6E-02	3.1E-04
Stack 401	3.3E-15	6.6E-02	8.6E-02	5.7E-04
Stack 501	5.1E-15	1.0E-01	6.9E-02	4.6E-04
Stack 601	7.2E-16	1.4E-02	1.1E-02	7.2E-05
Stack 602	2.4E-15	4.8E-02	3.8E-02	2.5E-04
Total Quantity Released	13 μCi			
Fraction of Quantity Limit	0.09			

Table 3

Stack Exhaust Air Sampling Summary Data for Second Quarter, 2003

Reporting Period Quarter 2 April - June, 2003	Quarter 2			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 052	1.4E-14	2.8E-01	4.6E-02	3.1E-04
Stack 053	3.5E-15	7.0E-02	1.6E-02	1.1E-04
Stack 054	2.6E-15	5.2E-02	2.7E-02	1.8E-04
Stack 055	1.2E-14	2.5E-01	7.0E-02	4.7E-04
Stack 121	2.2E-14	4.4E-01	2.3E-01	1.6E-03
Stack 240	3.5E-15	7.1E-02	3.6E-02	2.4E-04
Stack 242	1.8E-14	3.7E-01	3.0E-01	2.0E-03
Stack 302	1.7E-13	3.3E+00	7.5E-01	5.0E-03
Stack 305	2.2E-15	4.4E-02	3.7E-02	2.5E-04
Stack 401	3.9E-16	7.8E-03	2.1E-03	1.4E-05
Stack 501	7.6E-15	1.5E-01	2.2E-02	1.4E-04
Stack 601	1.1E-15	2.1E-02	1.5E-02	9.8E-05
Stack 602 ⁽¹⁾	2.4E-15	4.8E-02	3.5E-02	2.3E-04
Total Quantity Released	1.6 μCi			
Fraction of Quantity Limit	0.01			

- (1) The sampling pump located at Stack 602 was not operational during the Second Quarter of 2003. Therefore, the average concentration at Stack 602 during the First Quarter of 2003 was used to estimate the quantity of radioactive material released (μCi) from Stack 602 during the Second Quarter of 2003.

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 3 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2003, Through December 31, 2003

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2003, Through December 31, 2003

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 July 1, 2003, through December 31, 2003. 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 July 1, 2003, through December 31, 2003, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 560g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 10 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 25 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)
July - December, 2003						
Site Dam	4.8E-09	1.6E-02	1.1E-03	1.2E-08	2.4E-03	2.7E-03
Sewage Treat. Outfall	2.9E-08	1.0E-01	1.9E-05	4.4E-08	8.7E-03	2.8E-05
Total Quantity of Gross Alpha/Beta Discharged			1.1E+03 μCi			2.7E+03 μCi
Total Quantity of Uranium Discharged ^{Note 1}			560 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall ($\mu\text{Ci/ml}$)			Site Dam ($\mu\text{Ci/ml}$)		
Gross Alpha (Dissolved)	7.2E-08	Max. Fraction of Limit		5.5E-08	Max. Fraction of Limit	
Gross Alpha (Suspended)	3.1E-09	2.5E-01 (alpha)		8.0E-10	1.8E-01 (alpha)	
Gross Beta (Dissolved)	1.1E-07	2.3E-02 (beta)		1.7E-07	3.4E-02 (beta)	
Gross Beta (Suspended)	4.9E-09			1.5E-09		
U-233/234	Note 2			Note 3		
U-235	Note 2			Note 3		
U-238	Note 2			Note 3		

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 $\mu\text{Ci/g}$, which is representative of the enrichments present during this period.

Note 2: Isotopic data not available.

Note 3: 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.

B. Gaseous (Airborne) Effluents

The quantity of radioactivity released to unrestricted areas in airborne effluents from July 1, 2003, through December 31, 2003, is summarized in Tables 2 and 3 below, for the third and fourth quarters of 2003, respectively.

As indicated in Tables 2 and 3, quantities of radioactive materials (i.e., uranium) released during the reporting period are significantly below 10 CFR 20 limits. Based on the activity measurements, the average quantity released in airborne effluents was less than 1 percent of the quarterly effluent limit. This data confirms that the maximum potential radiation dose to the

public resulting from airborne effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.

Table 2

Stack Exhaust Air Sampling Summary Data for Third Quarter, 2003

Reporting Period Quarter 3 July - September, 2003	Quarter 3			
	Average Conc. ($\mu\text{Ci}/\text{ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	7.0E-15	1.4E-01	7.9E-02	5.2E-04
Stack 240	6.0E-13	1.2E+01	9.3E-03	6.2E-05
Stack 242	1.0E-14	2.0E-01	1.9E-01	1.3E-03
Stack 305	2.8E-15	5.5E-02	5.4E-02	3.6E-04
Stack 601	2.6E-15	5.2E-02	2.6E-02	1.7E-04
Stack 602	1.1E-14	2.1E-01	1.7E-01	1.1E-03
Total Quantity Released	0.5 μCi			
Fraction of Quantity Limit	3.5E-03			

Table 3

Stack Exhaust Air Sampling Summary Data for Fourth Quarter, 2003

Reporting Period Quarter 4 October - December, 2003	Quarter 4			
	Average Conc. ($\mu\text{Ci}/\text{ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	1.5E-15	3.1E-02	1.6E-02	1.1E-04
Stack 242	3.2E-15	6.4E-02	5.5E-02	3.6E-04
Stack 305	1.2E-15	2.5E-02	2.2E-02	1.5E-04
Total Quantity Released	0.09 μCi			
Fraction of Quantity Limit	6.2E-04			

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 4 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2004, Through June 30, 2004

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2004, Through June 30, 2004

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, 2004, through June 30, 2004. 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, 2004, through June 30, 2004, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table note, it is estimated that approximately 532g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 15 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 78 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. (µCi/ml)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. (µCi/ml)	Average Fraction of Limit	Period Quantity Discharged (Ci)
January - June, 2004						
Site Dam	1.6E-09	5.4E-03	1.0E-03	5.4E-09	1.1E-03	3.3E-03
Sewage Treat. Outfall	4.6E-08	1.5E-01	6.4E-05	5.3E-08	1.1E-02	7.4E-05
Total Quantity of Gross Alpha/Beta Discharged			1.1E+03 µCi			3.4E+03 µCi
Total Quantity of Uranium Discharged ^{Note 1}			532 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall (µCi/ml)			Site Dam (µCi/ml)		
Gross Alpha (Dissolved)	6.2E-08	Max. Fraction of Limit		1.2E-09	Max. Fraction of Limit	
Gross Alpha (Suspended)	1.7E-07	7.8E-01 (alpha)		3.3E-09	1.5E-02 (alpha)	
Gross Beta (Dissolved)	1.5E-07	3.8E-02 (beta)		8.4E-09	2.4E-03 (beta)	
Gross Beta (Suspended)	4.2E-08			3.6E-09		
U-233/234	1.4E-08			5.6E-09		
U-235	3.7E-10			1.7E-10		
U-238	2.0E-09			7.9E-10		

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 µCi/g, which is representative of the enrichments present during this period.

B. Gaseous (Airborne) Effluents

The quantity of radioactivity released to unrestricted areas in airborne effluents from January 1, 2004, through June 30, 2004, is summarized in Tables 2 and 3 below, for the first and second quarters of 2004, respectively.

As indicated in Tables 2 and 3, quantities of radioactive materials (i.e., uranium) released during the reporting period are significantly below 10 CFR 20 limits. Based on the activity measurements, the average quantity released in airborne effluents was less than 1 percent of the quarterly effluent limit. This data confirms that the maximum potential radiation dose to the public resulting from airborne effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.

Table 2

Stack Exhaust Air Sampling Summary Data for First Quarter, 2004

Reporting Period Quarter 1 January - March, 2004	Quarter 1			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	2.4E-15	4.7E-02	2.7E-02	1.8E-04
Stack 242	4.2E-15	8.4E-02	7.9E-02	5.3E-04
Stack 305	2.1E-14	4.2E-01	4.0E-01	2.7E-03
Total Quantity Released	5.1E-01 μCi			
Fraction of Quantity Limit	3.4E-03			

Table 3

Stack Exhaust Air Sampling Summary Data for Second Quarter, 2004

Reporting Period Quarter 2 April - June, 2004	Quarter 2			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	2.0E-15	4.0E-02	2.2E-02	1.5E-04
Stack 242	4.2E-15	8.3E-02	8.1E-02	5.4E-04
Stack 305	2.3E-15	4.6E-02	4.5E-02	3.0E-04
Total Quantity Released	1.5E-01 μCi			
Fraction of Quantity Limit	9.9E-04			

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 5 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2004, Through December 31, 2004

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2004, Through December 31, 2004

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 July 1, 2004, through December 31, 2004. 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 July 1, 2004, through December 31, 2004, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 345g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 25 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 62 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. (µCi/ml)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. (µCi/ml)	Average Fraction of Limit	Period Quantity Discharged (Ci)
July - December, 2004						
Site Dam	2.8E-09	9.3E-03	5.7E-04	6.0E-09	1.2E-03	1.2E-03
Sewage Treat. Outfall	7.4E-08	2.5E-01	1.2E-04	9.7E-08	1.9E-02	1.6E-04
Total Quantity of Gross Alpha/Beta Discharged			6.9E+02 µCi			1.4E+03 µCi
Total Quantity of Uranium Discharged ^{Note 1}			345 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall (µCi/ml)			Site Dam (µCi/ml)		
Gross Alpha (Dissolved)	6.5E-08	Max. Fraction of Limit		1.9E-08	Max. Fraction of Limit	
Gross Alpha (Suspended)	1.2E-07	6.2E-01 (alpha)		3.4E-09	7.3E-02 (alpha)	
Gross Beta (Dissolved)	1.6E-07	3.5E-02 (beta)		6.1E-08	1.2E-02 (beta)	
Gross Beta (Suspended)	1.5E-08			1.4E-09		
U-233/234	1.3E-7			Note 2		
U-235	4.5E-9			Note 2		
U-238	1.9E-8			Note 2		

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 µCi/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.

B. Gaseous (Airborne) Effluents

The quantity of radioactivity released to unrestricted areas in airborne effluents from July 1, 2004, through December 31, 2004, is summarized in Tables 2 and 3 below, for the third and fourth quarters of 2004, respectively.

As indicated in Tables 2 and 3, quantities of radioactive materials (i.e., uranium) released during the reporting period are significantly below 10 CFR 20 limits. Based on the activity measurements, the average quantity released in airborne effluents was less than 1 percent of the quarterly effluent limit. This data confirms that the maximum potential radiation dose to the public resulting from airborne effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.

Table 2

Stack Exhaust Air Sampling Summary Data for Third Quarter, 2004

Reporting Period Quarter 3 July - September, 2004	Quarter 3			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	1.8E-15	3.6E-02	2.0E-02	1.3E-04
Stack 242	3.1E-15	6.2E-02	5.9E-02	3.9E-04
Stack 305	1.0E-15	2.0E-02	2.0E-02	1.3E-04
Total Quantity Released	1.0E-01 μCi			
Fraction of Quantity Limit	6.6E-04			

Table 3

Stack Exhaust Air Sampling Summary Data for Fourth Quarter, 2004

Reporting Period Quarter 4 October - December, 2004	Quarter 4			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	8.4E-15	1.7E-01	9.6E-02	6.4E-04
Stack 242	6.2E-15	1.2E-01	1.2E-01	8.1E-04
Stack 305	1.0E-14	2.1E-01	2.0E-01	1.4E-03
Stack 501	1.1E-14	2.3E-01	1.3E-01	8.8E-04
Total Quantity Released	5.5E-01 μCi			
Fraction of Quantity Limit	3.7E-03			

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 6 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2005, Through June 30, 2005

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2005, Through June 30, 2005

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, 2005, through June 30, 2005. 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, 2005, through June 30, 2005, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 352g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 5 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 9 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)
January - June, 2005						
Site Dam	1.5E-09	4.9E-03	6.9E-04	4.0E-09	8.0E-04	1.8E-03
Sewage Treat. Outfall	1.6E-08	5.2E-02	1.3E-05	3.4E-08	6.8E-03	2.7E-05
Total Quantity of Gross Alpha/Beta Discharged			7.0E+02 μCi			1.8E+03 μCi
Total Quantity of Uranium Discharged ^{Note 1}			352 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall ($\mu\text{Ci/ml}$)		Site Dam ($\mu\text{Ci/ml}$)			
Gross Alpha (Dissolved)	2.6E-08	Max. Fraction of Limit	9.7E-09	Max. Fraction of Limit		
Gross Alpha (Suspended)	2.8E-10	8.8E-02 (alpha)	3.8E-10	3.4E-02 (alpha)		
Gross Beta (Dissolved)	3.5E-08	9.6E-03 (beta)	1.0E-08	2.3E-03 (beta)		
Gross Beta (Suspended)	1.3E-08		1.7E-09			
U-233/234	Note 2		Note 2			
U-235	Note 2		Note 2			
U-238	Note 2		Note 2			

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 $\mu\text{Ci/g}$, 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 Sewage Treatment Outfall and 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.

B. Gaseous (Airborne) Effluents

The quantity of radioactivity released to unrestricted areas in airborne effluents from January 1, 2005 through June 30, 2005, is summarized in Tables 2 and 3 below, for the first and second quarters of 2005, respectively.

As indicated in Tables 2 and 3, quantities of radioactive materials (i.e., uranium) released during the reporting period are significantly below 10 CFR 20 limits. Based on the activity measurements, the average quantity released in airborne effluents was less than 1 percent of the quarterly effluent limit. This data confirms that the maximum potential radiation dose to the public resulting from airborne effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.

Table 2

Stack Exhaust Air Sampling Summary Data for First Quarter, 2005

Reporting Period Quarter 1 January - March, 2005	Quarter 1			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	1.2E-14	2.4E-01	1.5E-01	9.8E-04
Stack 121	6.8E-15	1.4E-01	8.0E-02	5.3E-04
Stack 242	8.8E-15	1.8E-01	1.0E-01	6.7E-04
Stack 305	8.2E-15	1.6E-01	1.6E-01	1.0E-03
Stack 501	1.0E-14	2.0E-01	1.4E-01	9.1E-04
Total Quantity Released	0.62 μCi			
Fraction of Quantity Limit	4.1E-03			

Table 3

Stack Exhaust Air Sampling Summary Data for Second Quarter, 2005

Reporting Period Quarter 2 April - June, 2005	Quarter 2			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	1.1E-14	2.2E-01	1.3E-01	8.4E-04
Stack 121	1.3E-14	2.5E-01	2.6E-01	1.7E-03
Stack 240	4.1E-14	8.2E-01	6.9E-02	4.6E-04
Stack 242	7.4E-15	1.5E-01	1.0E-01	6.6E-04
Stack 303	2.7E-14	5.3E-01	2.7E-01	1.8E-03
Stack 305	6.8E-15	1.4E-01	1.6E-01	1.1E-03
Stack 401	2.2E-15	4.5E-02	1.6E-02	1.1E-04
Stack 501	5.3E-15	1.1E-01	1.0E-01	6.7E-04
Total Quantity Released	1.1 μCi			
Fraction of Quantity Limit	7.3E-03			

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 7 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2005, Through December 31, 2005

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2005, Through December 31, 2005

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 July 1, 2005, through December 31, 2005. 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 July 1, 2005, through December 31, 2005, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 152g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 6 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 36 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)
July - December, 2005						
Site Dam	3.5E-09	1.2E-02	2.9E-04	6.6E-09	1.3E-03	5.5E-04
Sewage Treat. Outfall	1.7E-08	5.7E-02	1.4E-05	4.5E-08	9.1E-03	3.6E-05
Total Quantity of Gross Alpha/Beta Discharged			3.0E+02 μCi			5.9E+02 μCi
Total Quantity of Uranium Discharged ^{Note 1}			152 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall ($\mu\text{Ci/ml}$)			Site Dam ($\mu\text{Ci/ml}$)		
Gross Alpha (Dissolved)	1.0E-07	Max. Fraction of Limit		1.3E-08	Max. Fraction of Limit	
Gross Alpha (Suspended)	7.8E-09	3.6E-01 (alpha)		6.4E-10	4.5E-02 (alpha)	
Gross Beta (Dissolved)	8.2E-08	1.7E-02 (beta)		9.5E-09	2.5E-03 (beta)	
Gross Beta (Suspended)	2.9E-09			2.8E-09		
U-233/234	5.4E-08			Note 2		
U-235	2.3E-09			Note 2		
U-238	6.8E-09			Note 2		

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 $\mu\text{Ci/g}$, 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.

B. Gaseous (Airborne) Effluents

The quantity of radioactivity released to unrestricted areas in airborne effluents from July 1, 2005, through December 31, 2005, is summarized in Tables 2 and 3 below, for the third and fourth quarters of 2005, respectively.

As indicated in Tables 2 and 3, quantities of radioactive materials (i.e., uranium) released during the reporting period are significantly below 10 CFR 20 limits. Based on the activity measurements, the average quantity released in airborne effluents was less than 1 percent of the quarterly effluent limit. This data confirms that the maximum potential radiation dose to the

public resulting from airborne effluent releases during the reporting period is well below the limits of 10 CFR 20.1301.

Table 2

Stack Exhaust Air Sampling Summary Data for Third Quarter, 2005

Reporting Period Quarter 3 July - September, 2005	Quarter 3			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	2.7E-15	5.5E-02	3.7E-02	2.4E-04
Stack 121	1.0E-14	2.0E-01	3.0E-01	2.0E-03
Stack 240	8.0E-15	1.6E-01	2.1E-01	1.4E-03
Stack 242	4.4E-15	8.8E-02	6.0E-02	4.0E-04
Stack 303	1.8E-14	3.6E-01	6.3E-01	4.2E-03
Stack 305	6.7E-15	1.3E-01	1.6E-01	1.0E-03
Stack 401	1.7E-15	3.4E-02	4.3E-02	2.9E-04
Stack 501	2.4E-15	4.7E-02	4.6E-02	3.1E-04
Total Quantity Released	1.5 μCi			
Fraction of Quantity Limit	9.9E-03			

Table 3

Stack Exhaust Air Sampling Summary Data for Fourth Quarter, 2005

Reporting Period Quarter 4 October - December, 2005	Quarter 4			
	Average Conc. ($\mu\text{Ci/ml}$)	Fraction of Conc. Control Limit	Quantity Released (μCi)	Fraction of Quantity Limit
Stack 054	3.7E-15	7.4E-02	2.2E-02	1.5E-04
Stack 121	8.7E-15	1.7E-01	1.8E-01	1.2E-03
Stack 240	5.9E-15	1.2E-01	8.5E-02	5.7E-04
Stack 242	2.2E-14	4.3E-01	2.5E-01	1.7E-03
Stack 303	1.2E-14	2.3E-01	3.2E-01	2.1E-03
Stack 305	1.6E-14	3.2E-01	3.4E-01	2.3E-03
Stack 401	2.0E-15	4.1E-02	2.1E-02	1.4E-04
Stack 501	5.4E-15	1.1E-01	9.8E-02	6.5E-04
Total Quantity Released	1.3 μCi			
Fraction of Quantity Limit	8.8E-03			

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 8 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2006, Through June 30, 2006

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2006, Through June 30, 2006

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, 2006, through June 30, 2006. 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, 2006, through June 30, 2006, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 223g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 16 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 22 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. (µCi/ml)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. (µCi/ml)	Average Fraction of Limit	Period Quantity Discharged (Ci)
January – June, 2006						
Site Dam	1.7E-09	5.7E-03	4.4E-04	5.4E-09	1.1E-03	1.4E-03
Sewage Treat. Outfall	4.7E-08	1.6E-01	5.9E-06	8.0E-08	1.6E-02	1.0E-05
Total Quantity of Gross Alpha/Beta Discharged			4.5E+2 µCi			1.4E+3 µCi
Total Quantity of Uranium Discharged ^{Note 1}			223 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall (µCi/ml)			Site Dam (µCi/ml)		
Gross Alpha (Dissolved)	6.5E-08	Max. Fraction of Limit		4.8E-09	Max. Fraction of Limit	
Gross Alpha (Suspended)	1.0E-09	2.2E-01 (alpha)		5.2E-10	1.8E-02 (alpha)	
Gross Beta (Dissolved)	1.3E-07	2.6E-02 (beta)		7.1E-09	1.7E-03 (beta)	
Gross Beta (Suspended)	3.1E-09			1.2E-09		
U-233/234	1.6E-07			Note 2		
U-235	5.4E-09			Note 2		
U-238	2.5E-08			Note 2		

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 µCi/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.

B. Gaseous (Airborne) Effluents

There was no measurable radioactivity released to unrestricted areas in airborne effluents from January 1, 2006, through June 30, 2006. Consistent with the then 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 during the reporting period 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 abandoned and are not in use.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 at the sampling locations 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 (established at 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, 2006	Average Concentration ($\mu\text{Ci/ml}$)	Average Fraction of Limit
AS-1	3.1E-15	0.06
AS-2	1.9E-15	0.04
AS-3	1.4E-15	0.03
AS-4	1.2E-15	0.02

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 (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 9 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2006, Through December 31, 2006

Hematite Decommissioning Project Effluent Monitoring Report
For The Period July 1, 2006, Through December 31, 2006

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 July 1, 2006, through December 31, 2006. 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 July 1, 2006, through December 31, 2006, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 254g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 22 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 27 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)
July - December, 2006						
Site Dam	3.4E-09	1.1E-02	5.0E-04	5.7E-09	1.1E-03	8.3E-04
Sewage Treat. Outfall	6.6E-08	2.2E-01	7.0E-06	1.2E-07	2.3E-02	1.2E-05
Total Quantity of Gross Alpha/Beta Discharged			5.1E+02 μCi			8.4E+02 μCi
Total Quantity of Uranium Discharged ^{Note 1}			254 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall ($\mu\text{Ci/ml}$)		Site Dam ($\mu\text{Ci/ml}$)			
Gross Alpha (Dissolved)	8.1E-08	Max. Fraction of Limit	1.8E-08	Max. Fraction of Limit		
Gross Alpha (Suspended)	1.1E-09	2.7E-01 (alpha)	2.6E-10	6.1E-02 (alpha)		
Gross Beta (Dissolved)	1.6E-07	3.2E-02 (beta)	1.2E-08	2.7E-03 (beta)		
Gross Beta (Suspended)	2.6E-09		1.6E-09			
U-233/234	1.3E-07		Note 2			
U-235	4.2E-09		Note 2			
U-238	1.6E-08		Note 2			

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 $\mu\text{Ci/g}$, 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.

B. Gaseous (Airborne) Effluents

There was no measurable radioactivity released to unrestricted areas in airborne effluents from July 1, 2006, through December 31, 2006. Consistent with the then 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 abandoned and are not in use. 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 at the sampling locations 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 (established at 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 July - December, 2006	Average Concentration ($\mu\text{Ci/ml}$)	Average Fraction of Limit
AS-1	2.5E-15	0.05
AS-2	1.5E-15	0.03
AS-3	9.0E-16	0.02
AS-4	1.5E-15	0.03
AS-5	1.2E-15	0.02

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.

ATTACHMENT 10 TO WESTINGHOUSE LETTER NO. HEM-08-44

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2007, Through June 30, 2007

Hematite Decommissioning Project Effluent Monitoring Report
For The Period January 1, 2007, Through June 30, 2007

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, 2007, through June 30, 2007. 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, 2007, through June 30, 2007, is summarized in Table 1 below. Based on conservative and reasonable assumptions described in the table notes, it is estimated that approximately 346g 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 10 CFR 20 limits. Based on the gross activity measurements, the average activity concentration in liquid effluents was approximately 28 percent of the annual effluent limit. The maximum activity concentration, measured at the Sewage Treatment Outfall, was approximately 63 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	Gross Alpha Radioactivity			Gross Beta Radioactivity		
	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)	Average Conc. ($\mu\text{Ci/ml}$)	Average Fraction of Limit	Period Quantity Discharged (Ci)
January - June, 2007						
Site Dam	1.7E-09	5.7E-03	6.6E-04	4.5E-09	9.0E-04	1.7E-03
Sewage Treat. Outfall	8.5E-08	2.8E-01	3.1E-05	1.1E-07	2.2E-02	4.0E-05
Total Quantity of Gross Alpha/Beta Discharged			6.9E+02 μCi			1.7E+03 μCi
Total Quantity of Uranium Discharged ^{Note 1}			346 g			
Maximum Concentration for Sampling Period	Sewage Treatment Outfall ($\mu\text{Ci/ml}$)		Site Dam ($\mu\text{Ci/ml}$)			
Gross Alpha (Dissolved)	1.8E-07	Max. Fraction of Limit	1.1E-08	Max. Fraction of Limit		
Gross Alpha (Suspended)	6.2E-09	6.3E-01 (alpha)	3.4E-09	4.9E-02 (alpha)		
Gross Beta (Dissolved)	2.1E-07	4.3E-02 (beta)	7.7E-09	1.7E-03 (beta)		
Gross Beta (Suspended)	1.4E-08		9.9E-10			
U-233/234	2.3E-07		Note 2			
U-235	6.9E-09		Note 2			
U-238	3.2E-08		Note 2			

Note 1: The estimated mass of discharged uranium is conservatively based on the total gross alpha activity, and an activity concentration assumption of 2 $\mu\text{Ci/g}$, 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.

B. Gaseous (Airborne) Effluents

There was no measurable radioactivity released to unrestricted areas in airborne effluents from January 1, 2007, through June 30, 2007. 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 abandoned and are not in use. 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 at the sampling locations 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 (established at 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, 2007	Average Concentration ($\mu\text{Ci/ml}$)	Average Fraction of Limit
AS-1	2.1E-15	0.04
AS-2	1.0E-15	0.02
AS-3	8.5E-16	0.02
AS-4	9.7E-16	0.02
AS-5	9.0E-16	0.02

III. Conclusion

The effluent monitoring results summarized above confirm that quantities of radioactive materials (i.e., uranium) released from Hematite in liquid and gaseous effluents during the reporting period are significantly below 10 CFR 20 limits. 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.