YANKEE ATOMIC ELECTRIC COMPANY
49 Yankee Road, Rowe, Massachusetts 01367

April 11, 2011
BYR 2011-012

UNITED STATES NUCLEAR REGULATORY COMMISSION
Attention: Document Control Desk
Washington, D.C. 20555-0001

Reference: License No. DPR-3 (Docket Nos. 50-29 and 72-31)

Subject: Yankee Atomic Independent Spent Fuel Storage Installation, Annual Radiological Environmental Operating Report and Annual Radioactive Effluent Release Report for 2010

Yankee Atomic Electric Company (YAEC) herewith submits the 2010 Annual Radiological Environmental Operating Report and the Annual Radioactive Effluent Release Report for the Yankee Atomic Independent Spent Fuel Storage Installation. There were no changes made in Off-Site Dose Calculation Manual in 2010.

If you have any questions, please contact me at 413-424-5261 Extension 303 or at rmitchell@3yankees.com.

Sincerely,

YANKEE ATOMIC ELECTRIC CO

Robert Mitchell
ISFSI Manager

Attachments

c: W.Dean, Regional Administrator, NRC Region 1
J. Joustra, Decommissioning Branch Chief, NRC Region 1
J. Goshen, Project Manager, NRC Headquarters
M. Roberts, NRC Region 1
R. Gallagher, Director Radiation Control Program, MA DEP

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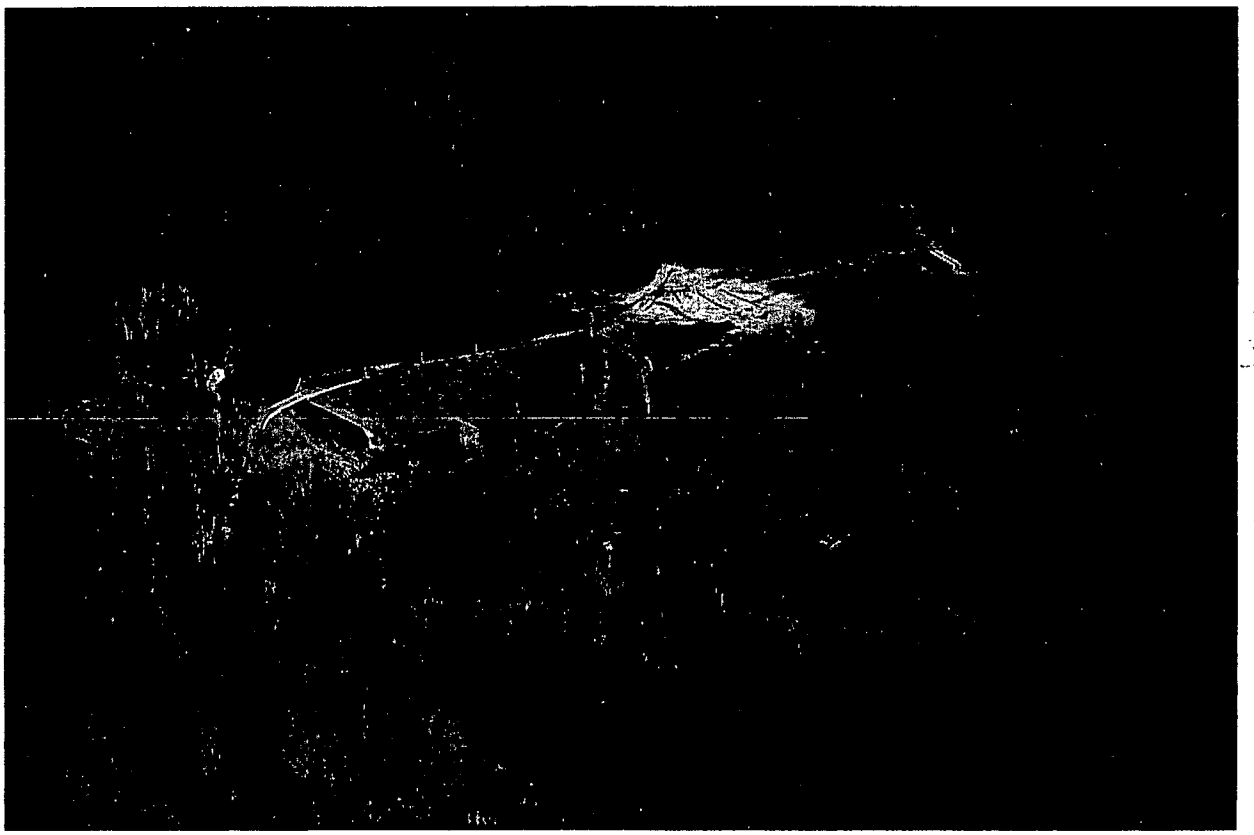
IE25
IE48

YANKEE NUCLEAR POWER STATION
INDEPENDENT SPENT FUEL STORAGE INSTALLATION
License No. DPR-29

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

January - December 2010



RSCS
Radiation Safety & Control Services

March 2011

Prepared by:
Radiological Safety & Control Services
91 Portsmouth Avenue
Stratham, NH 03885-2468

EXECUTIVE SUMMARY

Yankee Nuclear Power Station was permanently shutdown in 1991. All fuel has been transferred into dry storage casks and placed at the Independent Spent Fuel Storage Installation. The Radiological Environmental Monitoring Program (REMP) for the Yankee Nuclear Power Station (YNPS) Independent Spent Fuel Storage Installation (ISFSI) located in Rowe, MA was continued for the period January through December 2010 in compliance with the YNPS Off-Site Dose Calculation Manual (ODCM).

No changes were made to the ODCM during 2010. By design, there are no liquid or gaseous effluents associated with the operation of the ISFSI. Therefore, the ODCM only requires monitoring of direct exposure from the facility. TLDs were used to measure direct gamma exposure at six locations in the vicinity of the ISFSI and one control location 7.6 kilometers away. The results of these measurements showed no significant change in exposure rates and potential doses to members of the public during the monitoring period. The results of the monitoring performed in 2010 also show that operating the YNPS ISFSI results in only a small fraction of the 40 CFR Part 190 and 10 CFR Part 72.104 direct radiation dose limit of 25 mrem/year to members of the public.

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1.0 INTRODUCTION

This report summarizes the findings of the Radiological Environmental Monitoring Program (REMP) conducted by Yankee in the vicinity of the Independent Spent Fuel Storage Installation in Rowe, Massachusetts during the calendar year. It is submitted annually in compliance with the Offsite Dose Calculation Manual (ODCM). The remainder of this report is organized as follows:

Section 2: Provides a brief description of the Yankee site and its environs.

Section 3: Provides a description of the overall REMP design. Included is a summary of the ODCM requirements for REMP sampling, tables listing TLD monitoring locations with compass sectors and distances from the plant, and maps showing the location of each of the TLD monitoring locations.

Section 4: Provides a complete set of TLD data showing measured results (mR), TLD data converted to exposure rates (μR per hour) and calculated doses (mrem per year). This section also provides the summarized exposure rate data in the format specified by the NRC Branch Technical Position on Environmental Monitoring (Reference 1).

Section 5: Provides the results of the calendar year monitoring program. The performance of the program in meeting ODCM requirements is discussed, and the data acquired during the year is analyzed.

Section 6: References

2.0 GENERAL ISFSI AND SITE INFORMATION

The Yankee Nuclear Power Station site is located on over 1800 acres in a predominantly rural area of northwestern Massachusetts, three-quarters of a mile south of the Vermont border. The site resides in the town of Rowe, Massachusetts, approximately 9 air miles east-northeast of North Adams, Massachusetts. The surrounding area is heavily forested and lightly populated. Hills bounding the river valley rise 500 to 1000 feet above the site, reaching elevations of 2100 feet.

The Deerfield River is used extensively for hydroelectric power generation both upstream and downstream of YNPS. The Sherman Dam, immediately adjacent to the site, operates as a hydroelectric generating station. Sherman Pond, the impoundment behind this dam, had been used as a source of cooling water for the former power plant.

The former nuclear power plant was voluntarily shut down on October 1, 1991 after 31 years of operation. The site was involved in the process of decommissioning over the years which involved the disassembly and removal of the plant components and structures and was completed in 2006. This process took place in strict conformance with USNRC regulations. Oversight of the site closure process also took place from the U.S. Environmental Protection Agency, the Massachusetts Department of Environmental Protection, and Massachusetts Department of Public Health.

3.0 PROGRAM DESIGN

The Radiological Environmental Monitoring Program (REMP) for the Yankee Nuclear Power Station ISFSI was designed to provide assurance to regulatory agencies and the public that the station's environmental impact is known and within anticipated limits. The direct dose limit for members of the public from operation of the ISFSI is 25 mrem per year (References 3 and 4).

The detailed sampling requirements of the REMP are given in the ODCM. The sampling requirements specified in the ODCM are summarized in Table 3.1 of this report. Details of the monitored locations are shown in Table 3.2, as well as Figures 3.1 through 3.3 of this report.

3.1 Monitoring Zones

The REMP is designed to allow comparison of levels of radioactivity in samples from the area possibly influenced by the ISFSI to levels found in areas not influenced by the ISFSI. The first area is called "indicator stations". The second area is called "control stations". The distinction between the two is based on relative direction from the facility and distance. Analysis of survey data from the two zones aids in determining if there is a significant difference between the two areas. It can also help in differentiating between radioactivity or radiation due to releases and that due to other fluctuations in the environment, such as seasonal variations in the natural background.

3.2 Pathways Monitored

Based on the design of the ISFSI, only the direct radiation exposure pathway is monitored by the REMP. This pathway is monitored by the collection of thermoluminescent dosimeters (TLDs) which are described in more detail below.

3.3 Description of Monitoring Program

3.3.1 Direct Radiation

Direct gamma radiation exposure was continuously monitored during 2010 with the use of thermoluminescent dosimeters (TLDs). At each monitoring location, these TLDs are sealed in plastic bags and attached to an object such as a tree, fence or utility pole. The TLDs are posted and retrieved on a quarterly basis. All TLDs are provided and processed by a National Voluntary Laboratory Accreditation Program (NVLAP) certified vendor. The TLDs are placed at various locations around the Independent Spent Fuel Storage Installation (ISFSI). Table 3.2 lists the Station ID Codes, distances and direction of the TLDs from the ISFSI.

3.3.2 Special Monitoring

Special samples can be taken that are not required in the ODCM. The sample locations do not appear in Table 3.1 or 3.2 of this report. For the monitoring period, no special samples were collected as part of the YNPS ISFSI Radiological Environmental Monitoring Program.

Table 3.1
Radiological Environmental Monitoring Program

Exposure Pathway and/or Sample Media	Collection			Analysis	
	Number of Sample Locations	Routine Sampling Mode	Collection Frequency	Analysis Type	Analysis Frequency
Direct Radiation (TLD)	Total Locations: 7 (6 around perimeter of the site and 1 offsite control location)	Continuous	Semi-annual	Gamma dose	Each TLD

Table 3.2
Radiological Environmental Monitoring Locations

Station Code	Station Description	Zone*	Distance From ISFSI (km)	Direction From ISFSI
GM-27	Number Nine Road (O)*	2	7.60	ENE
GM-02	Observation Stand (O)**	1	0.50	NW
GM-06	Readsboro Road Barrier (O)**	1	1.30	N
GM-15	Onsite Perimeter (I)**	1	0.24	NW
GM-16	Onsite Perimeter (I)**	1	0.22	NNW
GM-17	Onsite Perimeter (I)**	1	0.13	NNE
GM-21	Onsite Perimeter (I)**	1	0.17	WSW

*2 = Control TLD; 1 = Indicator TLD

**I = Inner Ring TLD; O = Outer Ring TLD

Figure 3.1
Onsite Direct Radiation Monitoring Locations

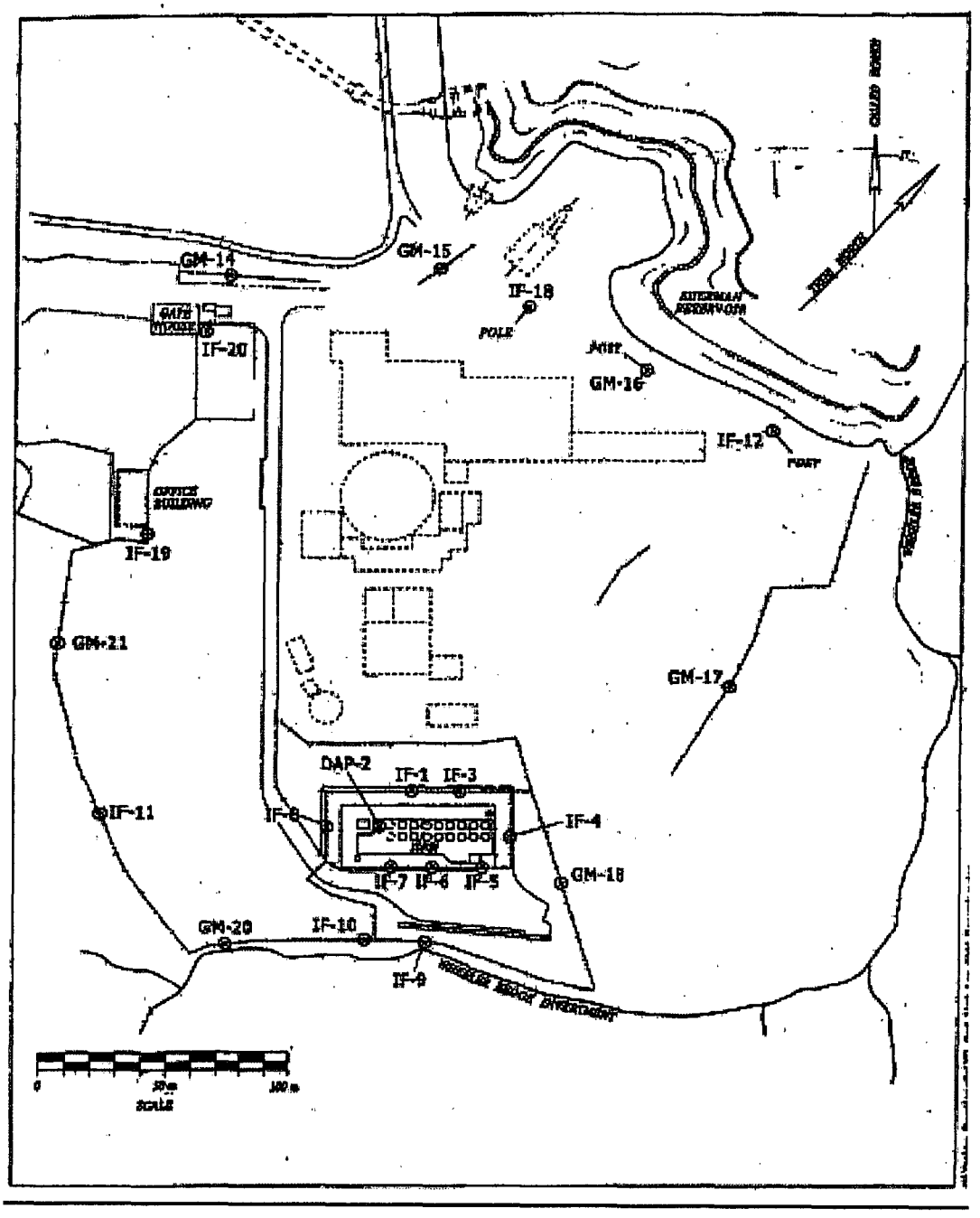


Figure 3.2
Direct Radiation Monitoring Locations (Within 1 mile)

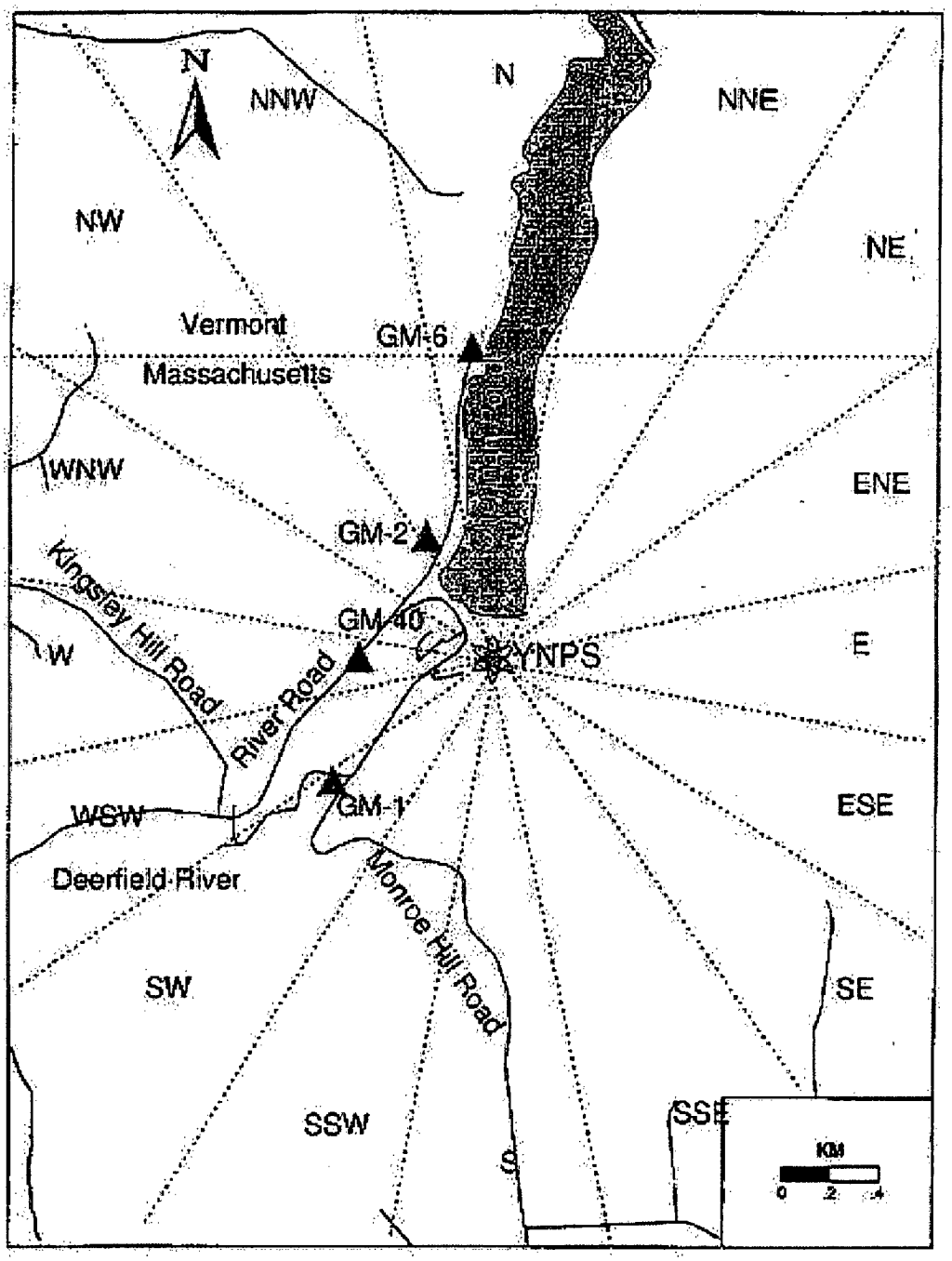
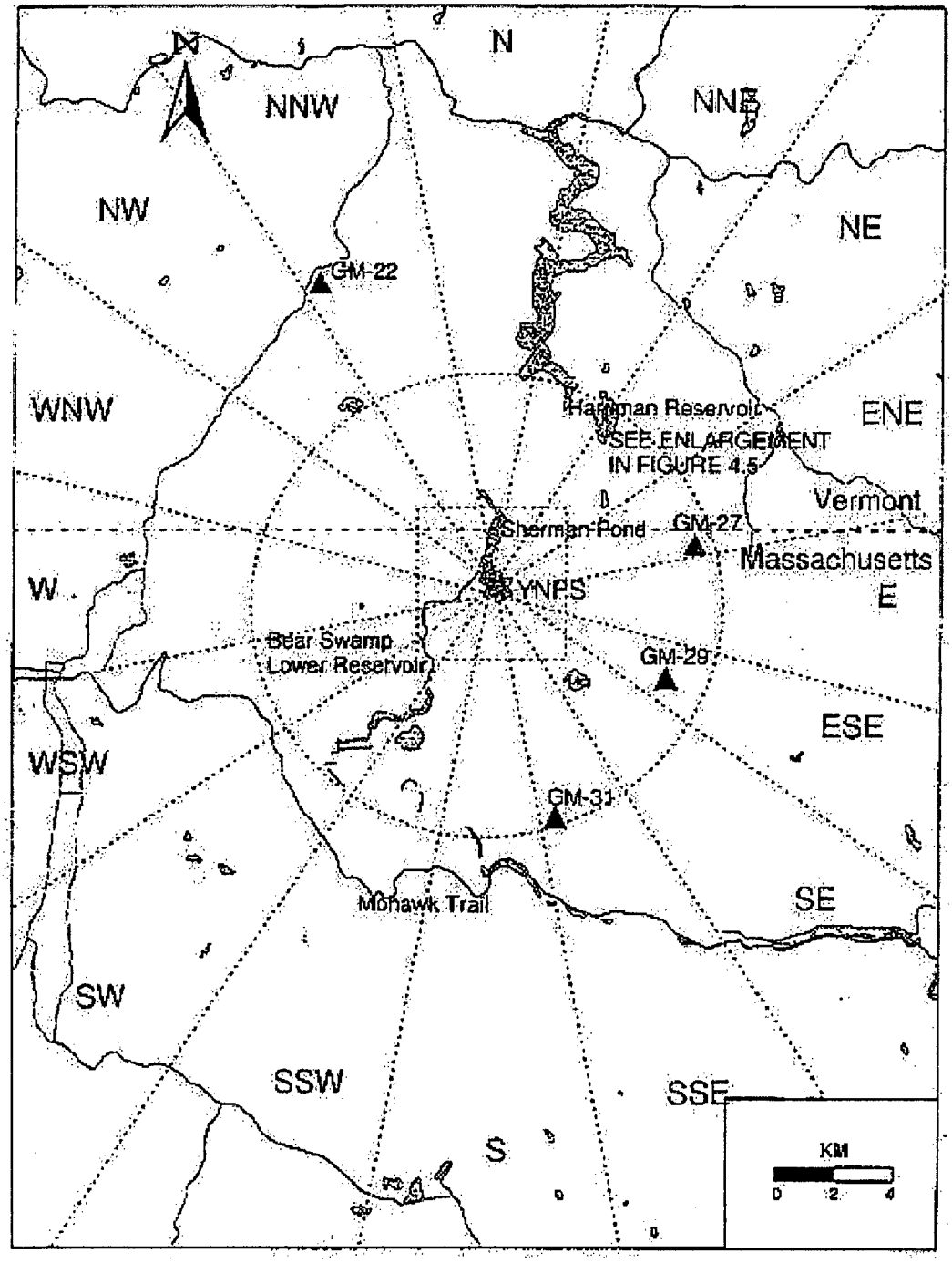


Figure 3.3
Offsite Control Location



4.0 RADIOLOGICAL DATA SUMMARY TABLES

This section summarizes the analytical results of the environmental samples, which were collected during the monitoring period.

Data from direct radiation measurements made by TLDs are provided in Table 4.1. The direct measurements converted to exposure rates are provided in Table 4.2. The summarized exposure rate results, shown in Table 4.3, are presented in a format similar to that prescribed in the NRC's Radiological Assessment Branch Technical Position on Environmental Monitoring (Reference 1). Table 4.4 provides the estimated direct dose from ISFSI operations as determined by TLDs.

Table 4.1
TLD Measurements by Half-Year
(mR)

Station ID	Location	1st Half-Year	2nd Half-Year
GM-02	Observation Stand	NR	40
GM-06	Readsboro Road Barrier	44	50
GM-15	On-site perimeter	50	55
GM-16	On-site perimeter	45	49
GM-17	On-site perimeter	48	57
GM-21	On-site perimeter	46	52
GM-27	Control	39	41
GM-27a	Control	43	40

NOTE: NR = no reading. The TLD was missing at the time of changeout.

Table 4.2
Exposure Rates from TLD Measurements
(μR per hour)

Station ID	Direction	1st Half-Year	2nd Half-Year	Annual Ave
GM-02	NW	NR	6.2	6.2
GM-06	N	7.4	8.4	7.9
GM-15	NW	8.8	9.6	9.2
GM-16	NNW	7.7	8.2	7.9
GM-17	NNE	8.3	10.0	9.2
GM-21	WSW	7.9	8.9	8.4
GM-27	Control	6.7	6.4	6.6

NOTE: NR = no reading. The TLD was missing at the time of changeout

Table 4.3
TLD Data Summary
(μR per hour)

Inner Ring TLDs	Control TLDs	Station With Highest Mean	
Mean (Range) (No. Measurements)*	Mean (Range) (No. Measurements)*	Station #	Mean (Range) (No. Measurements)*
8.3	6.6	GM-17	9.2
(6.2 – 10.0)	(6.4 – 6.7)		(8.3 – 10.0)
(11)	(4)		(2)

* Each "measurement" is based on semi-annual readings

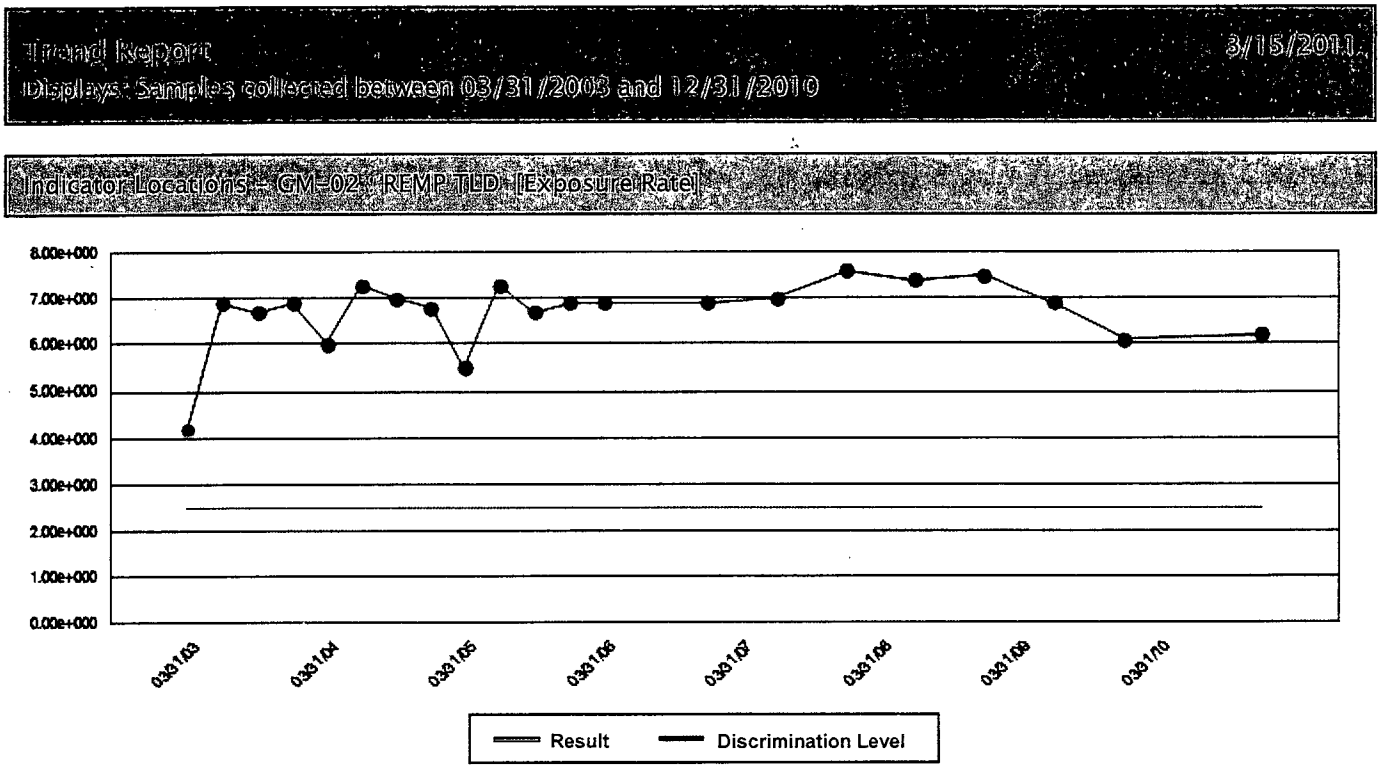
Table 4.4
Direct Dose from ISFSI Operations
(mrem)

	1st Half-Year		2nd Half-Year		
Station ID	Net TLD Result	Calculated Dose	Net TLD Result	Calculated Dose	Annual Dose
GM-02	NR	NR	0.0	0.0	0.0
GM-06	3.0	0.2	9.5	0.5	0.7
GM-15	9.0	0.5	14.5	0.8	1.3
GM-16	4.0	0.2	8.5	0.5	0.7
GM-17	7.0	0.4	16.5	0.9	1.3
GM-21	5.0	0.3	11.5	0.7	0.9
				Max Dose =>	**1.3**

NOTES:

1. Doses based on a 250 hour occupancy in both of the first and second half-years
2. NR = No reading. TLD was missing at the time of changeout.

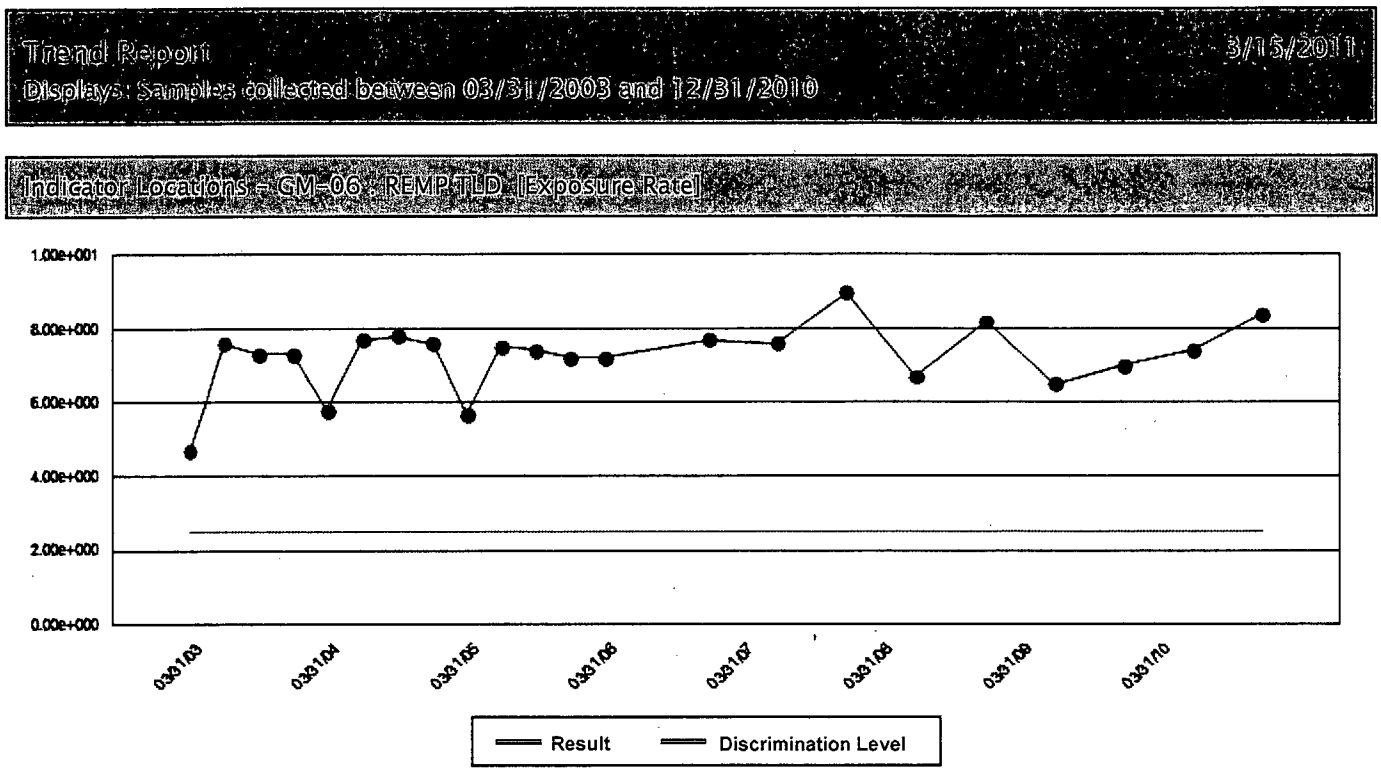
Figure 4.1
Exposure Rate Trend at GM-2



Sample Name	Date Collected	Result	2 Sigma Error	Discrimination Level
GM-02-001	03/31/2003	**4.2E+000 µR/h † ***	6.00E-001	2.5E+000
GM-02-002	06/30/2003	**6.9E+000 µR/h † ***	1.00E+000	2.5E+000
GM-02-003	09/30/2003	**6.7E+000 µR/h † ***	8.00E-001	2.5E+000
GM-02-004	12/31/2003	**6.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-02-005	03/31/2004	**6.0E+000 µR/h † ***	6.00E-001	2.5E+000
GM-02-006	06/30/2004	**7.3E+000 µR/h † ***	1.60E+000	2.5E+000
GM-02-007	09/30/2004	**7.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-02-008	12/31/2004	**6.8E+000 µR/h † ***	8.00E-001	2.5E+000
GM-02-009	03/31/2005	**5.5E+000 µR/h † ***	6.00E-001	2.5E+000
GM-02-010	06/30/2005	**7.3E+000 µR/h † ***	6.00E-001	2.5E+000
GM-02-011	09/30/2005	**6.7E+000 µR/h † ***	1.00E+000	2.5E+000
GM-02-012	12/31/2005	**6.9E+000 µR/h † ***	6.00E-001	2.5E+000
GM-02-013	03/31/2006	**6.9E+000 µR/h † ***	1.40E+000	2.5E+000
GM-02-014	12/31/2006	**6.9E+000 µR/h † ***	1.00E+000	2.5E+000
GM-02-015	06/30/2007	**7.0E+000 µR/h † ***	6.00E-001	2.5E+000
GM-02-016	12/31/2007	**7.6E+000 µR/h † ***	8.00E-001	2.5E+000
GM-02-017	06/30/2008	**7.4E+000 µR/h † ***	8.00E-001	2.5E+000
GM-02-018	12/31/2008	**7.5E+000 µR/h † ***	8.00E-001	2.5E+000
GM-02-019	06/30/2009	**6.9E+000 µR/h † ***	6.00E-001	2.5E+000
GM-02-020	12/31/2009	**6.1E+000 µR/h † ***	6.00E-001	2.5E+000
GM-02-022	12/31/2010	**6.2E+000 µR/h † ***	6.00E-001	2.5E+000

Results marked with * are greater than 2 Sigma Error.
Results marked with † are greater than the Discrimination Level

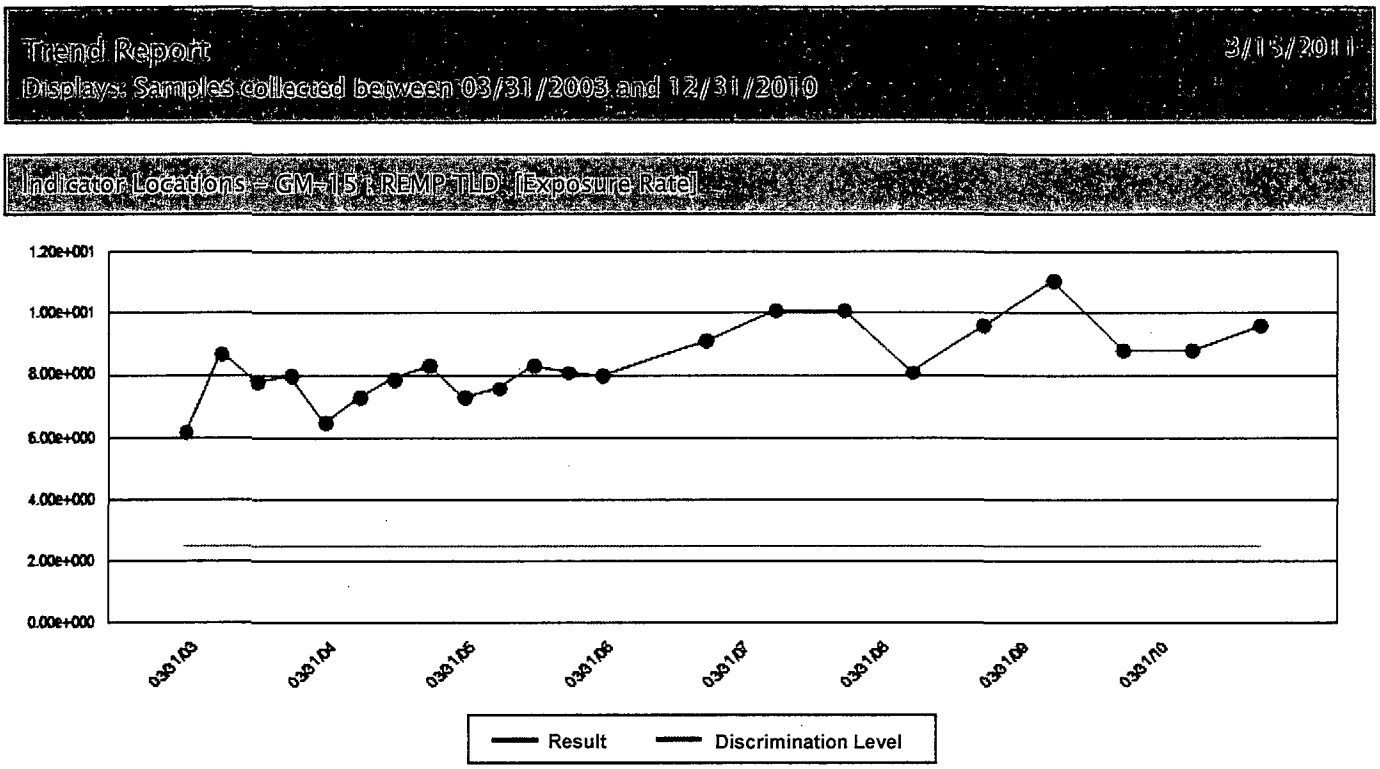
Figure 4.2
Exposure Rate Trend at GM-6



Sample Name	Date Collected	Result	2 Sigma Error	Discrimination Level
GM-06-001	03/31/2003	**4.7E+000 µR/h † ***	6.00E-001	2.5E+000
GM-06-002	06/30/2003	**7.6E+000 µR/h † ***	6.00E-001	2.5E+000
GM-06-003	09/30/2003	**7.3E+000 µR/h † ***	8.00E-001	2.5E+000
GM-06-004	12/31/2003	**7.3E+000 µR/h † ***	1.00E+000	2.5E+000
GM-06-005	03/31/2004	**5.8E+000 µR/h † ***	6.00E-001	2.5E+000
GM-06-006	06/30/2004	**7.7E+000 µR/h † ***	1.20E+000	2.5E+000
GM-06-007	09/30/2004	**7.8E+000 µR/h † ***	6.00E-001	2.5E+000
GM-06-008	12/31/2004	**7.6E+000 µR/h † ***	8.00E-001	2.5E+000
GM-06-009	03/31/2005	**5.7E+000 µR/h † ***	8.00E-001	2.5E+000
GM-06-010	06/30/2005	**7.5E+000 µR/h † ***	6.00E-001	2.5E+000
GM-06-011	09/30/2005	**7.4E+000 µR/h † ***	8.00E-001	2.5E+000
GM-06-012	12/31/2005	**7.2E+000 µR/h † ***	1.00E+000	2.5E+000
GM-06-013	03/31/2006	**7.2E+000 µR/h † ***	1.00E+000	2.5E+000
GM-06-014	12/31/2006	**7.7E+000 µR/h † ***	8.00E-001	2.5E+000
GM-06-015	06/30/2007	**7.6E+000 µR/h † ***	4.00E-001	2.5E+000
GM-06-016	12/31/2007	**9.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-06-017	06/30/2008	**6.7E+000 µR/h † ***	6.00E-001	2.5E+000
GM-06-018	12/31/2008	**8.2E+000 µR/h † ***	8.00E-001	2.5E+000
GM-06-019	06/30/2009	**6.5E+000 µR/h † ***	6.00E-001	2.5E+000
GM-06-020	12/31/2009	**7.0E+000 µR/h † ***	6.00E-001	2.5E+000
GM-06-021	06/30/2010	**7.4E+000 µR/h † ***	8.00E-001	2.5E+000
GM-06-022	12/31/2010	**8.4E+000 µR/h † ***	8.00E-001	2.5E+000

Results marked with * are greater than 2 Sigma Error.
Results marked with † are greater than the Discrimination Level

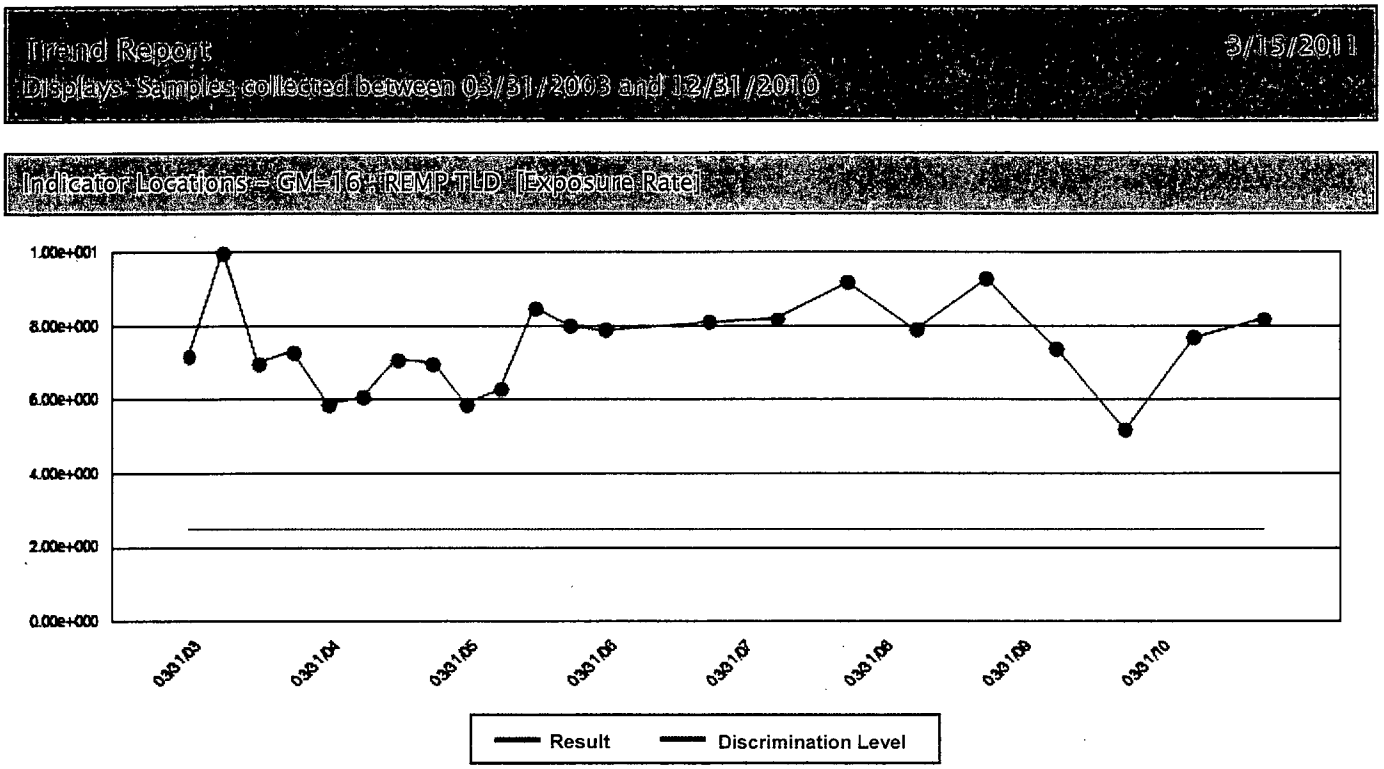
Figure 4.3
Exposure Rate Trend at GM-15



Sample Name	Date Collected	Result	2 Sigma Error	Discrimination Level
GM-15-001	03/31/2003	**6.2E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-002	06/30/2003	**8.7E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-003	09/30/2003	**7.8E+000 µR/h † ***	1.00E+000	2.5E+000
GM-15-004	12/31/2003	**8.0E+000 µR/h † ***	1.00E+000	2.5E+000
GM-15-005	03/31/2004	**6.5E+000 µR/h † ***	6.00E-001	2.5E+000
GM-15-006	06/30/2004	**7.3E+000 µR/h † ***	1.20E+000	2.5E+000
GM-15-007	09/30/2004	**7.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-008	12/31/2004	**8.3E+000 µR/h † ***	6.00E-001	2.5E+000
GM-15-009	03/31/2005	**7.3E+000 µR/h † ***	1.60E+000	2.5E+000
GM-15-010	06/30/2005	**7.6E+000 µR/h † ***	4.00E-001	2.5E+000
GM-15-011	09/30/2005	**8.3E+000 µR/h † ***	6.00E-001	2.5E+000
GM-15-012	12/31/2005	**8.1E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-013	03/31/2006	**8.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-014	12/31/2006	**9.1E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-015	06/30/2007	**1.0E+001 µR/h † ***	6.00E-001	2.5E+000
GM-15-016	12/31/2007	**1.0E+001 µR/h † ***	1.00E+000	2.5E+000
GM-15-017	06/30/2008	**8.1E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-018	12/31/2008	**9.6E+000 µR/h † ***	1.00E+000	2.5E+000
GM-15-019	06/30/2009	**1.1E+001 µR/h † ***	1.20E+000	2.5E+000
GM-15-020	12/31/2009	**8.8E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-021	06/30/2010	**8.8E+000 µR/h † ***	8.00E-001	2.5E+000
GM-15-022	12/31/2010	**9.6E+000 µR/h † ***	1.00E+000	2.5E+000

Results marked with * are greater than 2 Sigma Error.
Results marked with † are greater than the Discrimination Level

Figure 4.4
Exposure Rate Trend at GM-16



Sample Name	Date Collected	Result	2 Sigma Error	Discrimination Level
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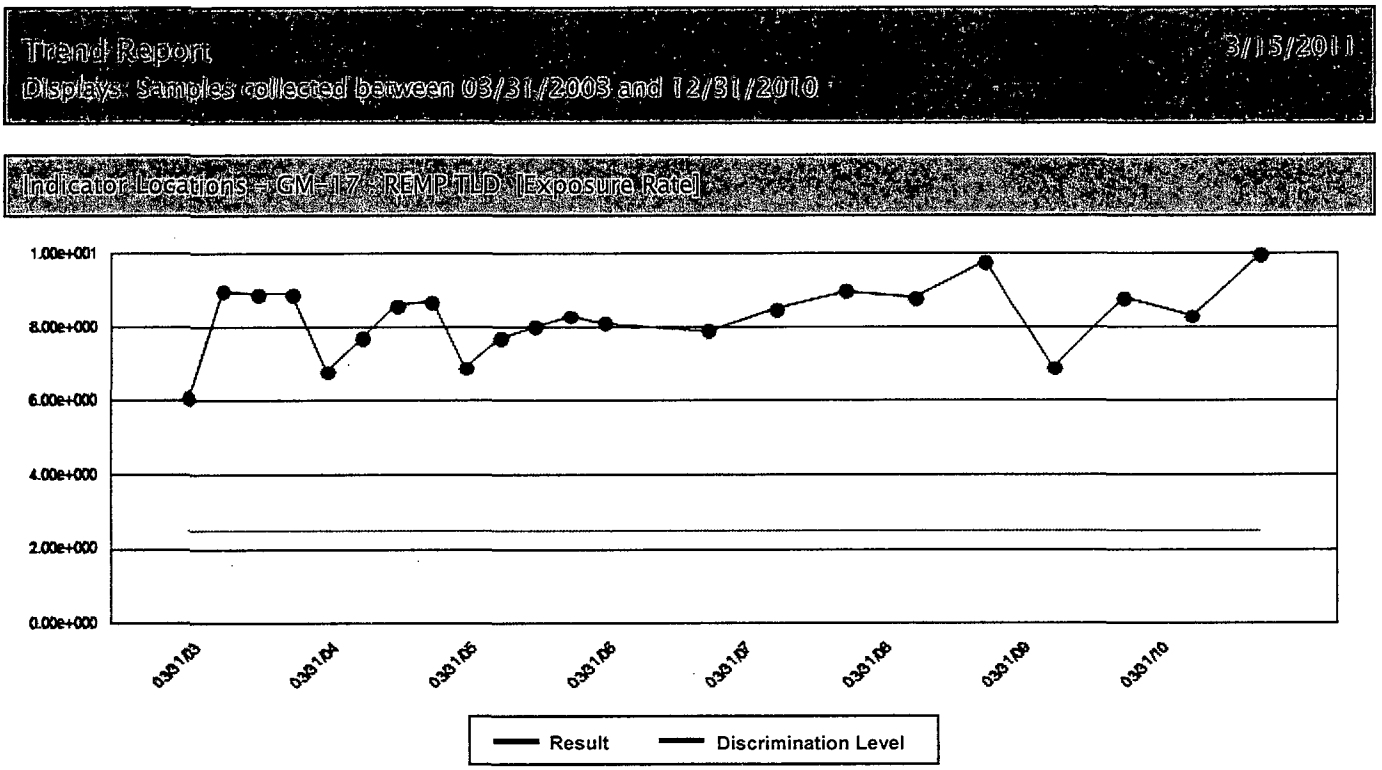
GM-16-002	06/30/2003	**1.0E+001 µR/h † ***	6.00E-001	2.5E+000
GM-16-003	09/30/2003	**7.0E+000 µR/h † ***	6.00E-001	2.5E+000
GM-16-004	12/31/2003	**7.3E+000 µR/h † ***	8.00E-001	2.5E+000
GM-16-005	03/31/2004	**5.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-16-006	06/30/2004	**6.1E+000 µR/h † ***	1.60E+000	2.5E+000
GM-16-007	09/30/2004	**7.1E+000 µR/h † ***	1.00E+000	2.5E+000
GM-16-008	12/31/2004	**7.0E+000 µR/h † ***	6.00E-001	2.5E+000
GM-16-009	03/31/2005	**5.9E+000 µR/h † ***	6.00E-001	2.5E+000
GM-16-010	06/30/2005	**6.3E+000 µR/h † ***	4.00E-001	2.5E+000
GM-16-011	09/30/2005	**8.5E+000 µR/h † ***	8.00E-001	2.5E+000
GM-16-012	12/31/2005	**8.0E+000 µR/h † ***	1.00E+000	2.5E+000
GM-16-013	03/31/2006	**7.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-16-014	12/31/2006	**8.1E+000 µR/h † ***	8.00E-001	2.5E+000
GM-16-015	06/30/2007	**8.2E+000 µR/h † ***	6.00E-001	2.5E+000
GM-16-016	12/31/2007	**9.2E+000 µR/h † ***	1.00E+000	2.5E+000
GM-16-017	06/30/2008	**7.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-16-018	12/31/2008	**9.3E+000 µR/h † ***	1.00E+000	2.5E+000
GM-16-019	06/30/2009	**7.4E+000 µR/h † ***	8.00E-001	2.5E+000
GM-16-020	12/31/2009	**5.2E+000 µR/h † ***	6.00E-001	2.5E+000
GM-16-021	06/30/2010	**7.7E+000 µR/h † ***	8.00E-001	2.5E+000
GM-16-022	12/31/2010	**8.2E+000 µR/h † ***	8.00E-001	2.5E+000

Results marked with * are greater than 2 Sigma Error.
Results marked with † are greater than the Discrimination Level

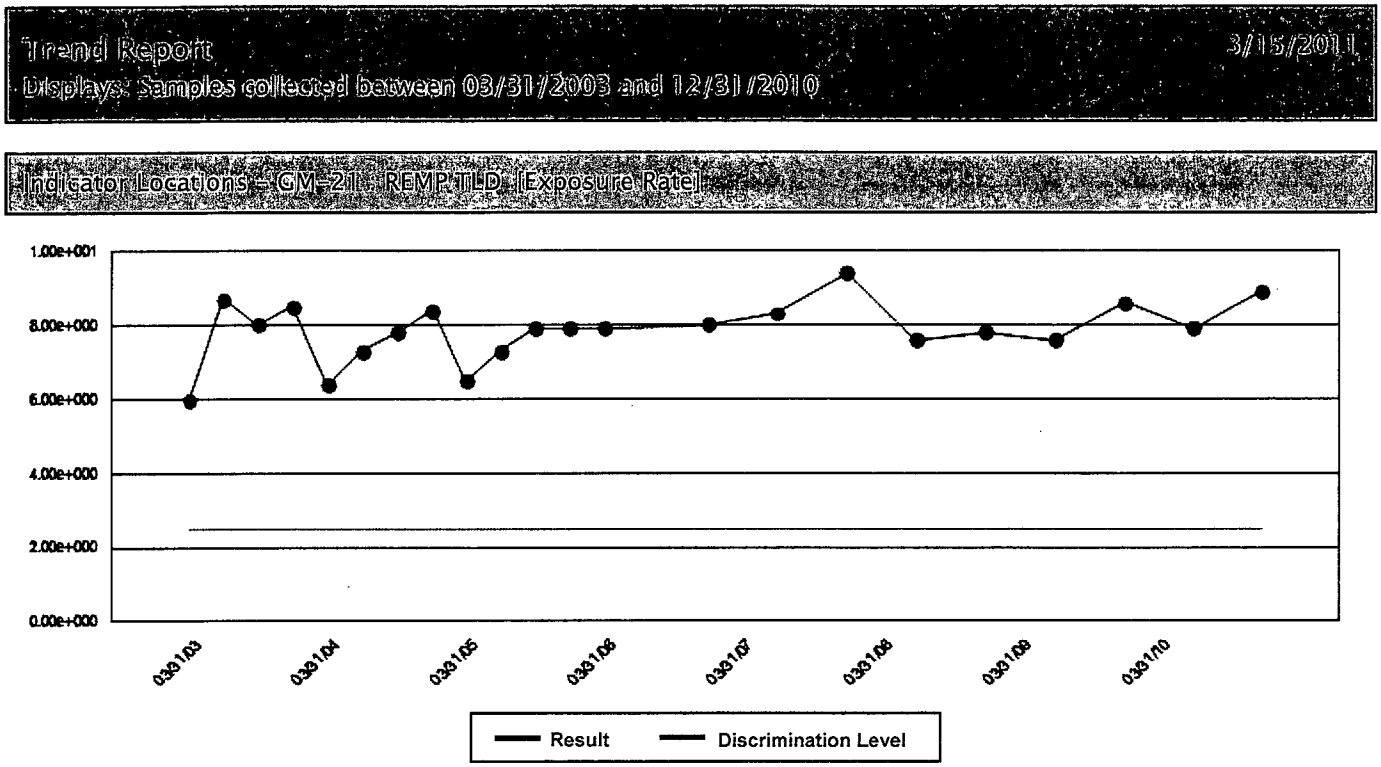
Figure 4.5
Exposure Rate Trend at GM-17



Sample Name	Date Collected	Result	2 Sigma Error	Discrimination Level
GM-17-001	03/31/2003	**6.1E+000 µR/h † ***	6.00E-001	2.5E+000
GM-17-002	06/30/2003	**9.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-003	09/30/2003	**8.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-004	12/31/2003	**8.9E+000 µR/h † ***	1.40E+000	2.5E+000
GM-17-005	03/31/2004	**6.8E+000 µR/h † ***	6.00E-001	2.5E+000
GM-17-006	06/30/2004	**7.7E+000 µR/h † ***	1.40E+000	2.5E+000
GM-17-007	09/30/2004	**8.6E+000 µR/h † ***	1.20E+000	2.5E+000
GM-17-008	12/31/2004	**8.7E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-009	03/31/2005	**6.9E+000 µR/h † ***	1.20E+000	2.5E+000
GM-17-010	06/30/2005	**7.7E+000 µR/h † ***	6.00E-001	2.5E+000
GM-17-011	09/30/2005	**8.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-012	12/31/2005	**8.3E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-013	03/31/2006	**8.1E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-014	12/31/2006	**7.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-015	06/30/2007	**8.5E+000 µR/h † ***	1.20E+000	2.5E+000
GM-17-016	12/31/2007	**9.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-017	06/30/2008	**8.8E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-018	12/31/2008	**9.8E+000 µR/h † ***	1.00E+000	2.5E+000
GM-17-019	06/30/2009	**6.9E+000 µR/h † ***	6.00E-001	2.5E+000
GM-17-020	12/31/2009	**8.8E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-021	06/30/2010	**8.3E+000 µR/h † ***	8.00E-001	2.5E+000
GM-17-022	12/31/2010	**1.0E+001 µR/h † ***	1.00E+000	2.5E+000

Results marked with * are greater than 2 Sigma Error.
Results marked with † are greater than the Discrimination Level

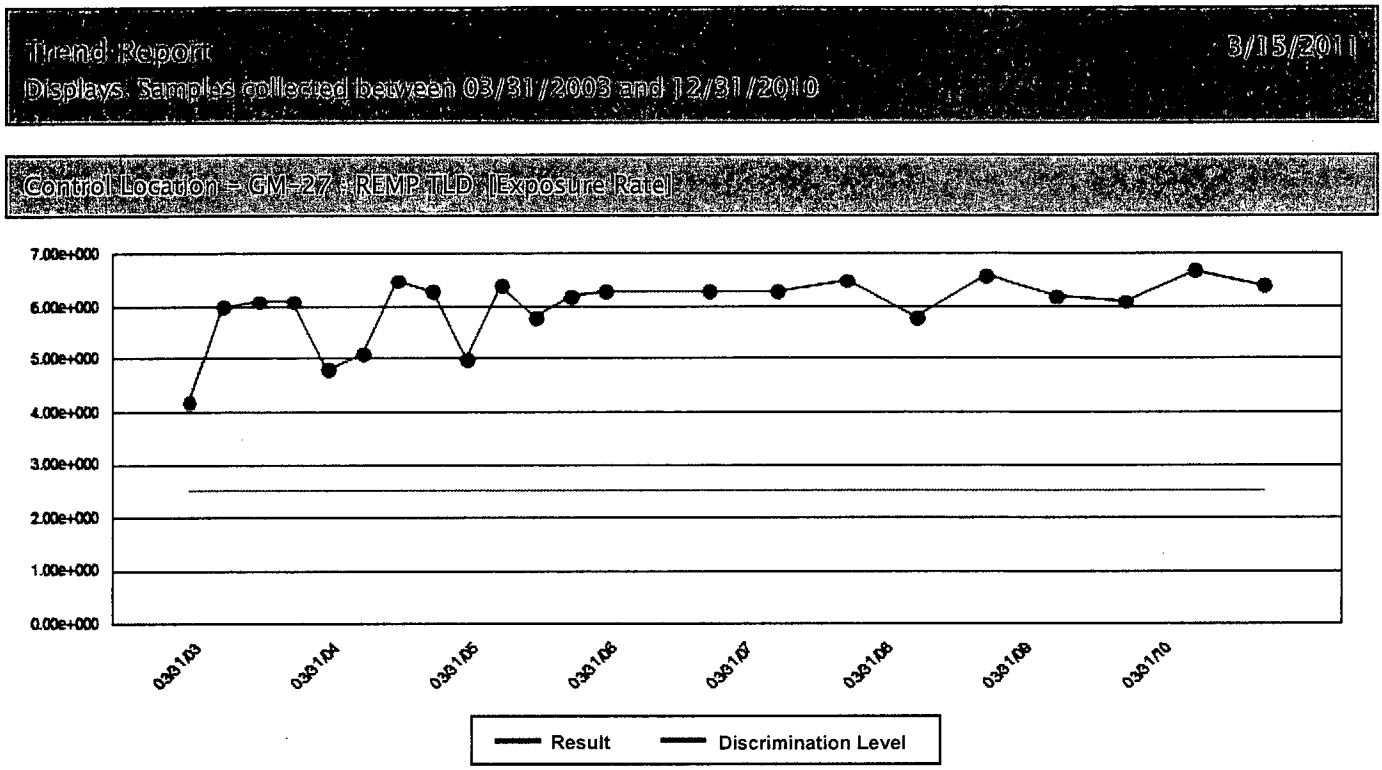
Figure 4.6
Exposure Rate Trend at GM-21



Sample Name	Date Collected	Result	2 Sigma Error	Discrimination Level
GM-21-001	03/31/2003	**6.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-002	06/30/2003	**8.7E+000 µR/h † ***	1.00E+000	2.5E+000
GM-21-003	09/30/2003	**8.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-004	12/31/2003	**8.5E+000 µR/h † ***	1.20E+000	2.5E+000
GM-21-005	03/31/2004	**6.4E+000 µR/h † ***	6.00E-001	2.5E+000
GM-21-006	06/30/2004	**7.3E+000 µR/h † ***	1.20E+000	2.5E+000
GM-21-007	09/30/2004	**7.8E+000 µR/h † ***	6.00E-001	2.5E+000
GM-21-008	12/31/2004	**8.4E+000 µR/h † ***	1.00E+000	2.5E+000
GM-21-009	03/31/2005	**6.5E+000 µR/h † ***	6.00E-001	2.5E+000
GM-21-010	06/30/2005	**7.3E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-011	09/30/2005	**7.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-012	12/31/2005	**7.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-013	03/31/2006	**7.9E+000 µR/h † ***	1.40E+000	2.5E+000
GM-21-014	12/31/2006	**8.0E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-015	06/30/2007	**8.3E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-016	12/31/2007	**9.4E+000 µR/h † ***	1.00E+000	2.5E+000
GM-21-017	06/30/2008	**7.6E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-018	12/31/2008	**7.8E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-019	06/30/2009	**7.6E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-020	12/31/2009	**8.6E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-021	06/30/2010	**7.9E+000 µR/h † ***	8.00E-001	2.5E+000
GM-21-022	12/31/2010	**8.9E+000 µR/h † ***	8.00E-001	2.5E+000

Results marked with * are greater than 2 Sigma Error.
Results marked with † are greater than the Discrimination Level

Figure 4.7
Exposure Rate Trend at Control Location GM-27



Sample Name	Date Collected	Result	2 Sigma Error	Discrimination Level
GM-27-001	03/31/2003	**4.2E+000 µR/h † ***	4.00E-001	2.5E+000
GM-27-002	06/30/2003	**6.0E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-003	09/30/2003	**6.1E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-004	12/31/2003	**6.1E+000 µR/h † ***	8.00E-001	2.5E+000
GM-27-005	03/31/2004	**4.8E+000 µR/h † ***	4.00E-001	2.5E+000
GM-27-006	06/30/2004	**5.1E+000 µR/h † ***	1.20E+000	2.5E+000
GM-27-007	09/30/2004	**6.5E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-008	12/31/2004	**6.3E+000 µR/h † ***	4.00E-001	2.5E+000
GM-27-009	03/31/2005	**5.0E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-010	06/30/2005	**6.4E+000 µR/h † ***	4.00E-001	2.5E+000
GM-27-011	09/30/2005	**5.8E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-012	12/31/2005	**6.2E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-013	03/31/2006	**6.3E+000 µR/h † ***	1.00E+000	2.5E+000
GM-27-014	12/31/2006	**6.3E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-015	06/30/2007	**6.3E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-016	12/31/2007	**6.5E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-017	06/30/2008	**5.8E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-018	12/31/2008	**6.6E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-019	06/30/2009	**6.2E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-020	12/31/2009	**6.1E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-021	06/30/2010	**6.7E+000 µR/h † ***	6.00E-001	2.5E+000
GM-27-022	12/31/2010	**6.4E+000 µR/h † ***	6.00E-001	2.5E+000

Results marked with * are greater than 2 Sigma Error.
Results marked with † are greater than the Discrimination Level

that direct exposure above background can be estimated by subtracting the average TLD value of the control station from the indicator location measurements. As in previous years, the 2010 dose estimate assumes a total of 500 hours occupancy for the dose calculation; of which 250 hours are used in both the first and second half-years. The most likely location for exposure to a member of the public from the ISFSI is in Sherman Reservoir for boating and fishing; however, the time estimates are conservatively applied to all monitoring locations.

Table 4.4 presents the results of the dose calculations. The highest calculated dose is at Station ID number GM-17. The maximum calculated annual dose at that location is 1.3 mrem. This value is only 5 percent of the 25 mrem per year limit. For reference, this location is less than 500 feet from the ISFSI. This represents a very conservative dose estimate because a member of the public would normally be situated further away in the reservoir.

6.0 REFERENCES

1. USNRC Radiological Assessment Branch Technical Position, "An Acceptable Radiological Environmental Monitoring Program," Revision 1, November 1979.

2. Yankee Nuclear Power Station Off-site Dose Calculation Manual, Revision 21.

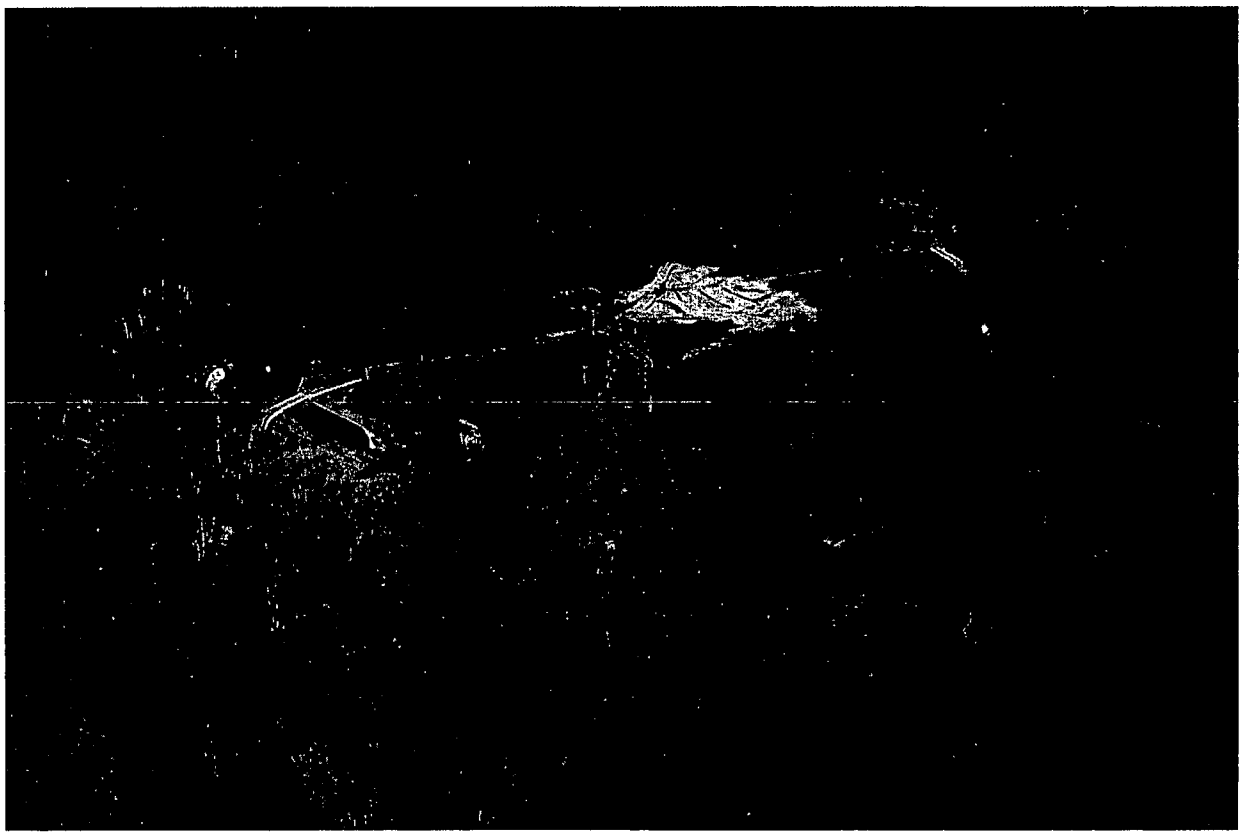
3. 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operation".

4. 10 CFR Part 72.104, "Criteria for Radioactive Materials in Effluents and Direct Radiation from an ISFSI or MRS".

YANKEE NUCLEAR POWER STATION
INDEPENDENT SPENT FUEL STORAGE INSTALLATION
License No. DPR-29

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

January - December 2010



RSCS
Radiation Safety & Control Services

March 2011
Prepared by:

Radiological Safety & Control Services
91 Portsmouth Avenue
Stratham, NH 03885-2468

EXECUTIVE SUMMARY

Tables 1 and 2 summarize the quantity of radioactive gaseous and liquid effluents, respectively, for each quarter of 2010. There were no gaseous or liquid releases in 2010. Table 3 summarizes waste shipped off-site for disposal for each half year of 2010. There were no waste shipments in 2010.

Appendices A through C indicate the status of reportable items per the requirements of the Off-site Dose Calculation Manual (ODCM). There were no reportable items in 2010.

Table 1

YNPS ISFSI
Effluent and Waste Disposal Annual Report
2010 Gaseous Effluents-Summation of All Releases

Nuclides Released	Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Error
A. Fission and Activation Gases						
Total Release	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Average release rate	µCi/s	N/A*	N/A*	N/A*	N/A*	
Percent of regulatory limit	%	N/A*	N/A*	N/A*	N/A*	
B. Iodines						
Total Iodines released	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Average release rate	µCi/s	N/A*	N/A*	N/A*	N/A*	
Percent of regulatory limit	%	N/A*	N/A*	N/A*	N/A*	
C. Particulates						
Particulates Released	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Average release rate	µCi/s	N/A*	N/A*	N/A*	N/A*	
Percent of regulatory limit	%	N/A*	N/A*	N/A*	N/A*	
Gross alpha radioactivity	Ci	N/A*	N/A*	N/A*	N/A*	
D. Tritium						
Total release	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Average release rate	µCi/s	N/A*	N/A*	N/A*	N/A*	
Percent of regulatory limit	%	N/A*	N/A*	N/A*	N/A*	

N/A*= Not Applicable

There are no gaseous effluents associated with the Yankee Nuclear Power Station Independent Spent Fuel Storage Installation (ISFSI)

Table 1A

YNPS ISFSI
Effluent and Waste Disposal Annual Report
2010 Gaseous Effluents - Ground Level Releases - Batch Mode

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
1. Fission Gases						
Krypton-85	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-85m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-87	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-88	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-133	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-135	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-135m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-138	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Unidentified	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
2. Iodines						
Iodine-131	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-133	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-135	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
3. Particulates						
Strontium-89	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Strontium-90	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-134	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-137	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cobalt-60	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Barium-Lanthanum-140	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Others-						
Plutonium-238	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Curium-243,244	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Uranium-234	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Uranium-238	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Thorium-232	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Radium-226	Ci	N/A*	N/A*	N/A*	N/A*	N/A*

N/A*= Not Applicable

There are no gaseous effluents associated with the Yankee Nuclear Power Station Independent Spent Fuel Storage Installation (ISFSI)

Table 1B

YNPS ISFSI
Effluent and Waste Disposal Annual Report
2010 Gaseous Effluents - Ground Level Releases - Continuous Mode

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
1. Fission Gases						
Krypton-85	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-85m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-87	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-88	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-133	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-135	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-135m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-138	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Unidentified	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
2. Iodines						
Iodine-131	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-133	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-135	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
3. Particulates						
Strontium-89	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Strontium-90	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-134	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-137	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cobalt-60	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Barium-Lanthanum-140	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Others-						
Plutonium-238	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Curium-243,244	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Uranium-234	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Uranium-238	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Thorium-232	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Radium-226	Ci	N/A*	N/A*	N/A*	N/A*	N/A*

N/A*= Not Applicable

There are no gaseous effluents associated with the Yankee Nuclear Power Station Independent Spent Fuel Storage Installation (ISFSI)

Table 1C

YNPS ISFSI
Effluent and Waste Disposal Annual Report
2010 Gaseous Effluents - Elevated Releases – Batch Mode

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
1A. Fission Gases						
Krypton-85	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-85m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-87	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-88	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-133	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-135	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-135m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-138	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Unidentified	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
2. Iodines						
Iodine-131	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-133	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-135	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
3. Particulates						
Strontium-89	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Strontium-90	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-134	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-137	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cobalt-60	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Barium-Lanthanum-140	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Others-						
Plutonium-238	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Curium-243,244	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Uranium-234	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Uranium-238	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Thorium-232	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Radium-226	Ci	N/A*	N/A*	N/A*	N/A*	N/A*

N/A*= Not Applicable

There are no gaseous effluents associated with the Yankee Nuclear Power Station Independent Spent Fuel Storage Installation (ISFSI)

Table 1D

YNPS ISFSI
Effluent and Waste Disposal Annual Report
2010 Gaseous Effluents - Elevated Releases – Continuous Mode

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
1. Fission Gases						
Krypton-85	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-85m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-87	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Krypton-88	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-133	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-135	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-135m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Xenon-138	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Unidentified	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
2. Iodines						
Iodine-131	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-133	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-135	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
3. Particulates						
Strontium-89	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Strontium-90	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-134	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-137	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cobalt-60	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Barium-Lanthanum-140	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Others-						
Plutonium-238	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Curium-243,244	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Uranium-234	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Uranium-238	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Thorium-232	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Radium-226	Ci	N/A*	N/A*	N/A*	N/A*	N/A*

N/A*= Not Applicable

There are no gaseous effluents associated with the Yankee Nuclear Power Station Independent Spent Fuel Storage Installation (ISFSI)

Table 2

YNPS ISFSI
Effluent and Waste Disposal Annual Report
2010 Liquid Effluents - Summation of All Releases

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Error
A. Fission and Activation Products						
Total Release (not including tritium, gases, alpha)	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Average diluted concentration during period	µCi/ml	N/A*	N/A*	N/A*	N/A*	
Percent of applicable limit	%	N/A*	N/A*	N/A*	N/A*	
B. Tritium						
Total Release	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Average diluted concentration during period	µCi/ml	N/A*	N/A*	N/A*	N/A*	
Percent of applicable limit	%	N/A*	N/A*	N/A*	N/A*	
C. Dissolved and Entrained Gases						
Total Release	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Average diluted concentration during period	µCi/ml	N/A*	N/A*	N/A*	N/A*	
Percent of applicable limit	%	N/A*	N/A*	N/A*	N/A*	
D. Gross Alpha Radioactivity						
Total release	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Average diluted concentration during period	µCi/ml	N/A*	N/A*	N/A*	N/A*	
E. Volume of Waste Released (prior to dilution)	Liters	N/A*	N/A*	N/A*	N/A*	
F. Volume of Dilution Water Used During Period	Liters	N/A*	N/A*	N/A*	N/A*	

N/A*= Not Applicable

There are no liquid effluents associated with the Yankee Nuclear Power Station Independent Spent Fuel Storage Installation (ISFSI)

Table 2A

YNPS ISFSI
Effluent and Waste Disposal Annual Report
2010 Liquid Effluents – Batch Mode

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Totals
Strontium-89	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Strontium-90	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-134	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-137	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-131	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cobalt-58	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cobalt-60	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iron-59	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Zinc-65	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Manganese-54	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Chromium-51	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Zirconium-Niobium-95	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Molybdenum-99	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Technetium-99m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Barium-Lathanium-140	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cerium-141	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Others- Iron-55	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Antimony-125	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Unidentified	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period (above)	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Dissolved and Entrained Gasses	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Tritium	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Gross Alpha	Ci	N/A*	N/A*	N/A*	N/A*	N/A*

N/A*= Not Applicable

There are no liquid effluents associated with the Yankee Nuclear Power Station Independent Spent Fuel Storage Installation (ISFSI)

Table 2B

YNPS ISFSI
Effluent and Waste Disposal Annual Report
2010 Liquid Effluents – Continuous Mode

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Totals
Strontium-89	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Strontium-90	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-134	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cesium-137	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iodine-131	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cobalt-58	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cobalt-60	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Iron-59	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Zinc-65	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Manganese-54	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Chromium-51	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Zirconium-Niobium-95	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Molybdenum-99	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Technetium-99m	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Barium-Lathanium-140	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Cerium-141	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Others- Iron-55	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Antimony-125	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Unidentified	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Total for period (above)	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Dissolved and Entrained Gasses	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Tritium	Ci	N/A*	N/A*	N/A*	N/A*	N/A*
Gross Alpha	Ci	N/A*	N/A*	N/A*	N/A*	N/A*

N/A*≈ Not Applicable

There are no liquid effluents associated with the Yankee Nuclear Power Station Independent Spent Fuel Storage Installation (ISFSI)

Table 3

YNPS ISFSI
Effluent and Waste Disposal Annual Report
First Half 2010 Low Level Waste Shipments

Resins, Filters and Evaporator Bottoms		Volume		Curies Shipped
Waste Class	**Solidifying Agent**	**ft^3**	**m^3**	**Curies**
A		0	0	0
B		0	0	0
C		0	0	0
All		0	0	0
Major radionuclides for above data:				
Dry Active Waste		**Volume**		**Curies Shipped**
Waste Class	**Solidifying Agent**	**ft^3**	**m^3**	**Curies**
A		0	0	0
B		0	0	0
C		0	0	0
All		0	0	0
Major radionuclides for above data:				
Irradiated Components		**Volume**		**Curies Shipped**
Waste Class	**Solidifying Agent**	**ft^3**	**m^3**	**Curies**
A		0	0	0
B		0	0	0
C		0	0	0
All		0	0	0
Major radionuclides for above data:				
Other Waste		**Volume**		**Curies Shipped**
Waste Class	**Solidifying Agent**	**ft^3**	**m^3**	**Curies**
A		0	0	0
B		0	0	0
C		0	0	0
All		0	0	0
Major radionuclides for above data:				

Table 3A

YNPS ISFSI
Effluent and Waste Disposal Annual Report
Second Half 2010 Low Level Waste Shipments

Resins, Filters and Evaporator Bottoms		Volume		Curies Shipped
Waste Class	**Solidifying Agent**	**ft^3**	**m^3**	**Curies**
A		0	0	0
B		0	0	0
C		0	0	0
All		0	0	0
Major radionuclides for above data:				
Dry Active Waste		**Volume**		**Curies Shipped**
Waste Class	**Solidifying Agent**	**ft^3**	**m^3**	**Curies**
A		0	0	0
B		0	0	0
C		0	0	0
All		0	0	0
Major radionuclides for above data:				
Irradiated Components		**Volume**		**Curies Shipped**
Waste Class	**Solidifying Agent**	**ft^3**	**m^3**	**Curies**
A		0	0	0
B		0	0	0
C		0	0	0
All		0	0	0
Major radionuclides for above data:				
Other Waste		**Volume**		**Curies Shipped**
Waste Class	**Solidifying Agent**	**ft^3**	**m^3**	**Curies**
A		0	0	0
B		0	0	0
C		0	0	0
All		0	0	0
Major radionuclides for above data:				

Appendix A

Radiation Dose Assessment

There were no gaseous or liquid effluent releases in 2010. Therefore, an assessment of radiation doses to the most likely exposed member(s) of the public to show compliance with 40CFR190 or 10CFR72.104 from effluents was not required.

Appendix B

Unplanned Releases

There were no unplanned releases of radioactive materials in effluents in 2010

Appendix C

Off-site Dose Calculation Manual Changes

There were no changes to the Off-site Dose Calculation Manual in 2010.