



**ANNUAL RADIOACTIVE EFFLUENT
REPORT**

**HADDAM NECK STATION
RADIOLOGICAL EFFLUENT CONTROLS PROGRAM**

JANUARY 1, 2000 - DECEMBER 31, 2000

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**CONNECTICUT YANKEE ATOMIC POWER COMPANY
Haddam, Connecticut**

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1.0 Introduction

As required by the Haddam Neck Plant Technical Specification Safety Manual (TSSM), Section 6.7.3, this Annual Radioactive Effluent Release Report for the year 2000 is submitted in accordance with 10 CFR 50.36a, "Technical Specifications on effluents from nuclear power reactors." A summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the Haddam Neck Facility is presented in this document. The material provided is consistent with the objectives outlined in the Radiological Effluent Monitoring and Offsite Dose Calculation Manual (REMODOCM). The information submitted is formatted to the general outline described in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants."

Haddam Neck is currently in the process of decommissioning. In support of the decommissioning effort, a total of 492,330 gallons of radioactive liquid was processed and batch released in 2000. The radwaste process system utilized filters and demineralizers to ensure the quantities of radioactivity released to the environment were maintained as low as reasonably achievable. The Chemistry Department reviews and trends information pertaining to liquid releases on a continual basis. Each batch liquid release was verified to contribute less than 0.06 mrem to the whole body and less than 0.2 mrem to any organ prior to release. In the event that a batch release tank was projected to exceed these levels, the liquid was reprocessed to lower the activity concentrations. Table 15 and Figures 1 - 3 are included to show parameters that are trended to assist in evaluating liquid releases by the Chemistry Department.

As the decommissioning project creates new potential gaseous release pathways, baseline data will be collected and, if necessary, the release point is added to the monitoring program. The Alternate Containment Access and the Cable Vault are examples of miscellaneous pathways that are now included in the monitoring program. As a result of the Chemistry Department's ongoing review, tritium released (starting in May) from the Alternate Containment Access has been included in the gaseous effluent dose calculations.

2.0 Summary

The radioactive effluent monitoring program for 2000 was conducted in accordance with Haddam Neck TSSM section 6.6.4. The results of the monitoring program indicate that the Haddam Neck Plant was successful maintaining radioactive effluent releases to the environment as low as reasonably achievable.

A general overview of the radioactive gaseous releases to the environment during 2000 produced the following results:

- The total whole body dose due to gaseous radioactivity released was 0.0516 mrem. This is approximately 1% of the allowable limit.
- The maximum organ dose due to gaseous radioactivity was 0.131 mrem. This is approximately 0.1% of the allowable limit.
- The calculated beta air dose due to noble gases was 0 mrad.
- The calculated gamma air dose due to noble gases was 0 mrad.
- The total gaseous tritium released was 7.46 curies.
- The total gaseous particulate activity released was 3.43E-4 curies.
- The total gaseous gross alpha activity released was 0 curies.
- The total gaseous Sr-90 activity released was 0 curies.

A review of the radioactive liquid releases to the environment during 2000 produced the following results:

- The total whole body dose due to liquid radioactivity released was 0.334 mrem. This is approximately 11% of the allowable limit.
- The maximum organ dose due to liquid radioactivity released was 0.515 mrem. This is approximately 5% of the allowable limit.
- The total volume of radioactive liquid processed and released was 492,330 gallons.
- The total amount of radioactivity from liquids released to the environment was 14.26 curies.
- Of the total curies released, 13.3 were attributed to tritium and 0.955 curies from all other nuclides.

The effluent dose contributions for this report period are significantly less than regulatory limits and natural backgrounds dose contribution.

A review of the radioactive waste program showed 4,890 cubic meters of solid waste containing 2,710 curies of radioactivity was shipped offsite for processing or disposal.

3.0 Supplemental Information

3.1 Radioactive Effluent Controls Program

This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the dose to MEMBERS OF THE PUBLIC from radioactive effluents as low as reasonably achievable. The program is contained in the REMODCM, and implemented by procedures that include remedial actions to be taken whenever the program limits are exceeded. The program includes the following:

- a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation, including surveillance tests

and setpoint determinations, in accordance with the methodology described in the REMODCM;

- b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to the pre-1994 concentration values in 10 CFR Part 20, Appendix B (to 20.1 to 20.602), Table II, Column 2;
- c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters described in the REMODCM;
- d. Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from the facility to unrestricted areas, conforming to 10 CFR Part 50, Appendix I;
- e. Determination of cumulative and projected dose contributions from the radioactive effluents for the current calendar quarter and current calendar year in accordance the methodology and parameters described in the REMODCM (performed at least every 92 days);
- f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2% of the guidelines for the annual dose or dose commitment, conforming to 10 CFR Part 50, Appendix I;
- g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary are as follows;
 - 1. for noble gases: less than or equal a dose rate of 500 mrem/yr to the total body and less than or equal a dose of 3000 mrem/yr to the skin; and
 - 2. for tritium and all radionuclides in particulate form with half-lives greater than 8 days: less than or equal to a dose rate of 1500 mrem/yr. to any organ;
- h. Limitations on the annual and quarterly air doses from noble gases released in gaseous effluents from the unit to areas beyond the SITE BOUNDARY, conforming to 10 CFR Part 50, Appendix I;
- i. Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from tritium and all radionuclides in particulate form

with half-lives greater than 8 days in gaseous effluents released from the facility to areas beyond the SITE BOUNDARY, conforming to 10 CFR Part 50, Appendix I; and

- j. Limitations on the annual dose or dose commitment to any at points beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR Part 190.

3.2 Maximum Permissible Concentration

3.2.1 Gaseous Effluents

The applicable limits for gaseous effluents are expressed in terms of dose rate at the site boundary.

3.2.2 Liquid Effluents

The values specified in 10 CFR Part 20, Appendix B, Table 2, Column 2, (pre-1994 edition), were used as the limits for radioactive effluents released to unrestricted areas.

3.3 Measurements and Approximation of Total Activity

3.3.1 Gaseous Radioactive Effluents

Gaseous effluent release pathways were sampled and analyzed weekly for tritium and noble gas. Particulate release pathways were continuously sampled using air filters. The particulate filters were analyzed weekly for gamma radioactivity, monthly for gross alpha activity, and quarterly for Sr-90. Noble gas and tritium, and particulate filter results and the effluent flow rate were used to determine the total amount of activity released.

The following estimates for the uncertainty associated with gaseous sample analysis stem from a composite of variances in effluent flow rates, instrumentation tolerances and low level counting statistics.

Tritium	25%
Fission and Activation Products	25%
Gross Alpha, Sr-90	25%
Noble Gas	25%

3.3.2 Liquid Radioactive Effluents

Each batch release was sampled and analyzed for gamma emitting radionuclides prior to release using gamma spectroscopy. Composite samples were analyzed monthly and quarterly for the Recycle and Waste Test Tanks. Monthly composite samples for tritium were analyzed in the onsite laboratory, using a liquid scintillation counter. A

contract laboratory analyzed monthly composites for gross alpha and quarterly composites for Fe-55 and Sr-90. The results of the composite analyses from the previous month or quarter were used to estimate the quantities of these radionuclides in liquid effluents during the current month or quarter. The total radioactivity in liquid effluent releases was determined from the measured and estimated concentrations of each radionuclide present and the total volume of the effluent released during periods of discharge.

The RCA Yard Drain continuous release pathway was sampled with an automatic composite sampler or by obtaining daily grab samples. Composites were analyzed each week for gamma emitting radionuclides and tritium. Analyses were performed to the minimum detection levels for environmental media. Due to the absence of gamma activity, analyses for gross alpha, Fe-55 and Sr-90 were not required during the period of this report.

The following estimates for the uncertainty associated with liquid sample analysis stem from a composite of variances in effluent flow rates, instrumentation tolerances and low level counting statistics.

Tritium	25%
Fission and Activation Products	25%
Gross Alpha	25%
Sr-90, Fe-55	25%

3.4 Batch Releases

3.4.1 Airborne Effluents

None

3.4.2 Liquid Effluents

Number of Batches:	51
Total Time (min.):	14512
Maximum Time (min.):	455
Average Time (min.):	285
Minimum Time (min.):	1
Average dilution flow during releases:	Batch = 368.3 cfs
	Continuous = 6.68 cfs

3.5 Abnormal Releases

None

4.0 Dose Calculation Methodology

4.1 Airborne Effluents

Maximum individual doses and population doses due to the release of noble gases and particulates were calculated using the computer program GASPAR II. GASPAR II is used by the staff of the NRC to perform environmental dose analyses for releases of radioactive effluents from nuclear power plants into the atmosphere. The program estimates radiation dose to individuals and population groups from inhalation, ingestion (terrestrial foods), and external-exposure (ground and plume) pathways. Additional information related to the GASPAR II program is in NUREG/CR-4653, "GASPAR II -Technical Reference and User Guide".

The values of average relative effluent concentration (χ/Q) and average relative deposition (D/Q) used in GASPAR II to determine population doses were generated using a meteorological computer code which implements the assumptions cited in Section C, NRC Regulatory Guide 1.111. These values were generated in 1999, the last year that real time data was collected. The χ/Q and D/Q values used in the GASPAR II program to determine maximum individual doses were obtained from Appendix F of the REMODCM. Separate values were used for the growing season (defined as April-December) and non-growing season (defined as January-March).

Continuous mixed mode releases from the Main Stack (175 ft) include the Reactor Containment and Primary Auxiliary Building Ventilation. The Spent Fuel Pool Spray Cooling, Spent Fuel Building Exhaust, Alternate Containment Access, and the Cable Vault Lower Level Exhaust are considered continuous ground level releases.

GASPAR II calculates the maximum individual and population doses to the whole body, GI-tract, bone, liver, kidney, thyroid, lung, and skin from each of the following pathways: direct exposure from the plume and ground deposition, inhalation, and ingestion of vegetation, cow's milk, and meat. The doses are calculated for adults, teenagers, children, and infants separately.

To determine compliance with 10CFR50, Appendix I, the maximum whole body dose to an individual only includes the external pathways (i.e. plume and ground exposure) while the maximum organ dose to an individual only includes the internal pathways (inhalation and ingestion). All applicable pathways were included for the population doses.

The off-site dose commitments from airborne effluents are presented in Table 1.

4.2 Liquid Effluents

Maximum individual and population doses from the release of radioactive liquid effluents were calculated using the computer program LADTAP II. LADTAP II is a NRC computer program, which performs environmental dose analyses for releases of radioactive effluents from nuclear power plants into surface waters. The program estimates radiation dose to individuals, population groups, and biota from ingestion (aquatic foods, water, and terrestrial irrigated foods) and external exposure (shoreline, swimming, and boating) pathways. Additional information relating to the LADTAP II program is in NUREG/CR-4013, "LADTAP II – Technical Reference and User Guide".

At Haddam Neck, the algae, drinking water, and irrigated food pathways do not exist; and therefore were not included in the totals. Doses are calculated for the whole body, skin, thyroid, GI-LLI, bone, liver, kidney, and lung. Calculations are performed separately for adults, teenagers, and children.

The off-site dose commitments from liquid effluents are presented in Table 2.

5.0 Evaluation of Results

5.1 Total Offsite Dose

The dose commitments calculated using the release data for this report period are compared to 10 CFR Part 50, Appendix I, in Table 3, and compared to 40 CFR Part 190 limits in Table 4.

The whole body and maximum organ total doses for each month in this report period are presented in Figure 9. The contributions shown were calculated using Method 1 in the REMODCM. As expected, the total dose increased in the months corresponding to larger volumes of liquid being released.

The effluent dose contributions for this report period are significantly less than regulatory limits and natural backgrounds dose contribution.

5.2 Gaseous Effluents

The total activity released from all gaseous effluent pathways is summarized in Table 5. Each pathway's contribution to the total activity released is shown in Tables 6-10. The figures described below were used to identify trends for this report period:

- The monthly maximum organ dose compared to the total year to date dose is presented in Figure 4. The calculations were performed using Method 1 in the REMODCM. The contribution for each month remained consistent throughout this report period.

- The tritium released for each month from the Main Stack pathway is presented in Figure 5. Periods of increased tritium releases correspond with variations in containment ventilation, and environmental conditions (changes in outside weather, temperature inversions, conditions in the Containment).
- The tritium released for each month from the Spent Fuel Building pathway is presented in Figure 6. The gaseous tritium released was within approximately 5% of the decrease in tritium concentration of the Spent Fuel Pool for this report period, showing that the analysis method for this pathway is adequate.
- Specific contributions, from individual nuclides released from the Alternate Containment Access, are presented in Figure 7. The Alternate Containment Access sample point is located in an enclosed structure that could discharge to the environment only when the door is opened. The current methodology used in release calculations, assumes the door is left open 24 hours a day with a conservative release rate. Since the door is opened only for personnel entry or exit, the reported quantity of radioactivity released is very conservative.
- The release rate (uCi/hr) for specific nuclides when the Spray Cooling System is operated is shown in Figure 8. The release rates are consistent for this report period.

The monthly doses calculated using Method 1 in the REMODCM were conservatively higher than the calculations using GASPARI for this report. The REMODCM includes adjustment factors for Method 1 that if used, would have corrected the monthly dose calculations to be within 5% of the doses calculated for this report (GASPARI). This indicates the methodology currently used in the monthly calculations includes the necessary conservatism to ensure limitations are not exceeded.

5.3 Liquid Effluents

The total activity released from all liquid effluent pathways is summarized in Table 11. Each pathway's contribution to the total activity released is presented in Tables 12 and 13. Total volume of batch discharges for this report period are presented in Table 15. The figures described below were used to identify trends for this report period:

- The monthly whole body and maximum organ doses compared against the total year to date is presented in Figure 1. The dose calculations were performed using Method 1 of the REMODCM. As expected, the doses increase for the periods corresponding to large volumes of liquid waste being discharged.
- Specific contributions, from individual nuclides released during batch discharges, are presented in Figure 2. The radionuclide concentrations of the

waste stream were consistent throughout this report period. As expected, increases in radioactivity released corresponded to larger volumes of water being discharged.

- The tritium released for each month from the RCA Yard Drain pathway is presented in Figure 3. The major contributor to this release point is the discharge of the External Containment Sump. A conservative estimate for the effluent volume is used in release calculations for this pathway.

The monthly doses calculated using Method 1 in the REMODCM were within 5% of the doses calculated for this report (LADTAP II). This indicates the methodology currently used in the monthly calculations, compare well with the results in this report.

5.4 Solid Wastes

The quantities of radioactive material shipped offsite for processing or disposal are summarized in Table 14.

6.0 Related Information

6.1 Radiation Monitors Out of Service for Greater than Thirty Days.

None

6.2 Noncompliance with REMODCM Related Requirements

6.2.1 Monitoring equipment for Alternate Containment Access was found de-energized on June 5, 2000. REMODCM Table D-1 requires miscellaneous sampling points to be monitored continuously for particulate activity. The air sample pump lost power on Sunday, June 4, 2000, while electrical re-powering work was being performed. The maximum time that the sample pump was not operating is 24 hours. While the electrical modifications were being performed, radiological work in the Containment was secured. CR-00-389 was generated in response to this finding. Corrective actions incorporated to ensure a repeat of this problem does not occur in the future included the HP shift technician now verifies operation of the miscellaneous air samplers each shift, and the air sample pump for this location is now supplied by a protected power source.

6.2.2 The Spray Cooling System was operated without collecting the weekly sample, as required by the REMODCM, Table D-1. The most recent sample results were used to account for activity released while the system was in operation. The use of historical results is based upon the consistent concentrations for this waste stream, as presented in Figure

8. CR-00-672 was generated on November 8, 2000 to identify the missed sampling requirement. As a corrective action, the Operations Department procedure was revised to provide clear guidance on required sampling frequencies associated with the Spray Cooling System.

7.0 Bechtel Health Physics Technical Support Document

Bechtel Health Physics Technical Support Document, 24265-000-G65-GEHH-0055, "Radioactivity Effluent Analysis for the Year 2000", was generated to document the calculations performed for this report. Site specific, environmental information, and other input data that was necessary to complete this report are listed and discussed in the support document.

Table 1
2000 Off-Site Dose Commitments from Airborne Effluents
Haddam Neck

CY	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Max Air	(mrad)	(mrad)	(mrad)	(mrad)
Beta	0	0	0	0
Gamma	0	0	0	0
Max Individual	(mrem)	(mrem)	(mrem)	(mrem)
Whole Body ⁺	1.55E-02	1.07E-02	1.01E-02	1.53E-02
Skin ⁺	2.76E-02	1.80E-02	2.41E-02	1.93E-02
Thyroid	2.76E-02	1.80E-02	2.41E-02	1.66E-02
Max Organ ⁺⁺	3.97E-02	3.35E-02	3.85E-02	1.90E-02
Population	(person-rem)	(person-rem)	(person-rem)	(person-rem)
Whole Body	6.76E-03	6.84E-03	1.29E-02	6.72E-03
Skin	7.18E-03	7.14E-03	1.32E-02	7.26E-03
Thyroid	6.65E-03	6.70E-03	1.28E-02	6.69E-03
Max Organ ⁺⁺	7.76E-03	7.68E-03	1.40E-02	8.30E-03
Avg Individual	(mrem)	(mrem)	(mrem)	(mrem)
Whole Body	1.76E-06	1.78E-06	3.37E-06	1.75E-06
Skin	1.87E-06	1.86E-06	3.44E-06	1.89E-06
Thyroid	1.73E-06	1.75E-06	3.34E-06	1.75E-06
Max Organ ⁺⁺	2.02E-06	2.00E-06	3.65E-06	2.17E-06

⁺ External doses only

⁺⁺ Maximum of the following organs: Bone, GI-LLI, Kidney, Liver, Lung, Thyroid

Table 2
2000 Off-Site Dose Commitments from Liquid Effluents
Haddam Neck

CY	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Max Individual	(mrem)	(mrem)	(mrem)	(mrem)
Whole Body	7.47E-02	8.59E-02	1.38E-02	1.60E-01
Thyroid	1.11E-02	6.60E-04	4.18E-04	2.06E-02
Max Organ	1.17E-01	1.33E-01	2.12E-02	2.44E-01
Population	(person-rem)	(person-rem)	(person-rem)	(person-rem)
Whole Body	1.09E+00	1.45E+00	2.27E-01	2.38E+00
Thyroid	3.88E-04	1.27E-04	1.69E-04	1.19E-03
Max Organ	2.11E+00	2.62E+00	4.15E-01	4.48E+00
Avg Individual	(mrem)	(mrem)	(mrem)	(mrem)
Whole Body	2.86E-04	3.77E-04	5.91E-05	6.20E-04
Thyroid	1.01E-07	3.31E-08	4.41E-08	3.10E-07
Max Organ	5.51E-04	6.84E-04	1.08E-04	1.17E-03

Table 3

2000 Off-Site Dose Summary

Haddam Neck Plant

Airborne Effluents

Population Dose Commitments
(total person-rem within 50 miles)

Whole Body	Thyroid	Max Organ
3.32E-02	3.28E-02	3.77E-02

**Max Individual Dose/Dose Commitments vs
10CFR50, Appendix I**

	Whole Body (mrem)	Max Organ (mrem)	Skin (mrem)	Gamma Air Dose (mrad)	Beta Air Dose (mrad)
<i>II.B and II.C Limits</i>	5	15	15	10	20
Haddam Neck Total	5.16E-02	1.31E-01	8.90E-02	0	0

Liquid Effluents

Population Dose Commitments
(total person-rem within 50 miles)

Whole Body	Thyroid	Max Organ
5.15	1.87E-03	9.63

**Max Individual Dose/Dose Commitments vs
10CFR50, Appendix I**

	Whole Body (mrem)	Max Organ (mrem)
<i>II.A Limits</i>	3	10
Haddam Neck Total	3.34E-01	5.15E-01

Table 4

2000 Off-Site Dose Comparison Haddam Neck Plant

Max Individual Annual Dose vs 40CFR190 Limits

	Whole Body (mrem)	Any Organ (mrem)	Thyroid (mrem)
<i>40CFR190 Limit</i>	25	25	75
Airborne Effluents	5.16E-02	1.31E-01	8.63E-02
Liquid Effluents	3.34E-01	5.15E-01	3.28E-02
Haddam Neck Total	3.86E-01	6.46E-01	1.19E-01

Whole Body Dose from Haddam Neck Plant vs. Background Radiation

Sources of Background Radiation:

Cosmic	27
Cosmogenic	1
Terrestrial (Atlantic and Gulf Coastal Plain)	16
Inhaled	200
In the Body	40

Resident Whole Body Dose from Background	284 mrem
Resident (within 50 miles) Whole Body Dose from Haddam Neck Plant Airborne and Liquid Effluents	1.35E-03 mrem
Maximum Individual (within 50 miles) Whole Body Dose from Haddam Neck Plant Airborne and Liquid Effluents	3.86E-01 mrem

Table 5
Haddam Neck
Airborne Effluents - Total Release Summary

Units	2000				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission & Activation Gases

1. Total Activity Released	Ci	-	-	-	-	-
2. Average Release Rate	uCi/sec	-	-	-	-	-

B. Iodine-131

1. Total Activity Released	Ci	-	-	-	-	-
2. Average Release Rate	uCi/sec	-	-	-	-	-

C. Particulates

1. Total Activity Released	Ci	1.05E-04	7.24E-05	6.91E-05	9.62E-05	3.43E-04
2. Average Release Rate	uCi/sec	1.34E-05	9.21E-06	8.69E-06	1.21E-05	1.08E-05

D. Gross Alpha

1. Total Activity Released	Ci	-	-	-	-	-
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E. Tritium

1. Total Activity Released	Ci	1.44E+00	1.68E+00	3.27E+00	1.08E+00	7.46E+00
2. Average Release Rate	uCi/sec	1.83E-01	2.13E-01	4.12E-01	1.35E-01	2.36E-01

- (For Fission & Act Gas) = < Lower Limit of Detection as specified in the REMODCM
- (For Iodine's) = Not Required to be analyzed.
- (For Gross Alpha) = < Lower Limit of Detection as specified in the REMODCM

Table 6
Haddam Neck
Airborne Effluents - Mixed Continuous
Main Stack

Nuclides Released	Units	2000				
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission & Activation Gases

	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

B. Iodines

I-131	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

C. Particulates

Cs-137	Ci	-	-	4.85E-07	9.60E-07	1.44E-06
Total Activity	Ci	-	-	4.85E-07	9.60E-07	1.44E-06

D. Gross Alpha

Gross Alpha	Ci	-	-	-	-	-
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E. Tritium

H-3	Ci	4.60E-01	1.12E+00	2.64E+00	5.23E-01	4.74E+00
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- (For Fission & Act Gas) = Not Required to be analyzed.
- (For Iodine's) = Not Required to be analyzed.
- (For Particulates) = < Lower Limit of Detection as specified in the REMODCM
- (For Gross Alpha) = < Lower Limit of Detection as specified in the REMODCM

Table 7
Haddam Neck
Airborne Effluents - Ground Continuous
Spent Fuel Building Exhaust

Nuclides Released	Units	2000				
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission & Activation Gases

	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

B. Iodines

I-131	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

C. Particulates

Cs-137	Ci	-	4.18E-07	-	-	4.18E-07
Total Activity	Ci	-	4.18E-07	-	-	4.18E-07

D. Gross Alpha

Gross Alpha	Ci	-	-	-	-	-
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E. Tritium

H-3	Ci	9.75E-01	5.55E-01	5.18E-01	4.62E-01	2.51E+00
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- (For Fission & Act Gas) = < Lower Limit of Detection as specified in the REMODCM
- (For Iodine's) = Not Required to be analyzed
- (For Particulates) = < Lower Limit of Detection as specified in the REMODCM
- (For Gross Alpha) = < Lower Limit of Detection as specified in the REMODCM

Table 8
Haddam Neck
Airborne Effluents - Ground Continuous
Spent Fuel Spray Cooling

Nuclides Released	Units	2000				
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission & Activation Gases

	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

B. Iodines

I-131	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

C. Particulates

Co-60	Ci	2.32E-07	3.84E-06	4.51E-06	1.97E-06	1.05E-05
Cs-134	Ci	4.07E-08	1.37E-06	1.30E-06	2.12E-07	2.92E-06
Cs-137	Ci	5.19E-07	8.66E-06	1.00E-05	2.01E-06	2.12E-05
Total Activity	Ci	7.92E-07	1.39E-05	1.58E-05	4.19E-06	3.47E-05

D. Gross Alpha

Gross Alpha	Ci	-	-	-	-	-
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E. Tritium

H-3	Ci	7.97E-05	1.52E-04	2.43E-04	1.63E-04	6.38E-04
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- (For Fission & Act Gas) = Not Required to be analyzed.
- (For Iodine's) = Not Required to be analyzed.
- (For Particulates) = < Lower Limit of Detection as specified in the REMODCM
- (For Gross Alpha) = < Lower Limit of Detection as specified in the REMODCM

Table 9
Haddam Neck
Airborne Effluents - Ground Continuous
Alternate Containment Access

Nuclides Released	Units	2000				
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission & Activation Gases

	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

B. Iodines

I-131	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

C. Particulates

Co-60	Ci	5.59E-05	5.22E-05	5.03E-05	9.04E-05	2.49E-04
Cs-137	Ci	1.10E-05	8.89E-07	-	1.60E-07	1.20E-05
Mn-54	Ci	6.82E-07	-	-	-	6.82E-07
Total Activity	Ci	6.76E-05	5.31E-05	5.03E-05	9.06E-05	2.62E-04

D. Gross Alpha

Gross Alpha	Ci	-	-	-	-	-
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E. Tritium

H-3	Ci	-	-	1.15E-01	9.13E-02	2.06E-01
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- (For Fission & Act Gas) = Not Required to be analyzed.
- (For Iodine's) = Not Required to be analyzed.
- (For Particulates) = < Lower Limit of Detection as specified in the REMODCM
- (For tritium) = < Lower Limit of Detection as specified in the REMODCM
- (For Gross Alpha) = < Lower Limit of Detection as specified in the REMODCM

Table 10
Haddam Neck
Airborne Effluents - Ground Continuous
Cable Vault

Nuclides Released	Units	2000				
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission & Activation Gases

	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

B. Iodines

I-131	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

C. Particulates

Co-60	Ci	3.18E-05	1.64E-06	-	4.67E-07	3.39E-05
Cs-137	Ci	1.55E-07	3.39E-06	2.51E-06	-	6.06E-06
Mn-54	Ci	4.73E-06	-	-	-	4.73E-06
Total Activity	Ci	3.67E-05	5.03E-06	2.51E-06	4.67E-07	4.47E-05

D. Gross Alpha

Gross Alpha	Ci	-	-	-	-	-
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E. Tritium

H-3	Ci	-	-	-	-	-
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- (For Fission & Act Gas) = Not Required to be analyzed
- (For Iodine's) = Not Required to be analyzed
- (For Particulates) = < Lower Limit of Detection as specified in the REMODCM
- (For tritium) = Not Required to be analyzed.
- (For Gross Alpha) = < Lower Limit of Detection as specified in the REMODCM

Table 11
Haddam Neck
Liquid Effluents - Total Release Summary

Units	2000				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission and Activation Products

1. Total Activity Released	Ci	6.98E-01	1.45E-02	8.73E-03	2.33E-01	9.55E-01
2. Average Period Diluted Activity	uCi/ml	1.02E-07	5.19E-09	1.80E-09	5.89E-08	5.17E-08

B. Tritium

1. Total Activity Released	Ci	3.15E+00	1.13E-01	4.98E-01	9.56E+00	1.33E+01
2. Average Period Diluted Activity	uCi/ml	4.60E-07	4.03E-08	1.02E-07	2.41E-06	7.21E-07

C. Dissolved and Entrained Gases

1. Total Activity Released	Ci	-	-	-	-	-
2. Average Diluted Activity	uCi/ml	-	-	-	-	-

D. Gross Alpha

1. Total Activity Released	Ci	4.30E-03	2.38E-05	9.31E-05	3.14E-03	7.56E-03
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E. Volume

1. Released Waste Volume	Liters	6.39E+05	2.38E+05	4.59E+05	5.78E+05	1.91E+06
2. Dilution Volume During Releases	Liters	5.45E+09	1.34E+09	3.41E+09	2.72E+09	1.29E+10
3. Dilution Volume During Period	Liters	6.85E+09	2.80E+09	4.86E+09	3.96E+09	1.85E+10

Table 12
Haddam Neck
Liquid Effluents - Batch
 (Test Tanks and Waste Neutralization Tank)

Nuclides Released	Units	2 0 0 0				
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission & Activation Products

Ag-110m	Ci	1.26E-03	-	4.03E-06	5.10E-04	1.77E-03
Am-241	Ci	2.46E-03	1.39E-05	2.24E-05	3.36E-03	5.86E-03
Co-60	Ci	1.29E-01	2.51E-03	4.07E-03	1.27E-01	2.63E-01
Cs-134	Ci	5.47E-04	8.01E-04	1.04E-04	4.49E-04	1.90E-03
Cs-137	Ci	6.63E-03	9.30E-03	1.47E-03	7.90E-03	2.53E-02
Eu-154	Ci	9.69E-04	-	2.88E-05	1.34E-03	2.34E-03
Eu-155	Ci	1.11E-04	-	-	2.11E-04	3.22E-04
Fe-55	Ci	5.56E-01	1.65E-03	3.03E-03	9.19E-02	6.53E-01
Mn-54	Ci	1.93E-04	-	-	7.92E-05	2.72E-04
Ru-106	Ci	7.50E-04	-	-	2.65E-04	1.02E-03
Sb-125	Ci	4.17E-04	2.65E-04	-	1.87E-04	8.69E-04
Sr-90	Ci	-	-	-	5.03E-05	5.03E-05
Total Activity	Ci	6.98E-01	1.45E-02	8.73E-03	2.33E-01	9.55E-01

B. Tritium

H-3	Ci	3.09E+00	7.88E-02	4.58E-01	9.52E+00	1.31E+01
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C. Dissolved & Entrained Gases

	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

D. Gross Alpha

Gross Alpha	Ci	4.30E-03	2.38E-05	9.31E-05	3.14E-03	7.56E-03
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- < Lower Limit of Detection as specified in the REMODCM

Table 13
Haddam Neck
Liquid Effluents - Continuous
(Yard Drain 6)

Nuclides Released	Units	2 0 0 0				
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total

A. Fission & Activation Products

	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

B. Tritium

H-3	Ci	5.89E-02	3.40E-02	3.96E-02	3.69E-02	1.69E-01
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C. Dissolved & Entrained Gases

	Ci	-	-	-	-	-
Total Activity	Ci	-	-	-	-	-

D. Gross Alpha

Gross Alpha	Ci	-	-	-	-	-
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- < Lower Limit of Detection as specified in the REMODCM

Table 14
Haddam Neck Plant
2000 Solid Waste and Irradiated Fuel Shipments

A. Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream

1. Type of Waste

a. Waste Stream : Resins, Filters, and Evap Bottoms

NONE

b. Waste Stream : Dry Active Waste

Dry Active Waste 20'	Dry Active Waste 40'	Concrete in B-25	SFB Soil B-25
DAW in Intermodal	DAW in B-25	Primary piping Intermodal	Primary piping Sea/Land
Bus 10 Soil in B-25 Boxes	DAW in 20' High Top	DAW in Cardboard box	Bus 10 Soil in B44-HD

Waste Class	Volume M ³	Curies Shipped	%Error (Ci)
A	4.68E+03	7.74E+00	+/-25%
B	0	0	-
C	0	0	-
All	4.68E+03	7.74E+00	+/-25%

c. Waste Stream : Irradiated Components

NONE

d. Waste Stream : Other Waste

Combined Packages	CCW in Tanker	90-01 mixed waste	92-12 mixed waste
CCW in Express Pack	RV Garnet 1	Garnet HIC #3	Garnet HIC #4
Oil Bin/Six Pack			

Waste Class	Volume M ³	Curies Shipped	% Error (Ci)
A	1.96E+02	1.52E+01	+/-25%
B	6.81E+00	3.43E+02	+/-25%
C	6.81E+00	2.34E+03	+/-25%
All	2.10E+03	2.70E+03	+/-25%

e. Waste Stream : Sum of all 4 Waste Streams

Waste Class	Volume M ³	Curies Shipped	% Error (Ci)
A	4.88E+03	2.30E+01	+/-25%
B	6.81E+00	3.43E+02	+/-25%
C	6.81E+00	2.34E+03	+/-25%
All	4.89E+03	2.71E+03	+/-25%

Table 14*(continued)***2. Estimate of Major Nuclide Composition (by waste stream)**

Nuclide	Composition in % for each waste stream					Total Curies
	a.	b.	c.	d.	e.	
H-3	-	0.064%	-	0.532%	0.530%	1.43E+01
C-14	-	0.000%	-	0.013%	0.013%	3.59E-01
K-40	-	0.291%	-	0.000%	0.001%	2.38E-02
Mn-54	-	0.239%	-	0.471%	0.470%	1.27E+01
Fe-55	-	21.486%	-	46.833%	46.760%	1.27E+03
Co-57	-	0.024%	-	0.000%	0.000%	2.06E-03
Co-60	-	56.154%	-	45.329%	45.360%	1.23E+03
Ni-59	-	2.498%	-	0.091%	0.098%	2.65E+00
Ni-63	-	6.026%	-	6.595%	6.594%	1.78E+02
Sr-89	-	0.001%	-	0.000%	0.000%	3.04E-04
Sr-90	-	0.053%	-	0.012%	0.012%	3.34E-01
Nb-94	-	0.055%	-	0.000%	0.000%	6.77E-03
Tc-99	-	0.302%	-	0.000%	0.001%	2.38E-02
Sn-126	-	0.000%	-	0.000%	0.000%	5.30E-04
Sb-124	-	0.000%	-	0.000%	0.000%	1.47E-03
Sb-125	-	0.000%	-	0.000%	0.000%	2.85E-06
I-129	-	0.000%	-	0.000%	0.000%	3.63E-03
Cs-134	-	0.807%	-	0.000%	0.000%	2.13E-01
Cs-137	-	7.189%	-	0.000%	0.000%	9.73E-01
Ce-144	-	1.714%	-	0.000%	0.008%	2.61E+00
Eu-152	-	0.001%	-	0.006%	0.036%	2.12E-04
Eu-154	-	0.000%	-	0.015%	0.097%	4.56E-04
Pb-212	-	0.000%	-	0.092%	0.000%	3.30E-05
Ac-228	-	0.000%	-	0.000%	0.000%	2.59E-05
Th-228	-	0.023%	-	0.000%	0.000%	1.74E-03
Th-230	-	0.063%	-	0.000%	0.000%	4.90E-03
U-233	-	0.000%	-	0.000%	0.000%	1.01E-04
U-234	-	0.000%	-	0.000%	0.000%	1.01E-04
U-238	-	0.001%	-	0.000%	0.000%	1.92E-04
Np-237	-	0.010%	-	0.001%	0.000%	7.70E-04
Pu-238	-	0.142%	-	0.000%	0.000%	4.91E-02
Pu-239	-	0.032%	-	0.000%	0.000%	4.72E-03
Pu-240	-	0.014%	-	0.002%	0.002%	3.26E-03
Pu-241	-	2.585%	-	0.000%	0.000%	2.66E-01
Pu-242	-	0.000%	-	0.000%	0.000%	1.57E-07
Am-241	-	0.165%	-	0.000%	0.000%	2.14E-02
Cm-242	-	0.001%	-	0.000%	0.010%	1.57E-03
Cm-243	-	0.044%	-	0.003%	0.000%	9.42E-02
Cm-244	-	0.015%	-	0.003%	0.001%	9.18E-02

Table 14

(continued)

3. Solid Waste Disposition

Mode of Transportation	No. Shipments	Destination
Hittman Transport	4	Barnwell Waste Management Facility
Hittman Transport	1	Diversified Scientific Service, Inc.
Lomma	2	Envirocare of Utah, Inc.
FedEx	1	GTS Duratek, Inc. (BCO)
Hittman Transport	56	GTS Duratek, Inc. (BCO)
Hittman Transport	51	GTS Duratek, Inc. (GR)

B. Irradiated Fuel Shipments (disposition)

NONE

Table 15
Monthly Liquid Release
Volumes for the
Waste or Recycle Test Tanks
for 2000

<i><u>Month</u></i>	<i><u>Volume Released</u></i> <i><u>(gallons)</u></i>
January	93,925
February	26,100
March	48,850
April	39,325
May	0
June	10,100
July	64,400
August	44,580
September	12,400
October	119,650
November	33,000
December	0
YTD	<u>492,330</u>

Figure 1
Liquid Dose 2000

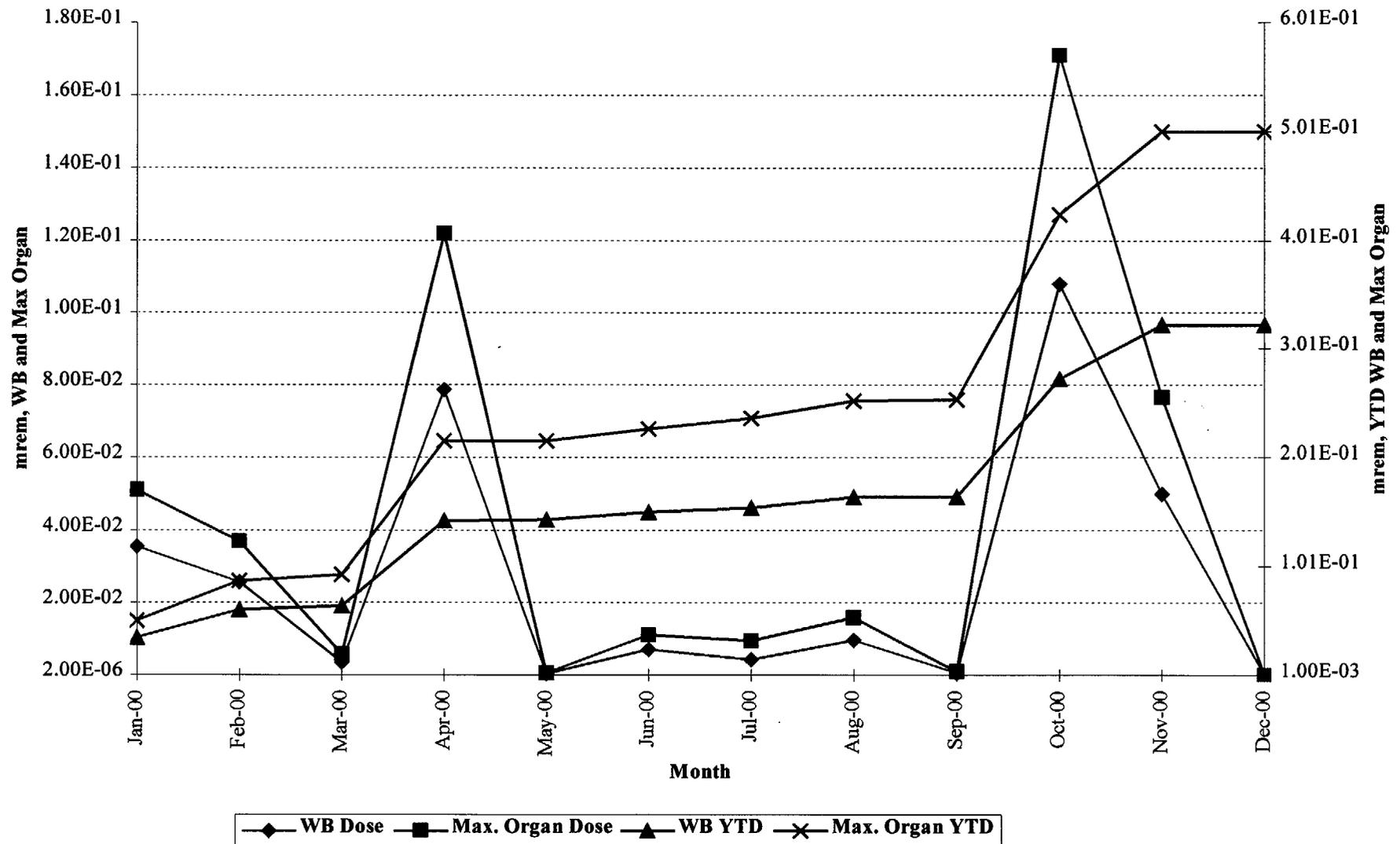


Figure 2

Test Tank Gamma Activity Released 2000

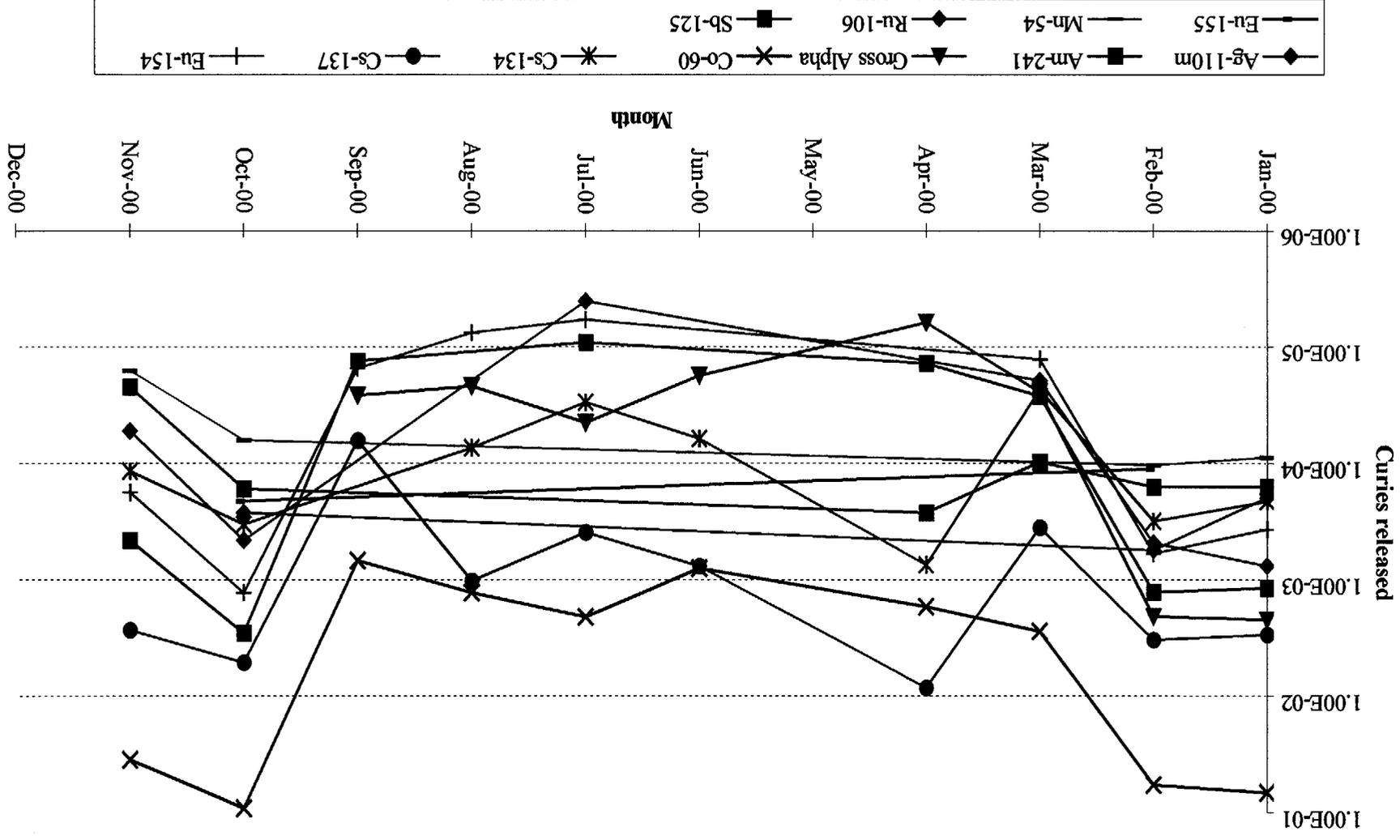


Figure 3
ECS Tritium Released 2000

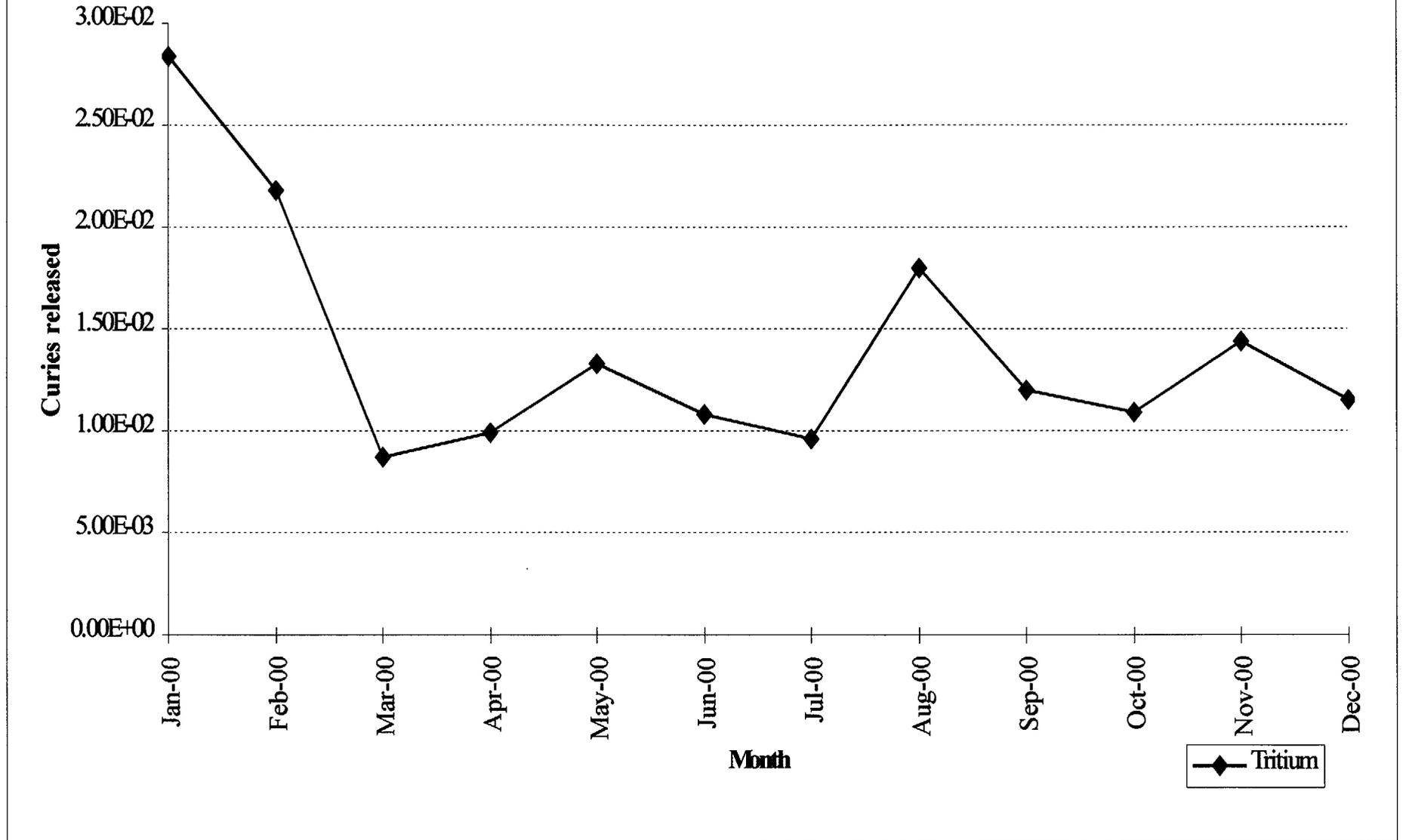


Figure 4
Gaseous Effluent Dose 2000

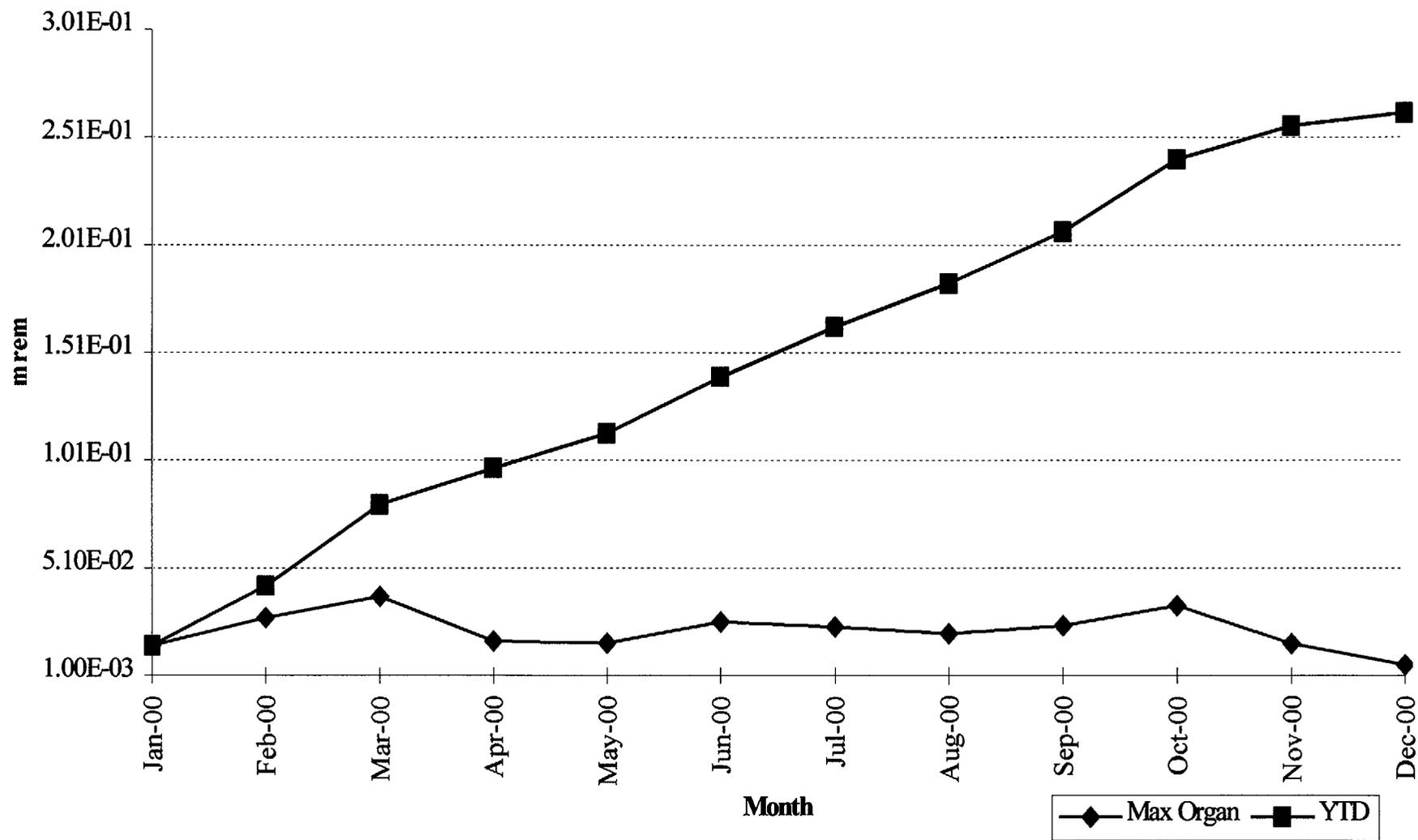


Figure 5
Main Stack Gaseous Tritium Actvitiy Released 2000

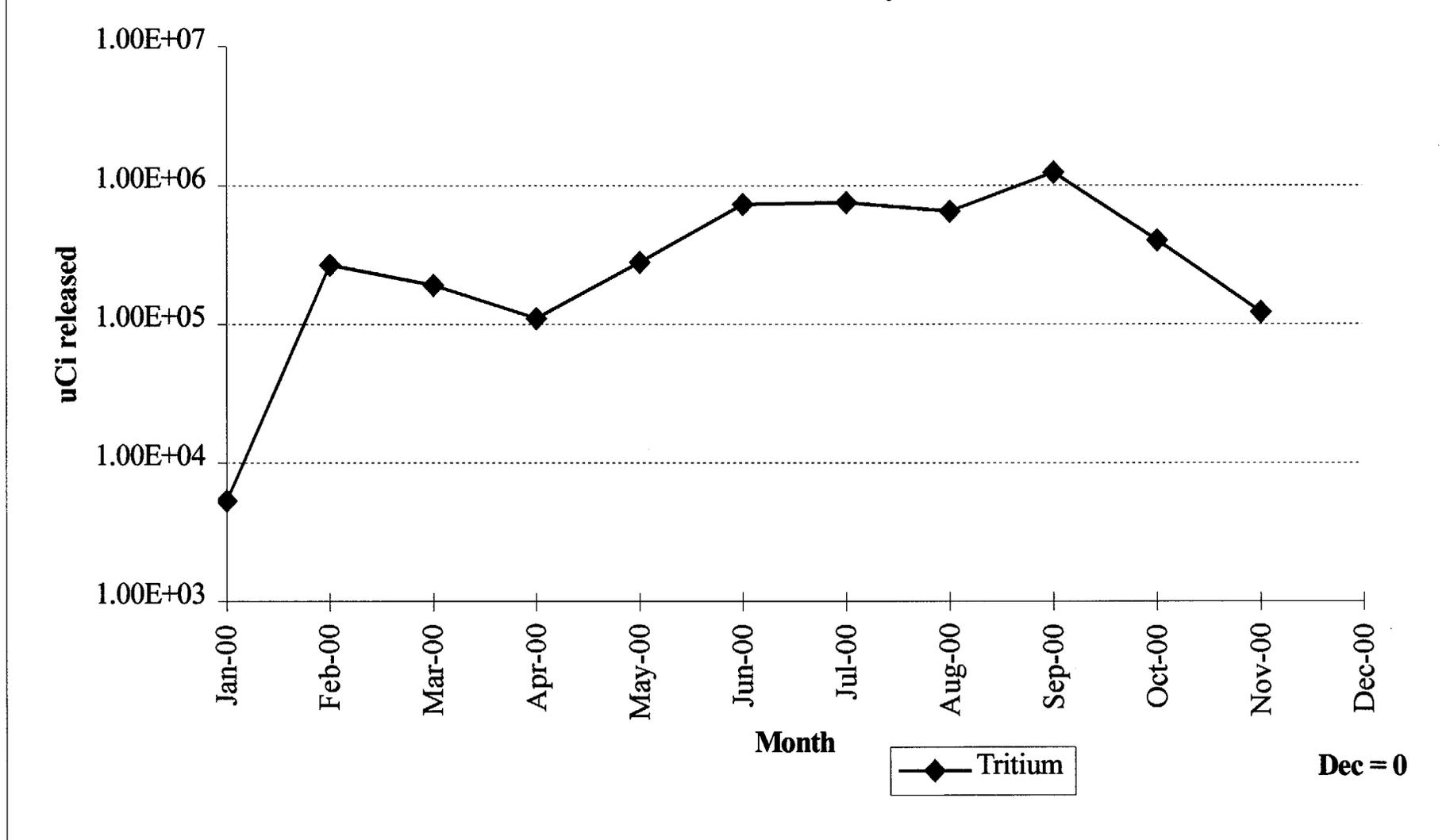


Figure 6
Spent Fuel Building Gaseous Tritium Released 2000

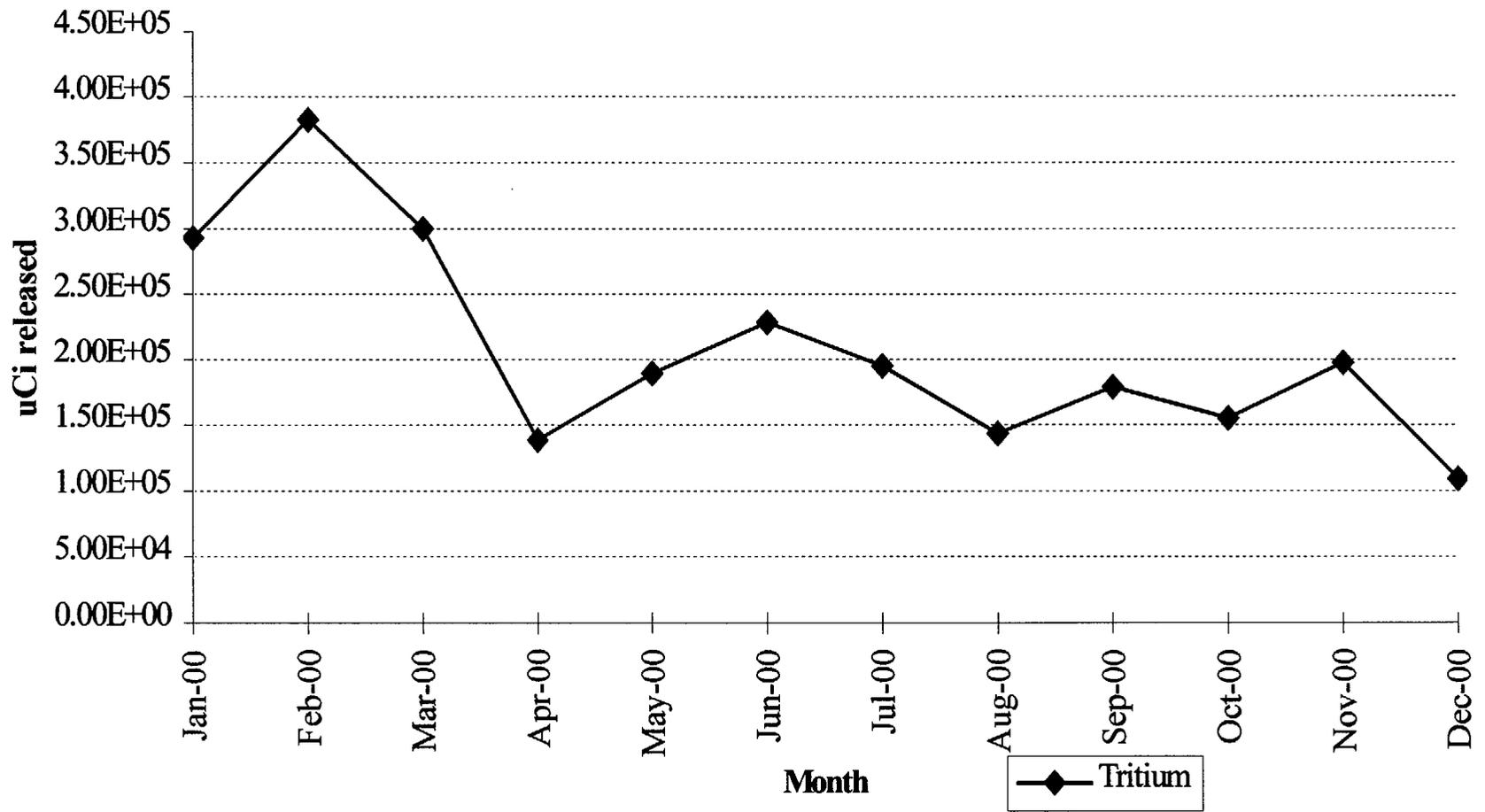


Figure 7

Alt. Containment Access Gamma Activity Trend 2000

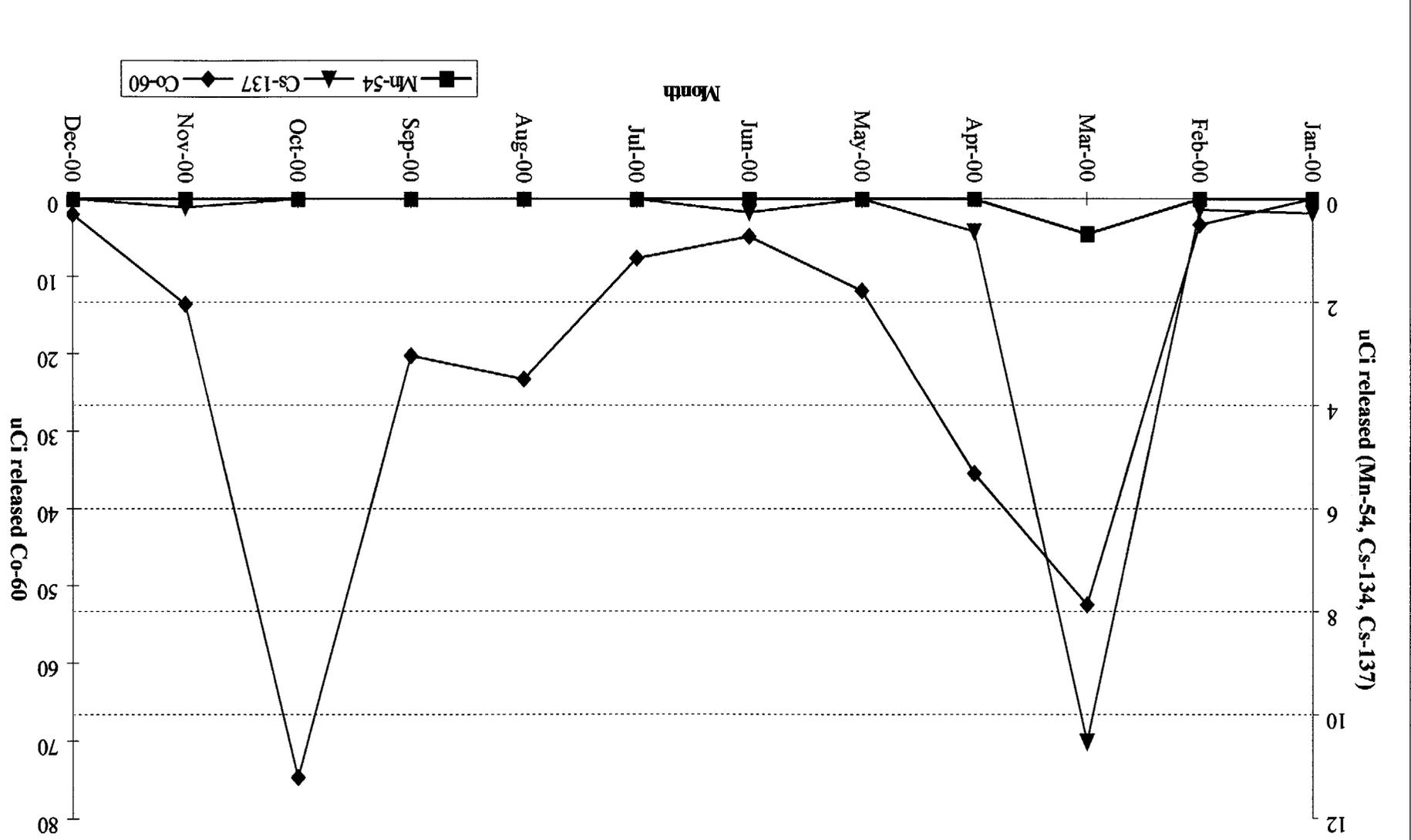


Figure 8
Spray Cooling Release Rates During System Operation (uCi/hr.)

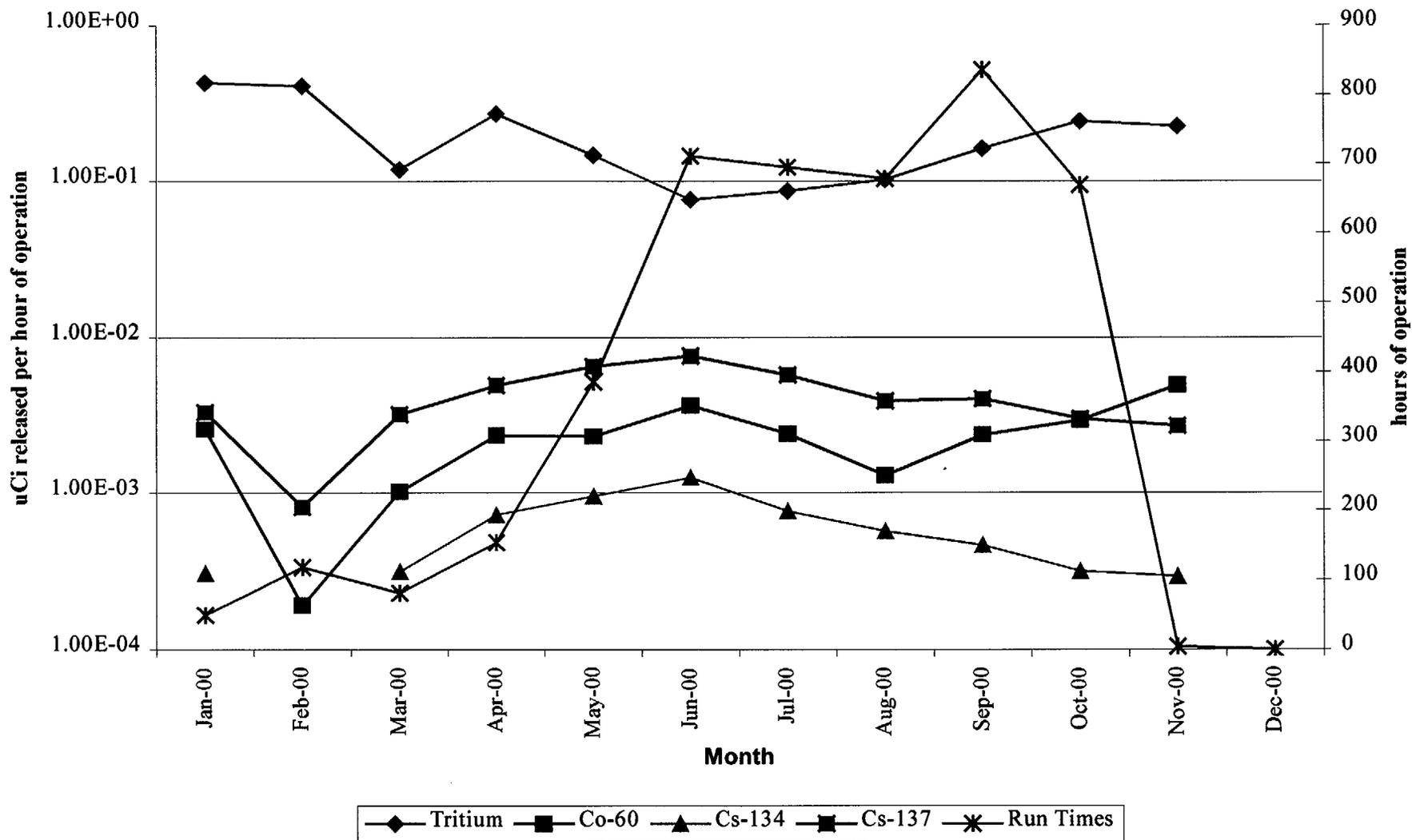
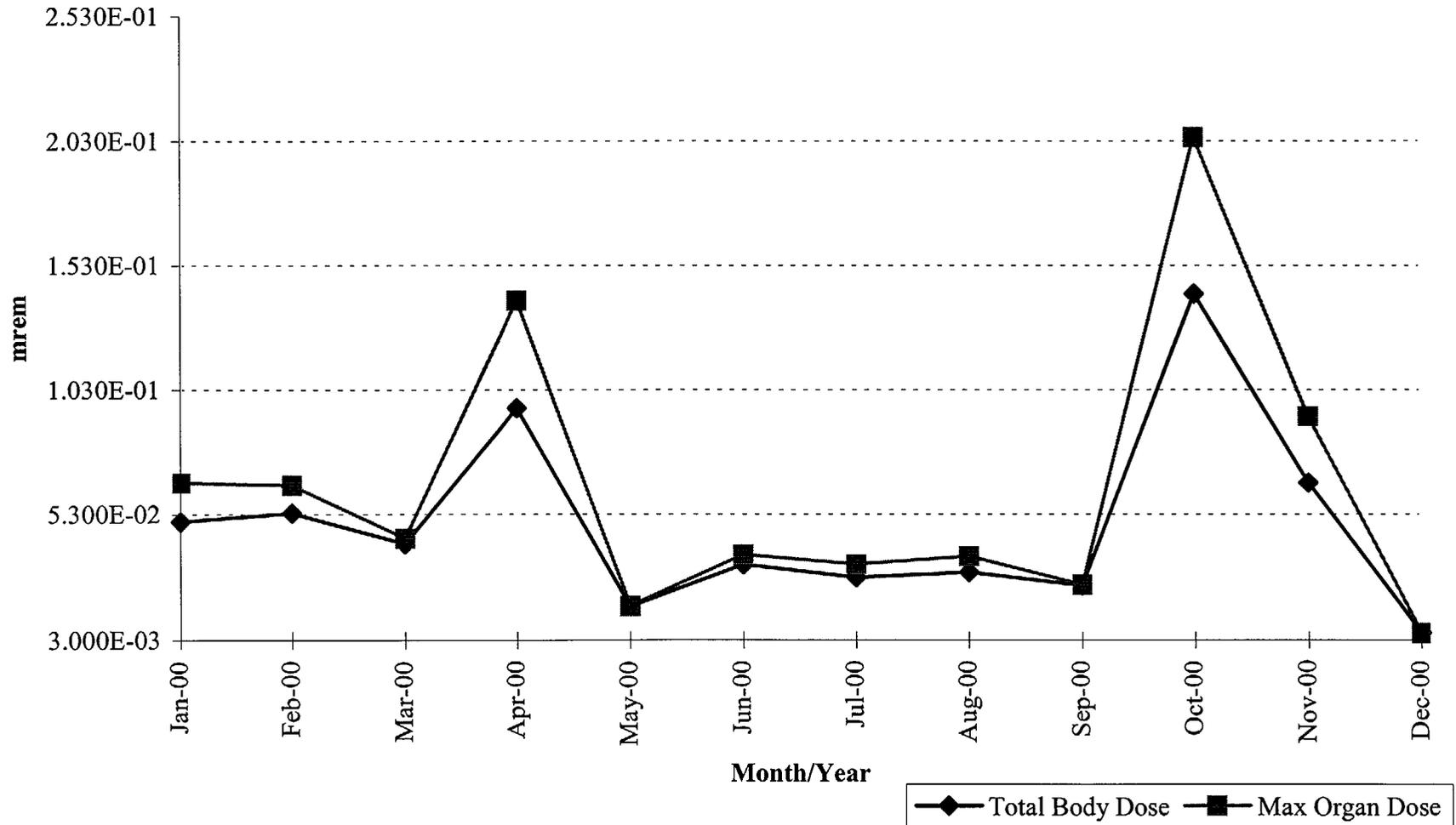


Figure 9
Total Dose 2000 for 40 CFR Part 190



Attachment 2

Errata to Previously Issued Reports

Connecticut Yankee Atomic Power Company
Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424

Errata Pages

Attachment 2 contains errata pages for Semi-Annual and Annual Radioactive Effluent Reports for 1984, 1987, 1989, 1994 and 1999.

Third Quarter 1984, 1987, 1989, 1994

In the first section of this attachment are corrected pages for the 1984, 1987, 1989 and 1994 Semi-Annual and Annual Radioactive Effluent Reports (these are semi-annual for 1984, 1987 and 1989; and annual for 1994). These corrections are the final step in a process that involved quantifying the impact of a faulty stack flow monitor and anisokinetic sampling and plate out conditions in the sampling system. A detailed description and history of the substandard performance of this equipment and its impact are included in Licensee Event Report LER 50-213/1998-005-00, dated June 8, 1998, and the addendum to this report dated July 7, 2000. The process used to review and correct the effluent data, dose estimates, and identify potential technical specification violations is documented in the following:

1. Memo CH-99-213 from C. Shelton to D. Montt, dated 2/3/2000, "Correction of CY Effluent Doses due to Stack Flow, Containment Purge Flow, and Deposition Factor Errors"
2. Engineering Record of Correspondence 16103-ER-00-0001 from D. Montt to W. Eakin, dated May 4, 2000, "CY Historical Gaseous Radioactive Release Assessment"
3. Calculation REM-00-01691-RY, Revision 0, "CY Historical Gaseous Radioactive Release Assessment (3rd Quarters 1987, 1989, and 1994)"

Review of this data identified one Radioactive Effluent Technical Specification (T.S.) violation in the third quarter of 1984. The magnitude of the exceedence also resulted in the 12-month consecutive T.S. limit to be exceeded for the next three quarters, as it was tracked as a running total. Comparison to the most restrictive dose guidelines in effect at this time, revealed that none of these had been exceeded. This was a result of the conservatism used to develop the T.S. release rate limits. The 1984 Technical Specifications were based on release rates. 1987, 1989 and 1994 Radioactive Effluent Technical Specification were based on dose. Effluent corrections are presented first. Dose corrections, tabulated on the reference 3. summary page, are presented next. This summary page also identifies whether doses increased or decreased. In all cases for the quarters in question, no dose limits were exceeded. To conservatively ascertain whether annual doses were exceeded, the initial screening, which used the most conservative correction factor, was applied to all releases and calculated doses. Only the four quarters identified here approached, or exceeded, the regulatory limits. This approach determined no annual doses were exceeded.

Table 2-1
Haddam Neck
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1984
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	3rd Qtr	4th Qtr	Est. Total Error %
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A. Fission & Activation Gases

1. Total Activity Released	Ci	2.98E+03	-	1.40E+01
2. Average Period Released	uCi/sec	3.74E+02	-	
3. Percent of T. S. Limit	%	1.14E+01 (Note 1.)	-	

B. Total/Iodine-131

1. Total Activity Released	Ci	1.36E-01	-	1.30E+01
2. Average Period Release Rate	uCi/sec	1.71E-02	-	
3. Percent of T. S. Limit	%	(Note 2.)	-	

C. Particulates w/T1/2 > 8 days

1. Total Activity Released	Ci	2.95E-03	-	1.40E+01
2. Average Period Release Rate	uCi/sec	3.71E-04	-	
3. Percent of T. S. Limit	%	2.62E+02 (Note 3.)	-	

D. Gross Alpha

1. Total Activity Released	Ci	6.37E-06	-	1.40E+01
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E. Tritium

1. Total Activity Released	Ci	5.64E+01	-	8.00E+00
2. Average Period Release Rate	uCi/sec	7.10E+00	-	
3. Percent of T. S. Limit	%	1.45E-01 (Note 4.)	-	

- Notes: 1. The percent T.S. (Technical Specification) for Fission and Activation Gases was scaled up in proportion to the increase in the curies released following the data correction.
2. The percent of Technical Specification for Iodines is reported with particulates.
3. There was no T.S. Limit for just I-131, or Total Iodines, or just Particulates. The CY Technical Specification Release Rate Limit was for all Iodines and Particulates with half lives greater than 8 days. The percent of T.S. value reported here reflects this. The quarterly and 12 month limits were exceeded.
4. There was no T.S. Limit for Tritium in 1984 - the corrected value was scaled up in proportion to the corrected curies released value for consistency.

Table 2-2
Haddam Neck
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1984

GASEOUS EFFLUENTS - ELEVATED RELEASE

Nuclides Released	Units	Mixed Continuous		Mixed Batch		1984
		3rd Qtr	4th Qtr	3rd Qtr	4th Qtr	Total
A. Fission & Activation Gases						
Ar-41	Ci	1.54E-03	-	1.22E-02	-	1.37E-02
Kr-85	Ci	1.39E+01	-	9.12E+02	-	9.26E+02
Kr-85m	Ci	7.88E-02	-	1.06E+01	-	1.07E+01
Kr-87	Ci	3.24E-02	-	6.77E-01	-	7.09E-01
Kr-88	Ci	5.58E-02	-	7.76E+00	-	7.82E+00
Xe-131m	Ci	6.90E-02	-	8.02E+00	-	8.09E+00
Xe-133	Ci	2.04E+01	-	1.76E+03	-	1.78E+03
Xe-133m	Ci	3.55E-01	-	3.36E+01	-	3.40E+01
Xe-135	Ci	1.92E+00	-	2.06E+02	-	2.08E+02
Xe-135m	Ci	4.69E-02	-	6.21E-02	-	1.09E-01
Xe-137	Ci	1.12E-01	-	<MDL	-	1.12E-01
Xe-138	Ci	8.79E-02	-	<MDL	-	8.79E-02
Total Activity	Ci	3.71E+01	-	2.94E+03	-	2.98E+03
B. Iodines						
I-131	Ci	9.50E-02	-	*	-	9.50E-02
I-132	Ci	3.70E-02	-	*	-	3.70E-02
I-133	Ci	3.67E-03	-	*	-	3.67E-03
Total Activity	Ci	1.36E-01	-	*	-	1.36E-01
C. Particulates						
Co-58	Ci	3.70E-04	-	*	-	3.70E-04
Co-60	Ci	2.24E-03	-	*	-	2.24E-03
Sr-90	Ci	5.91E-06	-	*	-	5.91E-06
Cs-137	Ci	3.32E-04	-	*	-	3.32E-04
Total Activity	Ci	2.95E-03	-	*	-	2.95E-03
D. Gross Alpha						
Gross Alpha	Ci	6.37E-06	-	*	-	6.37E-06
E. Tritium						
H-3	Ci	1.31E-02	-	5.64E+01	-	5.64E+01

* Reported with Mixed Continuous

- Corrected Third Quarter Data was reported here only as it was the only Quarter that approached T.S. limits using the gross correction factors.

Table 2-1
 Haddam Neck
 EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1987
 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	3rd Qtr	4th Qtr	Est. Total Error %
--	-------	---------	---------	--------------------

A. Fission & Activation Gases

1. Total Activity Released	Ci	2.95E+03	-	1.40E+01
2. Average Period Released	uCi/sec	3.70E+02	-	

B. Total/Iodine-131

1. Total Activity Released	Ci	2.37E-03	-	1.30E+01
2. Average Period Release Rate	uCi/sec	2.98E-04	-	

C. Particulates w/T1/2 > 8 days

1. Total Activity Released	Ci	2.03E-03	-	1.40E+01
2. Average Period Release Rate	uCi/sec	2.56E-04	-	

D. Gross Alpha

1. Total Activity Released	Ci	3.15E-05	-	1.40E+01
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E. Tritium

1. Total Activity Released	Ci	4.85E+01	-	8.00E+00
2. Average Period Release Rate	uCi/sec	6.10E+00	-	

- Corrected Third Quarter Data was reported here only as it was the only Quarter that approached T.S. limits using the gross correction factors.

Table 2-2
 Haddam Neck
 EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1987
 GASEOUS EFFLUENTS - MIXED MODE RELEASE

Nuclides Released	Units	Mixed Continuous		Mixed Batch		1987
		3rd Qtr	4th Qtr	3rd Qtr	4th Qtr	Total
A. Fission & Activation Gases						
Ar-41	Ci	2.08E-01	-	<MDL	-	2.08E-01
Kr-85	Ci	2.73E+00	-	1.17E+02	-	1.20E+02
Kr-85m	Ci	1.24E+00	-	1.22E-01	-	1.36E+00
Kr-87	Ci	1.38E+00	-	<MDL	-	1.38E+00
Kr-88	Ci	1.78E+00	-	8.12E-02	-	1.86E+00
Xe-131m	Ci	9.66E-03	-	4.38E-01	-	4.48E-01
Xe-133	Ci	7.01E+01	-	2.70E+03	-	2.77E+03
Xe-133m	Ci	1.09E+00	-	1.28E+01	-	1.39E+01
Xe-135	Ci	8.49E+00	-	2.27E+01	-	3.12E+01
Xe-135m	Ci	6.40E-01	-	<MDL	-	6.40E-01
Xe-137	Ci	2.03E+00	-	<MDL	-	2.03E+00
Xe-138	Ci	2.18E+00	-	<MDL	-	2.18E+00
Total Activity	Ci	9.19E+01	-	2.85E+03	-	2.95E+03
B. Iodines						
I-131	Ci	2.37E-03	-	*	-	2.37E-03
I-132	Ci	<MDL	-	*	-	n.a.
I-133	Ci	<MDL	-	*	-	n.a.
Total Activity	Ci	2.37E-03	-	*	-	2.37E-03
C. Particulates						
Co-58	Ci	7.00E-05	-	*	-	7.00E-05
Co-60	Ci	1.74E-03	-	*	-	1.74E-03
Sr-89	Ci	4.78E-06	-	*	-	n.a.
Sr-90	Ci	2.86E-05	-	*	-	2.86E-05
Cs-137	Ci	1.88E-04	-	*	-	1.88E-04
Total Activity	Ci	2.03E-03	-	*	-	2.03E-03
D. Gross Alpha						
Gross Alpha	Ci	3.15E-05	-	*	-	3.15E-05
E. Tritium						
H-3	Ci	2.39E+00	-	4.61E+01	-	4.85E+01

* Reported with Mixed Continuous
 - Corrected Third Quarter Data was reported here only as it was the only Quarter that approached T.S. limits using the gross correction factors.
 n.a. (not applicable; values <MDL)

Table 2-1
Haddam Neck
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1989
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	3rd Qtr	4th Qtr	Est. Total Error %
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A. Fission & Activation Gases

1. Total Activity Released	Ci	1.32E+04	-	1.40E+01
2. Average Period Released	uCi/sec	1.65E+03	-	

B. Total/Iodine-131

1. Total Activity Released	Ci	6.17E-02	-	1.30E+01
2. Average Period Release Rate	uCi/sec	7.76E-03	-	

C. Particulates w/T1/2 > 8 days

1. Total Activity Released	Ci	2.73E-03	-	1.40E+01
2. Average Period Release Rate	uCi/sec	3.43E-04	-	

D. Gross Alpha

1. Total Activity Released	Ci	<MDL	-	1.40E+01
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E. Tritium

1. Total Activity Released	Ci	9.51E+01	-	8.00E+00
2. Average Period Release Rate	uCi/sec	1.20E+01	-	

- Corrected Third Quarter Data was reported here only as it was the only Quarter that approached T.S. limits using the gross correction factors.

Table 2-2
 Haddam Neck
 EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1989
 GASEOUS EFFLUENTS - MIXED MODE RELEASE

Nuclides Released	Units	Mixed Continuous		Mixed Batch		1989
		3rd Qtr	4th Qtr	3rd Qtr	4th Qtr	Total
A. Fission & Activation Gases						
Ar-41	Ci	2.56E-02	-	3.08E-02	-	5.64E-02
Kr-85	Ci	5.11E+02	-	6.00E+02	-	1.11E+03
Kr-85m	Ci	3.11E+00	-	4.69E-01	-	3.58E+00
Kr-87	Ci	7.83E-02	-	2.69E-02	-	1.05E-01
Kr-88	Ci	1.30E-01	-	1.37E-01	-	2.67E-01
Xe-131m	Ci	8.36E+00	-	1.70E+02	-	1.78E+02
Xe-133	Ci	2.15E+03	-	9.50E+03	-	1.17E+04
Xe-133m	Ci	4.93E+00	-	7.41E+01	-	7.90E+01
Xe-135	Ci	7.32E+01	-	5.68E+01	-	1.30E+02
Xe-135m	Ci	5.86E-02	-	<MDL	-	5.86E-02
Xe-137	Ci	1.09E-02	-	<MDL	-	1.09E-02
Xe-138	Ci	4.03E-02	-	<MDL	-	4.03E-02
Total Activity	Ci	2.75E+03	-	1.04E+04	-	1.32E+04

B. Iodines

I-131	Ci	5.89E-02	-	*	-	5.89E-02
I-132	Ci	<MDL	-	*	-	n.a.
I-133	Ci	2.77E-03	-	*	-	2.77E-03
Total Activity	Ci	6.17E-02	-	*	-	6.17E-02

C. Particulates

Co-58	Ci	<MDL	-	*	-	n.a.
Co-60	Ci	<MDL	-	*	-	n.a.
Sr-89	Ci	<MDL	-	*	-	n.a.
Sr-90	Ci	4.11E-07	-	*	-	4.11E-07
Cs- 134	Ci	9.99E-04	-	*	-	9.99E-04
Cs-137	Ci	1.73E-03	-	*	-	1.73E-03
Total Activity	Ci	2.73E-03	-	*	-	2.73E-03

D. Gross Alpha

Gross Alpha	Ci	<MDL	-	*	-	N/D
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E. Tritium

H-3	Ci	1.82E+01	-	7.69E+01	-	9.51E+01
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* Reported with Mixed Continuous

- Corrected Third Quarter Data was reported here only as it was the only Quarter that approached T.S. limits using the gross correction factors.

n.a. (not applicable; values <MDL)

Table 2-1
Haddam Neck
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1994
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	3rd Qtr	4th Qtr	Est. Total Error %
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A. Fission & Activation Gases

1. Total Activity Released	Ci	1.06E+03	-	1.40E+01
2. Average Period Released	uCi/sec	1.33E+02	-	

B. Total/Iodine-131

1. Total Activity Released	Ci	3.67E-03	-	1.30E+01
2. Average Period Release Rate	uCi/sec	4.62E-04	-	

C. Particulates w/T1/2 > 8 days

1. Total Activity Released	Ci	1.10E-02	-	1.40E+01
2. Average Period Release Rate	uCi/sec	1.38E-03	-	

D. Gross Alpha

1. Total Activity Released	Ci	6.47E-07	-	1.40E+01
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E. Tritium

1. Total Activity Released	Ci	9.03E+00	-	8.00E+00
2. Average Period Release Rate	uCi/sec	1.14E+00	-	

- Corrected Third Quarter Data was reported here only as it was the only Quarter that approached T.S. limits using the gross correction factors.

Table 2-2
Haddam Neck
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1994
GASEOUS EFFLUENTS - MIXED MODE RELEASE

Nuclides Released	Units	Mixed Continuous		Mixed Batch: WGDT, Cont. Purge&Vent Hdr		1994
		3rd Qtr	4th Qtr	3rd Qtr	4th Qtr	Total
A. Fission & Activation Gases						
Ar-41	Ci	1.68E-02	-	2.45E-03	-	1.93E-02
Kr-85	Ci	1.65E-03	-	1.51E+02	-	1.51E+02
Kr-85m	Ci	6.54E-03	-	1.27E-08	-	6.54E-03
Kr-87	Ci	8.97E-03	-	8.30E-09	-	8.97E-03
Kr-88	Ci	9.20E-03	-	1.42E-08	-	9.20E-03
Xe-131m	Ci	3.58E-05	-	6.36E+01	-	6.36E+01
Xe-133	Ci	9.82E+01	-	7.40E+02	-	8.38E+02
Xe-133m	Ci	2.96E-03	-	8.45E-01	-	8.48E-01
Xe-135	Ci	3.45E+00	-	2.08E-02	-	3.47E+00
Xe-135m	Ci	4.56E-03	-	4.42E-09	-	4.56E-03
Xe-137	Ci	2.31E-02	-	<MDL	-	2.31E-02
Xe-138	Ci	1.91E-02	-	5.3E-09	-	1.91E-02
Total Activity	Ci	1.02E+02	-	9.55E+02	-	1.06E+03
B. Iodines						
I-131	Ci	3.62E-03	-	*	-	3.62E-03
I-132	Ci	<MDL	-	*	-	n.a.
I-133	Ci	4.89E-05	-	*	-	4.89E-05
Total Activity	Ci	3.67E-03	-	*	-	3.67E-03
C. Particulates						
Co-58	Ci	<MDL	-	*	-	na
Co-60	Ci	5.69E-04	-	*	-	5.69E-04
Sr-89	Ci	2.29E-07	-	*	-	2.29E-07
Sr-90	Ci	6.58E-07	-	*	-	6.58E-07
Cs- 134	Ci	6.08E-04	-	*	-	6.08E-04
Cs-137	Ci	9.78E-03	-	*	-	9.78E-03
Total Activity	Ci	1.10E-02	-	*	-	1.10E-02
D. Gross Alpha						
Gross Alpha	Ci	6.47E-07	-	*	-	6.47E-07
E. Tritium						
H-3	Ci	5.60E+00	-	3.43E+00	-	9.03E+00

* Reported with Mixed Continuous

- Corrected Third Quarter Data was reported here only as it was the only Quarter that approached T.S. limits using the gross correction factors.

n.a.(not applicable, <MDL)

Table 2

**CY Corrected
Airborne Effluent Offsite Doses
(3rd Quarters of 1987, 1989 and 1994)**

	1987				1989				1994			
	3rd Quarter		Annual		3rd Quarter		Annual		3rd Quarter		Annual	
	Original	Corrected	Original	Corrected	Original	Corrected	Original	Corrected	Original	Corrected	Original	Corrected
Maximum Air Dose (mrad)												
Beta	Not Provided	4.22E+00 ↑	Not Provided	Not Provided	1.19E+01	1.13E+01 ↓	1.54E+01	1.49E+01 ↓	5.55E+00	6.21E+00 ↑	5.64E+00	6.30E+00 ↑
Gamma	Not Provided	1.40E+00 ↑	Not Provided	Not Provided	3.50E+00	3.32E+00 ↓	4.39E+00	4.22E+00 ↓	1.30E+00	1.51E+00 ↑	1.33E+00	1.54E+00 ↑
Max Individual Dose (mrad)												
Whole Body	5.71E-1	9.16E-01 ↑	6.64E-01	1.01E+00 ↑	2.06E+00	2.01E+00 ↓	2.59E+00	2.54E+00 ↓	8.21E-01	1.12E+00 ↑	9.79E-01	1.28E+00 ↑
Skin	1.74E+0	2.63E+00 ↑	2.03E+00	2.91E+00 ↑	7.04E+00	6.84E+00 ↓	9.25E+00	9.05E+00 ↓	3.40E+00	3.95E+00 ↑	3.60E+00	4.15E+00 ↑
Thyroid	8.43E-2	2.85E-01 ↑	8.43E-02	2.85E-01 ↑	1.02E+00	3.44E+00 ↑	1.02E+00	3.44E+00 ↑	5.46E-02	1.08E-01 ↑	2.12E-01	2.66E-01 ↑
Max Organ **	Not Provided	2.85E-01 ↑	Not Provided	Not Provided	Not Provided	3.44E+00 ↑	Not Provided	Not Provided	Not Provided	2.13E-01 ↑	Not Provided	Not Provided
		Child Thyroid				Child Thyroid				Child Liver		
Population Dose (Person-Rem)												
Whole Body	1.00E-1	1.09E+00 ↑	4.98E-01	1.49E+00 ↑	4.22E+00	4.63E+00 ↑	5.70E+00	6.11E+00 ↑	1.93E-01	3.48E-01 ↑	7.79E-01	9.34E-01 ↑
Skin	3.57E+0	3.43E+00 ↓	4.87E+00	4.73E+00 ↓	1.69E+01	1.86E+01 ↑	2.45E+01	2.62E+01 ↑	7.89E-01	1.01E+00 ↑	1.49E+00	1.71E+00 ↑
Thyroid	1.06E-1	1.30E+00 ↑	1.06E-01	1.30E+00 ↑	5.43E+00	1.02E+01 ↑	5.43E+00	1.02E+01 ↑	2.52E-01	6.17E-01 ↑	8.38E-01	1.20E+00 ↑
Max Organ **	Not Provided	1.36E+00 ↑	Not Provided	Not Provided	Not Provided	1.02E+01 ↑	Not Provided	Not Provided	Not Provided	6.17E-01 ↑	Not Provided	Not Provided
		Liver				Thyroid				Thyroid		
Average Dose (mrem)												
Whole Body	2.13E-5	2.33E-04 ↑	1.06E-04	3.18E-04 ↑	9.00E-04	9.87E-04 ↑	1.21E-03	1.30E-03 ↑	5.16E-05	9.31E-05 ↑	2.08E-04	2.50E-04 ↑
Skin	7.61E-4	7.32E-04 ↓	1.04E-03	1.01E-03 ↓	3.60E-03	3.97E-03 ↑	5.22E-03	5.59E-03 ↑	2.11E-04	2.69E-04 ↑	3.99E-04	4.58E-04 ↑
Thyroid	2.25E-5	2.78E-04 ↑	1.09E-04	3.64E-04 ↑	1.16E-03	2.17E-03 ↑	1.50E-03	2.51E-03 ↑	6.74E-05	1.65E-04 ↑	2.21E-04	3.19E-04 ↑
Max Organ **	Not Provided	2.91E-04 ↑	Not Provided	Not Provided	Not Provided	2.17E-03 ↑	Not Provided	Not Provided	Not Provided	1.65E-04 ↑	Not Provided	Not Provided
		Liver				Thyroid				Thyroid		

** Maximum of the following organs: Bone, GI-LLI, Kidney, Liver, Lung, Thyroid

↑ Corrected dose is higher than the original dose

↓ Corrected dose is lower than the original dose

Not Provided > Original Annual Radioactive Effluent Report did not provide this information for any quarter of the given report years and thus corrected annual doses could not be determined

NOTE: Maximum Individual Wholebody doses above are external only, and, Maximum Individual Thyroid and Max Organ doses above are internal only. To obtain conservative estimates of Maximum Individual Organ doses that include both external and internal, add the Maximum Individual Wholebody dose to the Maximum Individual Thyroid and Max Organ doses.

Third Quarter 1999

The third quarter 1999 doses reported for airborne gaseous effluents were transposed from the output of the dose calculation results page to the tabulated dose results section in the 1999 Annual Radioactive Effluent Report (Table 1-1). Some second quarter data was inadvertently entered in the 3rd quarter dose result columns. The corrected data is attached.

< ERRATA >

Table 1-1

**1999 Off-Site Dose Commitments from Airborne Effluents
Connecticut Yankee**

CY	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Max Air	(mrad)	(mrad)	(mrad)	(mrad)
<i>Beta</i>	0	0	0	0
<i>Gamma</i>	0	0	0	0
Max Individual	(mrem)	(mrem)	(mrem)	(mrem)
<i>Whole Body*</i>	4.21E-04	3.07E-03	1.64E-03	1.89E-03
<i>Skin*</i>	4.92E-04	3.59E-03	1.92E-03	2.21E-03
<i>Thyroid</i>	1.25E-02	1.17E-03	1.82E-03	6.06E-03
<i>Max Organ**</i>	1.26E-02	1.88E-03	2.31E-03	6.32E-03
Population	(person-rem)	(person-rem)	(person-rem)	(person-rem)
<i>Whole Body</i>	2.55E-02	3.93E-03	6.27E-03	6.98E-03
<i>Skin</i>	2.55E-02	3.82E-03	6.24E-03	6.89E-03
<i>Thyroid</i>	2.55E-02	3.70E-03	6.17E-03	6.82E-03
<i>Max Organ**</i>	2.55E-02	4.27E-03	6.41E-03	7.24E-03
Avg Individual	(mrem)	(mrem)	(mrem)	(mrem)
<i>Whole Body</i>	6.66E-06	1.03E-06	1.64E-06	1.82E-06
<i>Skin</i>	6.66E-06	9.97E-07	1.63E-06	1.80E-06
<i>Thyroid</i>	6.66E-06	9.65E-07	1.61E-06	1.78E-06
<i>Max Organ**</i>	6.66E-06	1.11E-06	1.67E-06	1.89E-06

* External doses only

** Maximum of the following organs: Bone, GI-LLI, Kidney, Liver, Lung, Thyroid

Table 1-2

**1999 Off-Site Dose Commitments from Liquid Effluents
Connecticut Yankee**

CY	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Max Individual	(mrem)	(mrem)	(mrem)	(mrem)
<i>Whole Body</i>	1.35E-02	8.36E-02	9.75E-03	8.47E-04
<i>Thyroid</i>	1.25E-03	4.73E-03	1.57E-04	8.96E-05
<i>Max Organ</i>	2.00E-02	1.25E-01	1.52E-02	1.30E-03
Population	(person-rem)	(person-rem)	(person-rem)	(person-rem)
<i>Whole Body</i>	2.07E-01	1.31E+00	1.61E-01	1.29E-02
<i>Thyroid</i>	1.15E-03	2.01E-03	2.18E-04	1.18E-04
<i>Max Organ</i>	3.72E-01	2.36E+00	2.96E-01	2.43E-02
Avg Individual	(mrem)	(mrem)	(mrem)	(mrem)
<i>Whole Body</i>	5.40E-05	3.42E-04	4.20E-05	3.37E-06
<i>Thyroid</i>	3.00E-07	5.25E-07	5.69E-08	3.08E-08
<i>Max Organ</i>	9.71E-05	6.16E-04	7.73E-05	6.34E-06

< ERRATA >

Attachment 3

REMODOCM Changes

Revision 14

September 27, 2000

Connecticut Yankee Atomic Power Company
Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424

Attachment 4

Connecticut Yankee REM/ODCM Change Request

Check One: REMM Change ODCM Change Change Request # 00-01

Originator Name (Print): Jim Smith/Dave Montt (Attach markup pages)

Section No.	Section Title	Page No.	Description of Change & Reason
Table B-1	Frequency Notation	B-4	<p>Description of Change: Add notation of "B At least once per 14 days" and restoration of maximum extension of 25% for surveillance frequencies which was inadvertently removed when RETS was moved to REMODCM in T.S. Amendment 195.</p> <p>Reason: Editorial change due to reducing air particulate sample frequency from weekly to biweekly (two weeks). See ERC 16103-ER-00-0004. 25% surveillance extension reinstated as permitted by Technical Specifications.</p>
Table D-1, Section A	Radioactive Gaseous Waste Sampling and Analysis Program	D-2	<p>Description of Change: Add weekly analysis for H-3 (tritium) with a LLD of 2.00E-6 µCi/cc to Spent Fuel Pool Spray Cooling</p> <p>Reason: Tritium has been monitored in Spray Cooling via IE Bulletin 80-10 Program since system installed. Tritium identified in Spray Cooling system, monitored and accounted for since implementation of Rev 13 of the REMODCM. Adding requirement for weekly sampling is a clarification to program.</p>
Table D.3.4	Radioactive Gaseous Effluent Monitoring Instrumentation	D-14	<p>Description of Change: Add clarification of components necessary for R-2 monitor to be considered operable (low flow alarm and recorder not required for flow monitor to be operable)</p> <p>Reason: Reportability Determination (reference 13. In section G of ODCM) clarified components necessary for R-2 to remain operable.</p>
E.1	Sampling and Analysis	E-1	<p>Description of Change: Major revision to fourth paragraph to more clearly define the requirements to sample/analyze samples from milking animals. Revision reflects the requirements of NUREG 1301.</p> <p>Reason: CY does not currently meet the criteria that requires milk analyses. Provision still contained in the manual in case requirements met again as discovered via the Land Use Census. See ERC 16103-ER-00-0004.</p>

Attachment 2

Connecticut Yankee REM/ODCM Change Request

Section No.	Section Title	Page No.	Description of Change & Reason
Table E-1, 1a.	Gamma Dose - Environmental TLD	E-3	<p>Description of Change: Reduce Sampling and Collection Frequency from "Monthly" to "Quarterly"; reduce Type and Frequency of Analysis for gamma dose from "Monthly" to "Quarterly"; delete associated footnote "a.". Renummer the exposure pathways in table.</p> <p>Reason: REMP reduction to conform with NUREG-1301. See ERC 16103-ER-00-0004.</p>
Table E-1, 1b.	Gamma Dose - Accident TLD	E-3	<p>Description of Change: Eliminate Accident TLD monitoring in total.</p> <p>Reason: REMP reduction. See ERC 16103-ER-00-0004.</p>
Table E-1, 2.	Air Particulate	E-3	<p>Description of Change: Reduce Number of Locations from "7" to "5"; reduce Sampling and Collection Frequency for the filter change from "weekly" to "biweekly (two weeks)"; reduce the Type and Frequency of Analysis for the Gross Beta analysis from "weekly" to "biweekly (two weeks)"</p> <p>Reason: REMP reduction to conform with NUREG-1301. See ERC 16103-ER-00-0004.</p>
Table E-1, 3.	Vegetation	E-3	<p>Description of Change: Split out Vegetation pathway into sub classes of "Fruits & Vegetables" and "Broad Leaf Vegetation". "Fruits and Vegetables" shall be sampled from two locations (one indicator, one control), one sample near the middle and one near end of the growing season, gamma isotopic on each sample. "Broad Leaf Vegetation" shall be sampled from three locations (two indicators, one control) monthly during the growing season (April - December), gamma isotopic on each sample.</p> <p>Reason: Program enhancement. Fruits and Vegetables remains the same, just called out separately. Broad Leaf Vegetation sampling is increased and called out to replace the milk sampling. Conforms with NUREG-1301. See ERC 16103-ER-00-0004.</p>
Table E-1, 4.	Milk	E-3	<p>Description of Change: Milk sampling locations reduced from six to four. "if required" added to sample collection and analyses frequencies with a footnote that milk sampling is only required as determined by the Land Use Census and applicable dose calculations.</p> <p>Reason: REMP reduction to conform with NUREG-1301. See ERC 16103-ER-00-0004.</p>

Attachment 2

Connecticut Yankee REM/ODCM Change Request

Section No.	Section Title	Page No.	Description of Change & Reason
Table E-1, 4a.	Pasture Grass	E-3	<p>Description of Change: Eliminate Pasture Grass sampling requirement in total.</p> <p>Reason: Pasture Grass sampling not required by NUREG-1301. Requirement to monitor Broad Leaf Vegetation enhanced and included in Section 3b. REMP reduction to conform with NUREG-1301. See ERC 16103-ER-00-0004.</p>
Table E-1, 8.	Fish	E-3	<p>Description of Change: Reduce sample collection and analysis frequency from quarterly to semi-annual.</p> <p>Reason: REMP reduction to conform with NUREG-1301. See ERC 16103-ER-00-0004.</p>
Table E-1, 9.	Shellfish	E-3	<p>Description of Change: Reduce sample collection and analysis frequency from quarterly to semi-annual.</p> <p>Reason: REMP reduction to conform with NUREG-1301. See ERC 16103-ER-00-0004.</p>
E.2	Land Use Census	E-7	<p>Description of Change: Major revision to the discussion of the Land Use Census to ensure the requirements of NUREG -1301 are included.</p> <p>Reason: Ensure program conforms to NUREG-1301. See ERC 16103-ER-00-0004.</p>
H	Figure H-1, Exclusion Area Boundary and Site Boundary for Liquid and Gaseous Effluents	H-1	<p>Description of Change: Replace figure with updated drawing due to degradation of original.</p> <p>Reason: Enhancement</p>

Originator signature:  Date: 4/12/00

Attachment 2

Connecticut Yankee REM/ODCM Change Request

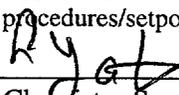
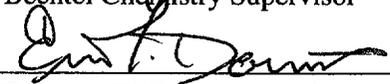
II. List the procedures and/or setpoints that require revision in order to implement the proposed change.

	Estimated date for implementation	Name of Manager responsible to implement
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

III.

Technical Reviewers:

- Approve or disapprove
- If disapproving, attach bases.
- List procedures/setpoints that require revision in Section II.

	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	6/20/00 Date
Bechtel Chemistry Supervisor		
	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	6/20/00 Date
Bechtel HP/CH Manager/designee		
	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	6/20/00 Date
RETS/REMP Engineer		

IV.

Radiological Environmental Review:

- Unreviewed Environmental Impact?
(Bases Attached)

Yes No

	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	6/21/00 Date
Radiological Engineer		

V.

10 CFR 50.59 Safety Evaluation and/or Applicability Review:

- Safety Evaluation Required?
(Applicability Review Attached)
- Unreviewed Safety Question?

Yes No SCREENING only

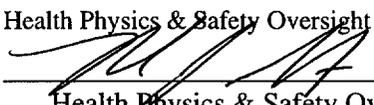
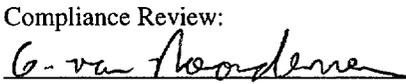
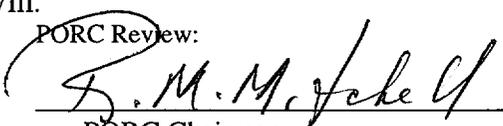
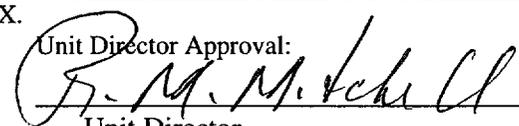
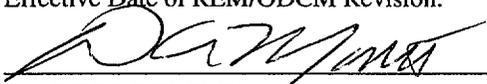
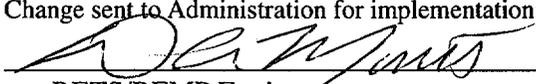
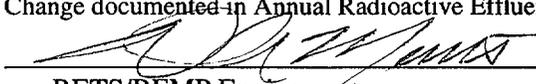
Yes No

N/A

		6/21/00 Date
RETS/REMP Engineer		

Attachment 2

Connecticut Yankee REM/ODCM Change Request

VI.	Health Physics & Safety Oversight Review:  Health Physics & Safety Oversight Manager	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	<u>8/24/00</u> Date
VII.	Compliance Review:  Regulatory Affairs Manager	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	<u>8/27/00</u> Date
VIII.	PORC Review:  PORC Chairman	Meeting No. <u>2000-62</u> Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	<u>9/22/00</u> Date
IX.	Unit Director Approval:  Unit Director	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	<u>9/27/00</u> Date
X.	CY NSAB Approval: (As required) <u>NA from 9/10/00</u> NSAB Chairman	Approve <input type="checkbox"/> Disapprove <input type="checkbox"/>	_____ Date
XI.	Verify that the Section II procedure and/or setpoint changes have been approved and are consistent with this Change Request. Effective Date of REM/ODCM Revision:  RETS/REMP Engineer		<u>9/20/2000</u> <u>9/20/2000</u> Date
XII.	Change sent to Administration for implementation:  RETS/REMP Engineer		<u>9/21/2000</u> Date
XIII.	Change documented in Annual Radioactive Effluent Report:  RETS/REMP Engineer		<u>4/26/2001</u> Date

Form 1 - 10 CFR 50.59 Applicability Review
Page 1 of 2

Document Number : REMODCM Change Request #00-01 Rev.: N/A

Document Title: REMM Change – Radiological Environmental Monitoring Program Reduction

1. Does the proposal fall into one of the following categories (see Procedure Step 1.6.1e)? YES NO
 TPC incorp. * Typographic error Format change Title/Name change
 Minor admin. or editorial corrections to drawings**

If Yes, check applicable category and proceed to Section 11. If No, complete remainder of the form.

2. Describe the change, reason and expected effects: Reduces the sampling and analysis of environmental monitoring streams to that required by NUREG 1301. Reduction is warranted based on the permanently shutdown and decommissioning status of the plant. Accident TLDs have been eliminated. Environmental TLDs, Vegetation, Milk (dairy and goat), Pasture Grass, Fish and Shellfish have been modified to conform to NUREG-1301. This change is based on change is based on ERC 16103-ER-00-0004, rev. 1, "Technical Basis Document: Radiological Environmental Monitoring Program Reduction". Other minor editorial corrections and enhancements are included in this revision

3. List SAR and LB/DB document items/sections reviewed: All using ZYIndex

4. Does the activity require a change to the Operating License or Technical Specifications? YES NO
Basis This revision to the REMODCM does not affect the OL or Technical Specifications.

List TS/OL Sections reviewed : All using ZYIndex

If Yes, contact Licensing before implementing the change, obtain a PTSCR and complete remainder of form.

PTSCR No. _____

5. Is the activity bounded by a previously performed 10 CFR 50.59 Safety Evaluation?*** YES NO
SE No.: _____

If Yes, sections 6, 7 and 8 may be omitted.

6. Does the activity make changes to the facility as described in the SAR? YES NO
Basis Not a change to the facility.

7. Does the activity make changes to procedures as described in the SAR? YES NO
Basis This procedure is not described in the SAR.

8. Does the activity involve a test or experiment not described in the SAR? YES NO
Basis Not a test or experiment.

- 9a. Does the activity require a change to the LB/DB Document? YES NO

- 9b. If YES, does this change constitute a change that affects the Licensing Basis or Design Basis Sections of any chapter of the LB/DB Document, to the extent that it impacts the ability of the SSC to satisfy any Licensing Basis statement (see Section 1.6.1d)? YES NO

Basis N/A

10. Does the activity involve (a) contamination of a non-radioactive system and the resulting potential for unmonitored, uncontrolled release of radioactivity to the environment (IE Bulletin 80-10), OR (b) movement and subsequent storage of radioactive material in an unshielded area without evaluating high radiation area controls (Technical Specification 6.12 and 10 CFR 20.1601), RCA boundary dose rate and site boundary dose limitations (10 CFR 20.1301, 40 CFR 190)?

If Yes, Identify (a) and/or (b) as applicable: YES NO

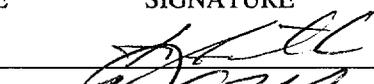
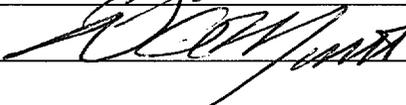
11. Complete, if applicable: FSARCR No. _____ TRMCR No. _____ LB/DBCR No. _____

12. Does the proposed change foreclose (preclude) release of the site for possible unrestricted use? YES NO
Discussion: No effect on release of site.

13. Does the proposed change result in a significant environmental impact not previously reviewed? YES NO
Discussion: No environmental impact

14. Does the proposed change result in there no longer being reasonable assurance that adequate funds will be available for decommissioning? YES NO

Discussion: No impact on decommissioning funds

	DISCIPLINE	PRINT NAME	SIGNATURE	Date:
Preparer:	<u>Chemistry</u>	<u>Jim Smith</u>		<u>6/21/00</u>
Approver ⁽¹⁾ :	<u>Chemistry</u>	<u>Dave Montt</u>		<u>6/21/2000</u>

Attach additional sheets if needed

Form 1 - 10 CFR 50.59 Applicability Review
Page 2 of 2

NOTE: If any response to Sections 6, 7, 8, 9b or 10 is answered Yes, a Safety Evaluation is required, unless Section 5 is "Yes". If a Safety Evaluation is required, complete Form 2 and attach this form to Form 2.
Preparer attach this form to the parent document.
If any answer in Section 12, 13, or 14 is Yes, the proposed change involves a UDQ.
If a UDQ is involved, STOP. Obtain assistance from Licensing for additional processing.
* Incorporation of Temporary Procedure Changes which have a completed screening sheet.
** See Attachment 5, Section B.5 for guidance.
*** For partially bounding previous safety evaluations, see Attachment 4, Section B.7 for guidance.
⁽¹⁾Decommissioning Director or Unit Director shall review this form in the event an Engineering recommendation regarding Tech. Spec. changes is modified.



CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT
362 INJUN HOLLOW ROAD EAST HAMPTON, CT 06424-3099

DATE: JUNE 19, 2000

HP-00-031

TO: J. Smith

FROM: 
R. McGrath

RE: Radiological Environmental Review for REM/ODCM Changes # 01
and #02

cc: R. Sexton

D. Montt

The subject REM/ODCM changes revise the two manuals in the areas of:

Number of Offsite Sampling Locations, Frequency of Offsite Sampling,
Type of Offsite Sampling and other clarifications that do not effect the
quantity or control of effluents from CY.

Whereas these changes do not effect the quantity or control of effluents, the
changes do not represent an Unreviewed Radiological Environmental Impact.
Therefore a determination has been made that the change will maintain the
level or radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190,
10 CFR 50.36a, 10 CFR 50 Appendix I and will not adversely impact the
accuracy or reliability of effluent dose or setpoint calculations

Please contact me at x3573 with any questions.



September 11, 2000
LTR No. 24265-000-TOC-GAM-00221-000
FILE No. TOC

Mr. Kenneth J. Heider
Vice President Operations & Decommissioning
Connecticut Yankee Atomic Power Company
Haddam Neck Plant
362 Injun Hollow Road
East Hampton, CT 06424-3099

Connecticut Yankee Decommissioning Project
Bechtel Job No. 24265
**Reportability Determination for CR 00-0550, Stack Flow Recorder and Low Flow Alarm
Non-functional**

Dear Mr. Heider:

The purpose of this letter is to transmit the results of Bechtel's investigation of CR 00-0550. Bechtel has determined that the Stack Flow Recorder (FR-0010) and associated Low Flow Alarm being non-functional is not a reportable incident because the identified issues did not create a condition that was outside the design basis of the plant. The basis for requesting a Reportability Determination is that Technical Specification 6.6.4 specifies the requirement for a Radiological Effluent Controls Program and that this program requires the Stack Flow Monitor to be operable.

Discussion:

Condition Report 00-0550 documented the concern that the Stack Flow Recorder (FR-1101) and associated Low Flow Alarm have not been functional for some time. The Stack Flow Monitor had been considered operable until the generation of the CR 00-0550 and no action statements have been entered. This evaluation considered the impact on Stack Flow Monitor OPERABILITY from the non-functioning components.

The recorder had been damaged in March 2000 as was identified in CR 00- 0199. As part of the review of the CR by the CY Shift Manager and by MRT, it was concluded that the Stack Flow Monitor remained OPERABLE. During preparations for a calibration of the Stack Flow Monitor (required by Radiological Effluents Monitoring Program, REM) it was discovered that the Stack Low Flow Alarm was also not functional and the calibration procedure could not be successfully performed without this equipment functional.

A review of the REM Control D.3.4 revealed that the OPERABILITY of the Stack Flow Monitor is required "at all times" and that the OPERABILITY requires "applicable Alarm Setpoints set to ensure that the limits of Control D.3.1 are not exceeded." Setpoints are determined using methodology specified in the Offsite Dose Calculation Manual (ODCM).

Page D-3 of the ODCM specifies the method for calculating Critical Organ Dose Rate from particulates and tritium. With the current ventilation configuration a decrease in stack flow will result in a decrease in dose. Therefore, the alarm setpoint for the "Total Stack Flow Low" is not needed to ensure the limits of Control D.3.1 would not be exceeded.

Therefore, it can be concluded that the Low Flow Alarm should NOT be included in the "necessary attendant instrumentation" specified in DEFINITION 1.4, "OPERABLE- OPERABILITY".

Reportability Considerations:

Technical Specification 6.6.3 requires CY to have a REMODCM. None of the operability concerns identified are a violation of this Specification. TS 6.6.4 requires CY to have a Radioactive Effluent Controls Program. None of the OPERABILITY concerns identified are a violation of this Specification. There are no other Technical Specifications applicable to the Stack Flow monitor.

The Stack Flow Monitor Channel is not required to: shutdown the reactor, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident.

Although the stack flow rate is used as a parameter in the REMODCM, the Stack Flow Monitor provides no safety function. The Low Flow Alarm is for information only and provides no initiation or mitigation function.

Operation of the PAB ventilation system was essentially continuous with flow through the HEPA filter. This fact was verified during operator rounds every 12 hours. Routine filter sampling of R-2 was accomplished as required by the REMODCM.

Reportability Evaluation:

Although some of the design considerations of the Stack Flow Monitor may not be satisfied with the recorder and alarm non-functional, this had no effect on the release of activity, the dose to the public, or on the "principal safety barriers." In addition, the flow indicator reading was recorded at least once per 12 hours. With no significant change in indicated flow between sequential readings and no physical changes to the ventilation system it is reasonable to assume that the flow rate between readings was constant. Operation of the ventilation system was consistent with its design bases. In this regard the requirements of the REMODCM were satisfied. Because there is no connection between the stack flow and the safe storage of spent fuel, the operability of the Stack Flow Monitor does not affect the design basis of the Spent Fuel Island. Therefore, the identified issues did not create a "condition" that was outside the design basis of the plant.

REPORTABILITY DETERMINATION – The event is NOT REPORTABLE.

The reportability evaluation was completed in accordance with ACP 1.2-2.44, Revision 2.

If you have any questions on the above subject, please call me at 3614.

Sincerely,


R. J. Daly
Project Manager

Vice President Operations & Decommissioning
Connecticut Yankee Atomic Power Company
September 11, 2000
Page 3
LTR NO. 24265-000-TOC-GAM-00221-000

bcc: D. W. Drulard
A. J. Fiorente
P. A. Labarta
B. P. Reilly

Attachment 2
Connecticut Yankee REM/ODCM Change Request

Check One: REMM Change ODCM Change Change Request # 00-02

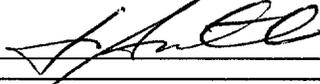
I. Originator Name (Print): Jim Smith/Dave Montt
(Attach markup pages)

Section No.	Section Title	Page No.	Description of Change & Reason
Table of Contents	List of Figures	T of C-2	Description of Change: Delete entry for Figure G-3, "Accident TLD Sampling Locations" and renumber page references for remaining figures. Reason: Editorial due to other changes to document. See ERC 16103-ER-00-0004.
G. References	References	G-1	Description of Change: Added references 13. Reportability Determination used as basis for clarification of components necessary for operability determination of R-2, and 14. ERC for REMP scope reduction. Reason: Ensure tracibility of changes made in REMODCM
Appendix G	Environmental Monitoring Program – Sampling Locations	APP G-1	Description of Change: Location 4-I: delete "Air Particulate" Sample Type Location 8-I: delete "Air Particulate" Sample Type Location 15-I: delete the "****" and associated footnote Location 19-I: ABANDON (delete location in total) Location 20-I: ABANDON (delete location in total) Location 21-I: ABANDON (delete location in total) Location 22-C: ABANDON (delete location in total) Location 23-C: ABANDON (delete location in total) Location 24-I: ABANDON (delete location in total) Reason: REMP reduction to conform with NUREG-1301. See ERC 16103-ER-00-0004.
Appendix G	Environmental Monitoring Program – Accident TLD Sampling Locations	APP G-2	Description of Change: Delete Accident TLD sampling in total. Reason: REMP reduction. See ERC 16103-ER-00-0004.
Appendix G	Figure G-1 Haddam Neck Plant Inner Terrestrial Monitoring Stations	APP G-3	Description of Change: Replace figure with updated map indicating remaining monitoring stations and renumber pages. Reason: Enhancement due to REMP reduction. See ERC 16103-ER-00-0004.

Attachment 2

Connecticut Yankee REM/ODCM Change Request

Section No.	Section Title	Page No.	Description of Change & Reason
Appendix G	Figure G-2 Haddam Neck Plant Aquatic and Well Water Sample Stations	APP G-4	<p>Description of Change: Replace figure with updated map indicating remaining sampling stations and renumber pages.</p> <p>Reason: Enhancement due to REMP reduction. See ERC 16103-ER-00-0004.</p>
Appendix G	Figure G-3 Accident TLD Sampling Locations	APP G-5	<p>Description of Change: Delete figure G-3 due to deletion of Accident TLD sampling in total.</p> <p>Reason: REMP reduction. See ERC 16103-ER-00-0004.</p>

Originator signature:  Date: 6/12/00

Attachment 2
Connecticut Yankee REM/ODCM Change Request

II. List the procedures and/or setpoints that require revision in order to implement the proposed change.

	<u>Estimated date for implementation</u>	<u>Name of Manager responsible to implement</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

III.

Technical Reviewers:

- Approve or disapprove
- If disapproving, attach bases.
- List procedures/setpoints that require revision in Section II.

h y a b Approve Disapprove 6/20/00
Bechtel Chemistry Supervisor Date

John P. Dennis Approve Disapprove 6/20/00
Bechtel HP/CH Manager/designee Date

[Signature] Approve Disapprove 6/20/00
RETS/REMP Engineer Date

IV.

Radiological Environmental Review:

- Unreviewed Environmental Impact? Yes No
(Bases Attached)

R.M. M... [Signature] Approve Disapprove 6/21/00
Radiological Engineer Date

V.

10 CFR 50.59 Safety Evaluation and/or Applicability Review:

- Safety Evaluation Required? Yes No
(Applicability Review Attached)
- Unreviewed Safety Question? Yes No N/A

[Signature] 6/21/00
RETS/REMP Engineer Date

Attachment 2

Connecticut Yankee REM/ODCM Change Request

VI. Health Physics & Safety Oversight Review:
[Signature] Approve Disapprove 8/24/00 Date
Health Physics & Safety Oversight Manager

VII. Compliance Review:
6 - van Noordenne Approve Disapprove 8/27/00 Date
Regulatory Affairs Manager

VIII. PORC Review: Meeting No. 2000-62
[Signature] Approve Disapprove 9/27/00 Date
PORC Chairman

IX. Unit Director Approval:
[Signature] Approve Disapprove 9/27/00 Date
Unit Director

X. CY NSAB Approval:
(As required)
NA from 9/27/00 Approve Disapprove _____ Date
NSAB Chairman

XI. Verify that the Section II procedure and/or setpoint changes have been approved and are consistent with this Change Request.
Effective Date of REM/ODCM Revision: 9/27/2000
[Signature] 9/27/2000 Date
RETS/REMP Engineer

XII. Change sent to Administration for implementation:
[Signature] 9/27/2000 Date
RETS/REMP Engineer

XIII. Change documented in Annual Radioactive Effluent Report:
[Signature] 4/26/2001 Date
RETS/REMP Engineer



CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT
362 INJUN HOLLOW ROAD EAST HAMPTON, CT 06424-3099

COPY

DATE: JUNE 19, 2000

HP-00-031

TO: J. Smith

FROM: 
R. McGrath

RE: Radiological Environmental Review for REM/ODCM Changes # 01
and #02

cc: R. Sexton

D. Montt

The subject REM/ODCM changes revise the two manuals in the areas of:

Number of Offsite Sampling Locations, Frequency of Offsite Sampling,
Type of Offsite Sampling and other clarifications that do not effect the
quantity or control of effluents from CY.

Whereas these changes do not effect the quantity or control of effluents, the
changes do not represent an Unreviewed Radiological Environmental Impact.
Therefore a determination has been made that the change will maintain the
level or radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190,
10 CFR 50.36a, 10 CFR 50 Appendix I and will not adversely impact the
accuracy or reliability of effluent dose or setpoint calculations

Please contact me at x3573 with any questions.

Attachment 3

Simplified Radiological Environmental Review

Document No.: BEM100CM Title: Radiological Effluent Monitoring Manual and Offsite Dose Calculation Manual

NOTE

The following questions relate to the normal use of the proposed change. Any radioactive release resulting from the failure of the proposed change are addresses in a separate Safety Evaluation.

	Initial "Yes" or "No"	
	Yes	No
1. Will the change cause an increase or potential increase in the amounts of radioactive airborne effluents or liquid effluents, or significantly alter the nuclide mix of such effluents?	_____	✓ _____
2. Will the change result in a new radioactive liquid or gaseous discharge point, or decrease the ability to sample or monitor existing release paths?	_____	✓ _____
3. Will the change significantly increase (for example, greater than five per year) the eventual number of solid waste shipments?	_____	✓ _____
4. Will the change cause movement and subsequent storage of radioactive material in an unshielded area without evaluating RCA boundary dose rate and site boundary dose limitations (10 CFR 20.1301, 40 CFR 190)?	_____	✓ _____
5. Will the change, in the judgement of the individual performing this review, constitute an increased Radiological Environmental Impact for reasons not already considered above?	_____	✓ _____

Sign statement A or B as appropriate

A. If the answer is "Yes" to ANY of the above questions, a Detailed Radiological Environmental Review is required. This determination was made by:

 n/a
Project Engineer
 n/a
Date

B. If the answer is "No" to ALL of the above questions, a the following statement may be signed: The proposed change is not considered to have an Unreviewed Radiological Environmental Impact. This determination was made by:

 A. M. V. [Signature]
Project Engineer
 6/19/00
Date

Form 1 - 10 CFR 50.59 Applicability Review

Page 1 of 2

Document Number : REMODOCM Change Request #00-02 Rev. : N/A

Document Title: ODCM Change – Radiological Environmental Monitoring Program Reduction

1. Does the proposal fall into one of the following categories (see Procedure Step 1.6.1e)? YES NO
 TPC incorp. * Typographic error Format change Title/Name change
 Minor admin. or editorial corrections to drawings**

If Yes, check applicable category and proceed to Section 11. If No, complete remainder of the form.

2. Describe the change, reason and expected effects: Eliminates and/or modifies the sampling locations of environmental monitoring streams that are no longer necessary or applicable in the permanently shutdown and decommissioning state of the plant. Changes are based on the revision to the REMM. Program change is based on ERC 16103-ER-00-0004, rev. 1, "Technical Basis Document: Radiological Environmental Monitoring Program Reduction". Updates sampling location maps.

3. List SAR and LB/DB document items/sections reviewed: All using ZYIndex

4. Does the activity require a change to the Operating License or Technical Specifications? YES NO
 Basis This revision to the REMODOCM does not affect the OL or Technical Specifications.

List TS/OL Sections reviewed : All using ZYIndex

If Yes, contact Licensing before implementing the change, obtain a PTSCR and complete remainder of form.

PTSCR No. _____

5. Is the activity bounded by a previously performed 10 CFR 50.59 Safety Evaluation?*** YES NO
 SE No.: _____

If Yes, sections 6, 7 and 8 may be omitted.

6. Does the activity make changes to the facility as described in the SAR? YES NO
 Basis Not a change to the facility.

7. Does the activity make changes to procedures as described in the SAR? YES NO
 Basis This procedure is not described in the SAR.

8. Does the activity involve a test or experiment not described in the SAR? YES NO
 Basis Not a test or experiment.

- 9a. Does the activity require a change to the LB/DB Document? YES NO

- 9b. If YES, does this change constitute a change that affects the Licensing Basis or Design Basis Sections of any chapter of the LB/DB Document, to the extent that it impacts the ability of the SSC to satisfy any Licensing Basis statement (see Section 1.6.1d)? YES NO

Basis N/A

10. Does the activity involve (a) contamination of a non-radioactive system and the resulting potential for unmonitored, uncontrolled release of radioactivity to the environment (IE Bulletin 80-10), OR (b) movement and subsequent storage of radioactive material in an unshielded area without evaluating high radiation area controls (Technical Specification 6.12 and 10 CFR 20.1601), RCA boundary dose rate and site boundary dose limitations (10 CFR 20.1301, 40 CFR 190)?

If Yes, Identify (a) and/or (b) as applicable: YES NO

11. Complete, if applicable: FSARCR No. _____ TRMCR No. _____ LB/DBCR No. _____

12. Does the proposed change foreclose (preclude) release of the site for possible unrestricted use? YES NO
 Discussion: No effect on release of site.

13. Does the proposed change result in a significant environmental impact not previously reviewed? YES NO
 Discussion: No environmental impact

14. Does the proposed change result in there no longer being reasonable assurance that adequate funds will be available for decommissioning? YES NO

Discussion: No impact on decommissioning funds

DISCIPLINE PRINT NAME SIGNATURE

Preparer: Chemistry Jim Smith  Date: 6/21/00

Approver ⁽¹⁾: Chemistry Dave Montt  Date: 6/21/00

Attach additional sheets if needed

Form 1 - 10 CFR 50.59 Applicability ReviewPage 2 of 2

NOTE: If any response to Sections 6, 7, 8, 9b or 10 is answered Yes, a Safety Evaluation is required, unless Section 5 is "Yes". If a Safety Evaluation is required, complete Form 2 and attach this form to Form 2.

Preparer attach this form to the parent document.

If any answer in Section 12, 13, or 14 is Yes, the proposed change involves a UDQ.

If a UDQ is involved, STOP. Obtain assistance from Licensing for additional processing.

* Incorporation of Temporary Procedure Changes which have a completed screening sheet.

** See Attachment 5, Section B.5 for guidance.

*** For partially bounding previous safety evaluations, see Attachment 4, Section B.7 for guidance.

⁽¹⁾Decommissioning Director or Unit Director shall review this form in the event an Engineering recommendation regarding Tech. Spec. changes is modified.

Attachment 2

Connecticut Yankee REM/ODCM Change Request

Page 1 of 3

Check One: REMM Change ODCM Change Change Request # 00-03

I
Originator Name (Print): Harvey Farr
(Attach markup pages)

Section No.	Section Title	Page No.	Description of Change & Reason
B.	Definitions	B-1	Deleted "ANALOG" from description in Line B.2.
C.3/4	Liquid Effluent Controls and Surveillance Requirements.	C-15	Table C.4.3, Table Notation # 3 will be revised to reflect design changes outlined in DCP # 24265-000-DCP-0013. Marked-up pages B-1 and C-15 showing these changes are attached. This change is required to maintain operability of the Service Water Effluent Line and the Waste Test Tank Discharge Line in conformance with 10CFR Part 20.
C4.3	Surveillance Requirements	C-10	Deleted "ANALOG" from description. Does not reflect equipment in place which utilize digital signals & outputs. Analog equipment no longer available.

Originator signature: Harvey Farr Date: 5/30/00

Attachment 2
Connecticut Yankee REM/ODCM Change Request
Page 2 of 3

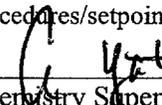
II. List the procedures and/or setpoints that require revision in order to implement the proposed change.

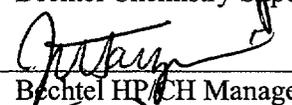
	<u>Estimated date for implementation</u>	<u>Name of Manager responsible to implement</u>
REM 17.2-1	6-5-00	Scott Robie
REM 17.2-4	6-5-00	Scott Robie
REM 17.2-5	6-5-00	Scott Robie
REM 17.2-6	6-5-00	Scott Robie
REM 17.2-7	6-5-00	Scott Robie
24265-000-GPP-GGGO-00024-000	6-5-00	Gil Johnson
24265-000-GPP-GGGO-00038-001	6-5-00	Gil Johnson

III.

Technical Reviewers:

- Approve or disapprove
- If disapproving, attach bases.
- List procedures/setpoints that require revision in Section II.


 _____ Approve Disapprove 6/6/00 Date
 Bechtel Chemistry Supervisor


 _____ Approve Disapprove 6/6/00 Date
 Bechtel HP/CH Manager/designee

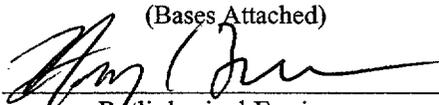

 _____ Approve Disapprove 8/23/2000 Date
 RETS/REMP Engineer

IV.

Radiological Environmental Review:

- Unreviewed Environmental Impact? (Bases Attached)

Yes No


 _____ Approve Disapprove 6/6/00 Date
 Radiological Engineer

V.

10 CFR 50.59 Safety Evaluation and/or Applicability Review:

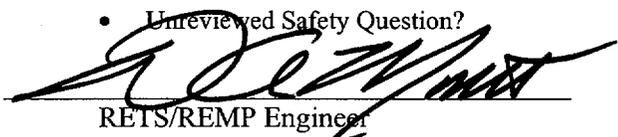
- Safety Evaluation Required? (Applicability Review Attached)

Yes No

- Unreviewed Safety Question?

Yes No

N/A


 _____ 8/23/2000 Date
 RETS/REMP Engineer

Attachment 2

Connecticut Yankee REM/ODCM Change Request

Page 3 of 3

VI.

Health Physics & Safety Oversight Review:

[Signature] Approve Disapprove 8/24/00 Date
Health Physics & Safety Oversight Manager

VII.

Compliance Review:

G. van Noorden Approve Disapprove 8/25/00 Date
Regulatory Affairs Manager

VIII.

PORC Review:

Meeting No. 92000-66

R. M. Mitchell Approve Disapprove 9/27/00 Date
PORC Chairman

IX.

Unit Director Approval:

R. M. Mitchell Approve Disapprove 9/27/00 Date
Unit Director

X.

CY NSAB Approval:

(As required)

NA Approve Disapprove _____ Date
NSAB Chairman

XI.

Verify that the Section II procedure and/or setpoint changes have been approved and are consistent with this Change Request.

Effective Date of REM/ODCM Revision:

[Signature] 9/27/2000
RETS/REMP Engineer 9/27/2000 Date

XII.

Change sent to Administration for implementation:

[Signature] 9/27/2000
RETS/REMP Engineer Date

XIII.

Change documented in Annual Radioactive Effluent Report:

[Signature] 4/26/2001
RETS/REMP Engineer Date

Bechtel CH/HP Intradepartmental Correspondence

BPC CH/HP 00-0032

To: Jim Smith – CY RETS/REMP Engineer
From: Harvey Farr – Bechtel Rad./Chem. Engineering Supervisor
Date: 06/06/00
Re: Environmental Review for Repowering of R-188 and R-22

The REM/ODCM changes implement DCP 24265-000-DCP-00013 which provides instructions to repower River Effluent Monitor R-18, Waste Test Tank Effluent Monitor R-22. The monitors will be repowered at their present locations and configuration in the Primary Auxillary Building. The recorders will be relocated to the PAB and the new local alarms will be installed in the PAB to replace the existing ones in the Bechtel Control Room.

These changes do not represent change in the function, sensitivity or capabilities of these monitors. Relocation of the alarms and recorders from the Control Room to the PAB are accompanied by a change to the REM/ODCM requiring an individual to be stationed with audible distance of the alarms during Test Tank releases. The change does not represent an Unreviewed Radiological Environmental Impact. Therefore a determination has been made that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, 10 CFR 50 Appendix I and will not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

Harvey Farr

Attachment 3

Simplified Radiological Environmental Review

Document No.: REM/ODCM Title: Radiological Effluent Monitoring Manual and the Offsite Dose Calculation Manual

NOTE

The following questions relate to the normal use of the proposed change. Any radioactive release resulting from the failure of the proposed change are addresses in a separate Safety Evaluation.

	Initial "Yes" or "No"	
	Yes	No
1. Will the change cause an increase or potential increase in the amounts of radioactive airborne effluents or liquid effluents, or significantly alter the nuclide mix of such effluents?		✓
2. Will the change result in a new radioactive liquid or gaseous discharge point, or decrease the ability to sample or monitor existing release paths?		✓
3. Will the change significantly increase (for example, greater than five per year) the eventual number of solid waste shipments?		✓
4. Will the change cause movement and subsequent storage of radioactive material in an unshielded area without evaluating RCA boundary dose rate and site boundary dose limitations (10 CFR 20.1301, 40 CFR 190)?		✓
5. Will the change, in the judgement of the individual performing this review, constitute an increased Radiological Environmental Impact for reasons not already considered above?		✓

Sign statement A or B as appropriate

A. If the answer is "Yes" to ANY of the above questions, a Detailed Radiological Environmental Review is required. This determination was made by:

N/A Project Engineer N/A Date

B. If the answer is "No" to ALL of the above questions, a the following statement may be signed: The proposed change is not considered to have an Unreviewed Radiological Environmental Impact. This determination was made by:

[Signature] Project Engineer 6/16/00 Date

Form 1 - 10 CFR 50.59 Applicability Review

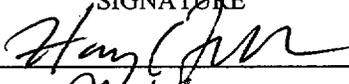
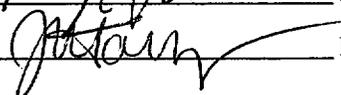
Page 1 of 2Document Number:
REMODCM Rev. 13

Rev.: 1

Document Title: Haddam Neck Radiological Effluent Monitoring & Offsite Dose Calculation Manual (REMODCM)

1. Does the proposal fall into one of the following categories (see Procedure Step 1.6.1e)? YES NO
 TPC incorp. * Typographic error Format change Title/Name change
 Minor admin. or editorial corrections to drawings**
 If Yes, check applicable category and proceed to Section 11. If No, complete remainder of the form.
2. Describe the change, reason and expected effects: Deleted description of operational test as an "analogue" test and added requirement for continuous monitoring of R-22 audible alarm in the PAB during planned Waste Test Tank discharges.
3. List SAR and LB/DB document items/sections reviewed: UFSAR Chapter 8, Electric Power; Chapter 9.2.1, Service Water System; Chapter 11.2, Liquid Waste Management Systems; Chapter 11.5, Process and Effluent Radiological Monitoring; TRM Section II.D.3.1, AC Power Systems. LB/DB Chapter 9, Nuclear Island Electrical Distribution; Chapter 15A, Service Water (Electrical/I&C) REMODCM Section C, Liquid Effluents, and Section D, Gaseous Effluents
4. Does the activity require a change to the Operating License or Technical Specifications? YES NO
 Basis The Operating License and Technical Specifications do not discuss operability checks for Effluent Radiation Monitors or response to alarms and are not effected by this change.
 List TS/OL Sections reviewed : All sections of the Operating License and Technical Specifications.
 If Yes, contact Licensing before implementing the change, obtain a PTSCR and complete remainder of form.
 PTSCR No. N/A
5. Is the activity bounded by a previously performed 10 CFR 50.59 Safety Evaluation?*** YES NO
 SE No.: SY-EV-00-0013
 If Yes, sections 6, 7 and 8 may be omitted.
6. Does the activity make changes to the facility as described in the SAR? YES NO
 Basis _____
7. Does the activity make changes to procedures as described in the SAR? YES NO
 Basis _____
8. Does the activity involve a test or experiment not described in the SAR? YES NO
 Basis _____
- 9a. Does the activity require a change to the LB/DB Document? YES NO
- 9b. If YES, does this change constitute a change that affects the Licensing Basis or Design Basis Sections of any chapter of the LB/DB Document, to the extent that it impacts the ability of the SSC to satisfy any Licensing Basis statement (see Section 1.6.1d)? YES NO
 Basis _____
10. Does the activity involve (a) contamination of a non-radioactive system and the resulting potential for unmonitored, uncontrolled release of radioactivity to the environment (IE Bulletin 80-10), OR (b) movement and subsequent storage of radioactive material in an unshielded area without evaluating high radiation area controls (Technical Specification 6.12 and 10 CFR 20.1601), RCA boundary dose rate and site boundary dose limitations (10 CFR 20.1301, 40 CFR 190)?
 If Yes, Identify (a) and/or (b) as applicable: YES NO
11. Complete, if applicable: FSARCR No. _____ TRMCR No. _____ LB/DBCR No. _____
12. Does the proposed change foreclose (preclude) release of the site for possible unrestricted use? YES NO
 Discussion: This change is to facilitate the decommissioning process.
13. Does the proposed change result in a significant environmental impact not previously reviewed? YES NO
 Discussion: The proposed change repowers and relocates existing equipment, it dose not change the capabilities of the equipment. This change does not affect the site environment, the occupational or off-site radiation exposure.
14. Does the proposed change result in there no longer being reasonable assurance that adequate funds will be available for decommissioning? YES NO
 Discussion: These activities are within the existing DOC scope.

Form 1 - 10 CFR 50.59 Applicability Review
Page 2 of 2

	DISCIPLINE	PRINT NAME	SIGNATURE	Date:
Preparer:	HP	Harvey Farr		5/30/00
Approver ⁽¹⁾	HP/CH	J.P. Dawson		6-6-00

Attach additional sheets if needed

NOTE: If any response to Sections 6, 7, 8, 9b or 10 is answered Yes, a Safety Evaluation is required, unless Section 5 is "Yes". If a Safety Evaluation is required, complete Form 2 and attach this form to Form 2. Preparer attach this form to the parent document.
If any answer in Section 12, 13, or 14 is Yes, the proposed change involves a UDQ.
If a UDQ is involved, STOP. Obtain assistance from Licensing for additional processing.
* Incorporation of Temporary Procedure Changes which have a completed screening sheet.
** See Attachment 5, Section B.5 for guidance.
*** For partially bounding previous safety evaluations, see Attachment 4, Section B.7 for guidance.
⁽¹⁾Decommissioning Director or Unit Director shall review this form in the event an Engineering recommendation regarding Tech. Spec. changes is modified.

Form 1 - 10 CFR 50.59 Applicability Review

Page 1 of 2

Document Number: DCP# 24265-000-DCP-00013

Rev.: 0

Document Title: Rad Monitors R-18 & R-22 and Solenoid Operated Valve FRCV-1003 Repowering, Relocation of C.R. Recorders, and Rewiring of Flow Switch FIS-204

1. Does the proposal fall into one of the following categories (see Procedure Step 1.6.1e)? YES NO
 TPC incorp. * Typographic error Format change Title/Name change
 Minor admin. or editorial corrections to drawings**

If Yes, check applicable category and proceed to Section 11. If No, complete remainder of the form.

2. Describe the change, reason and expected effects: This DCP provides instructions to repower Rad Monitors R-18, R-22, and Solenoid Operated Valve FRCV 1003 to allow for continuing operation after implementation of DCP # 24265-000-DCP-00047 that will shutdown the Bechtel Control Room leaving it "Cold and Dark". In addition, the associated recorders will be relocated from the Bechtel Control Room to the PAB and new local alarms will be installed in the PAB to replace the existing ones located in the Bechtel Control Room.
FIS-204 Low Flow signal that provides a Stack Low Flow Alarm in both Control Rooms will be disconnected from the PLC and rewired to a new local alarm as shown on Wiring Diagram 16103-31303 Sh. 2. Operations will establish a four (4) hour Operator Round to verify the status of the FIS-204 Stack Particulate Low Flow alarm in the PAB.
The existing system is powered from Semi-Vital Panel # 1, which will be shutdown upon implementation of the scheduled isolation of the 389 Station Transformer.
Above equipment will be repowered from LP-P1-1 panel located in the Primary Auxiliary Building, as shown on Schematic Diagrams 16103-32001 Sh. 11F (FRCV 1003), 16103-32001 Sh. 55 (R-18), and 16103-32001 Sh. 56 (R-22).
This modification will allow the Service Water System and the Liquid Waste Management System to maintain operability, to conform to 10CFR Part 20, after the Bechtel Control Room goes "Cold and Dark".

- 3 List SAR and LB/DB document items/sections reviewed: UFSAR Chapter 8, Electric Power; Chapter 9.2.1, Service Water System; Chapter 11.2, Liquid Waste Management Systems, Chapter 11.5, Process and Effluent Radiological Monitoring. TRM Section I.D.3.1, AC Power Systems. LB/DB Chapter 9, Nuclear Island Electrical Distribution; Chapter 15A, Service Water (Electrical/I&C). REMODCM Section C, Liquid Effluents, and Section D, Gaseous Effluents.

4. Does the activity require a change to the Operating License or Technical Specifications? YES NO
Basis: This change will repower part of the Radiation Monitoring System and relocate associated recorders. This equipment is required to stay Operable after the Main Control Room loses power due to the deenergization of transformer 389. Flow Switch FIS-204 is not being repowered, its control room alarms are being removed and replaced by a local alarm. The requirements of the OL and TS are not affected by this change. No changes to the OL or TS are required.

List TS/OL Sections reviewed: TS is not applicable to this change; Section 3/4.8 Electrical Power Systems has been deleted from TS by Amendment 193. OL all sections.

If Yes, contact Licensing before implementing the change, obtain a PTSCR and complete remainder of form.

PTSCR No. N/A

5. Is the activity bounded by a previously performed 10 CFR 50.59 Safety Evaluation?*** YES NO
SE No.: N/A
If Yes, sections 6, 7 and 8 may be omitted.

6. Does the activity make changes to the facility as described in the SAR? YES NO
Basis: The FSAR (9.2.1 Service Water System, page 9.2-6 and 11.5 Process and Effluent Radiological Monitoring, pages 11.5-2, 11.5.3, 11.5.5, and 11.5.6) address the function of the affected equipment. The power sources for this equipment are shown on P&Ids 16103-26014 Sh. 5, -26024 Sh. 2, and -26030 Sh. 2 which will all be revised to reflect the new power sources. REMODCM Table C.4.3 will be revised to reflect the deletion of Control Room Alarms and the addition of compensatory measures. Therefore this activity makes changes to the facility as described in the SAR.

Form 1 - 10 CFR 50.59 Applicability Review
Page 2 of 2

7. Does the activity make changes to procedures as described in the SAR? [] YES [X] NO
Basis: There are no procedures in the SAR that address the equipment affected by this change. No procedure as described in the SAR need to be modified because of the activities performed under this change.

8 Does the activity involve a test or experiment not described in the SAR? [] YES [X] NO
Basis This activity repowers a system to replace the existing power source that is scheduled to be shutdown. The deleted Control Room Alarm is not described in the SAR. No test or experiment are involved because of the activities performed under this change.

9a. Does the activity require a change to the LB/DB Document? [] YES [X] NO
9b. If YES, does this change constitute a change that affects the Licensing Basis or Design Basis Sections of any chapter of the LB/DB Document, to the extent that it impacts the ability of the SSC to satisfy any Licensing Basis statement (see Section 1.6.1d)? [] YES [] NO
Basis N/A

10. Does the activity involve (a) contamination of a non-radioactive system and the resulting potential for unmonitored, uncontrolled release of radioactivity to the environment (IE Bulletin 80-10), OR (b) movement and subsequent storage of radioactive material in an unshielded area without evaluating high radiation area controls (Technical Specification 6.12 and 10 CFR 20.1601), RCA boundary dose rate and site boundary dose limitations (10 CFR 20.1301, 40 CFR 190)? If Yes, Identify (a) and/or (b) as applicable:
[] YES [X] NO

11. Complete, if applicable: FSARCR No. 00-CY-17 TRMCR No. N/A LB/DBCR No. N/A

12. Does the proposed change foreclose (preclude) release of the site for possible unrestricted use? [] YES [X] NO
Discussion: The activities performed by this Plant Alteration are in preparation for the release of the site for unrestricted use.

13. Does the proposed change result in a significant environmental impact not previously reviewed? [] YES [X] NO
Discussion: The proposed change (installs new power to an existing system, relocates existing instruments and installs new local alarms to replace the removed control room alarms) has no potential environmental impact. This change does not affect the site environment (e.g. terrain, noise, solid waste generation, chemical, thermal and ecological effects, visual appearance, or transmission lines) nor the occupational or offsite radiation exposure. All waste generated will be disposed of by the DOC waste contractor as part of normal decommissioning activity.

14. Does the proposed change result in there no longer being reasonable assurance that adequate funds will be available for decommissioning? [] YES [X] NO
Discussion: Activities performed under this change are within the existing DOC scope.

DISCIPLINE PRINT NAME SIGNATURE
Preparer: Elec. Engrg. Armando Vilches Armando Vilches Date: 5/4/00
Approver (1) Licensing Bruce Smith Bruce H. Smith Date: 5/4/2000

Attach additional sheets if needed

NOTE: If any response to Sections 6, 7, 8, 9b or 10 is answered Yes, a Safety Evaluation is required, unless Section 5 is "Yes". If a Safety Evaluation is required, complete Form 2 and attach this form to Form 2. Preparer attach this form to the parent document.

If any answer in Section 12, 13, or 14 is Yes, the proposed change involves a UDO. If a UDO is involved STOP. Obtain assistance from licensing for additional processing.

- * Incorporation of Temporary Procedure Changes which have a completed screening sheet.
** See Attachment 5, Section B.5 for guidance.
*** For partially bounding previous safety evaluations, see Attachment 4, Section B.7 for guidance.

(1)Decommissioning Director or Unit Director shall review this form in the event an Engineering recommendation regarding Tech. Spec. changes is modified.

Form 2 - 10 CFR 50.59 Safety Evaluation

Page 1 of 4Safety Evaluation Number: SY-EV-00-0013 Revision: 0Document Number: 24265-000-DCP-00013 Revision: 0Document Title: Rad Monitors R-18 & R-22, and Solenoid Operated Valve FRCV-1003 Repowering, Relocation of C.R. Recorders, and Rewiring of Flow Switch FIS-204.**1.0 10 CFR 50.59 APPLICABILITY REVIEW**

10 CFR 50.59 is required as documented on Form 1, attached.

2.0 DESCRIPTION

2.1 The modification or activity being evaluated, the reason for the change, and its expected effects is described in Form 1, attached.

2.2 Identify the parameters and systems affected by the change.

The systems affected by this change are the Service Water System, the Liquid Waste Management System, and the 120VAC Electrical Distribution System.

The changes above are necessary to maintain operability of the Service Water and Liquid Waste Management Systems and satisfy applicable regulatory requirements.

2.3 List references used for this Safety Evaluation.

2.3.1 Safety Evaluation # SY-EV-99-0010, PLC tie-ins to Plant Systems (PORC # 99-54)

2.3.2 Safety Evaluation # SY-EV-99-0011, SSC Category Determination in a Decommissioned Plant - Plant Process Computer (PORC # 99-43)

2.3.3 DCP # 24265-000-DCP-00013, Rad Monitors R-18 & R-22, and Solenoid Operated Valve FRCV-1003 Repowering, Relocation of CR Recorders, and Rewiring of Flow Switch FIS-204

2.3.4 DCP # 24265-000-DCP-00047 Transformer 389 Deenergization

2.3.5 CY Decommissioning Updated Final Safety Analysis Report (DUFSAR)

2.3.6 Haddam Neck Plant LB/DB Document

2.3.7 Haddam Neck Plant Radiological Effluent Monitoring & Offsite Dose Calculation Manual (REMODCM)

2.3.8 CY Technical Specifications through Amendment # 195

2.3.9 Safety Evaluation # SY-EV-97-0050, System Category Determination in a Decommissioned Plant - Service Water System

2.3.10 Safety Evaluation # SY-EV-97-0059, System Category Determination in a Decommissioned Plant - Liquid Waste Management System

2.4 Other discussion, if applicable.

All affected procedures have been identified and will be revised, as required, by the responsible departments.

The changes described in Form 1 and paragraph 2.2 above are limited to providing Rad Monitors R-18 & R-22, and Solenoid Operated Valve FRCV-1003 new power sources from a repowered panel (LP-P1-1) in the Primary Auxiliary Building (PAB). This is to replace the present sources from the 120VAC Semi-Vital Panel 1 that will be shutdown when the Bechtel Control Room goes "Cold and Dark".

In addition, new Low Flow local audible and visual alarms will be installed for R-18 and R-22, and their associated Recorders, presently located in the Bechtel Control Room will be relocated to the PAB. Existing R-18 and R-22 related PLC tie-ins with CY Control Room are being removed. All other automatic functions for these systems (ref. 2.3.5) are being retained (including the automatic closing of FRCV-1003 upon detection of radioactivity above the setpoints of either R-18 or R-22 to preclude any further discharge).

These changes will effectively move the place of monitoring and actions for the Service Water and Liquid Waste Management Systems from the Bechtel Control Room to the PAB.

With the present plant configuration the only liquid waste containing radioactive material to be released is a planned liquid waste discharge. A revision to the REMODCM (ref. 2.3.7) states that an operator will be

Form 2 - 10 CFR 50.59 Safety Evaluation**Page 2 of 4**

present in the PAB and within audible distance from the local alarm to allow for reasonable quick action (i.e. proper procedure to specify 10 min.).

Particulate Sampler Flow Rate Meter FIS-204 PLC Point is also being removed. This alarm is no longer required in the CY Control Room and the alarm in the Bechtel Control Room will be rendered inoperative when this Control Room goes "Cold and Dark". A new local audible and visual alarm is being installed in the PAB, this alarm will be wired to the FIS-204 to replace the existing alarm in the Bechtel Control Room.

The replacement of FIS-204 Control Room alarms by a local alarm is supported by a corresponding new Operations requirement for a four hour Operator Round to verify the status of FIS-204 Stack Particulate Low Flow local alarm. The combination of a local alarm and operator round requirements supports the existing REMODCM requirements and controls concerning monitoring of Main Stack ventilation exhaust. Therefore, the combination of the replacement of the location of the FIS-204 particulate low flow alarm and corresponding operator round requirements result in no change to the facility as described in the SAR. Consequently, this particular element of the proposed change has no further discussion.

Note: If the proposed activity involves a change to a radwaste treatment system (See Att. 6,D), respond to the criteria in IEC 80-18 (Ref. 2.3) here, and complete Form 2.

ACP 1.2-2.42 Attachment 6, C, "Radioactive Waste Treatment Systems" was reviewed (Att. 6, D as indicated in the Note above is in error). Repowering R-18 and R-22, and relocating their associated recorders does not constitute a change to the Radioactive Waste Treatment System; therefore no response to the criteria in IEC 80-18 is required.

3.0 USQ DETERMINATION

- 3.1 Which postulated design basis accidents and design basis events previously evaluated in the SAR are considered applicable to the proposed change?

DUF SAR, Chapter 15 "Accident Analysis" was reviewed. Section 15.5 addresses the design basis accidents (DBA) applicable to the plant in the defueled condition, they are Radioactive Waste System Failure and Fuel Handling Accident. No relevance to the postulated design basis accidents was found for the changes associated with this DCP, all work to be performed will be limited to the Bechtel Control Room and the PAB.

- 3.2 May the proposed change:

- a. Increase the probability of an accident or event previously evaluated in the SAR?

YES _____ NO X

DISCUSSION:

No work will be performed in the Spent Fuel Building; therefore this change will not increase the probability of a Fuel Handling Accident. Work in the PAB and in the Bechtel Control Room will only involve electrical connections of the monitors and physical relocation of recorders. All Service Water and Radiation Waste Management System's automatic functions remain unchanged, therefore the probability of a Radioactive Waste System Failure will not be increased by this change.

- b. Increase the consequences of an accident or event previously evaluated in the SAR?

YES _____ NO X

DISCUSSION:

With the plant in the defueled condition, the resin fire having the larger dose consequence, has been determined to be the bounding dose for all other accidents at the site (ref. 2.3.1). The proposed change cannot create a resin fire, or any other accident that could create a release of radioactive material, therefore it cannot increase the consequences of accidents as evaluated in the SAR.

- 3.3 What malfunctions (includes operator error) of equipment important to safety (see definition) are considered applicable to the proposed change?

Form 2 - 10 CFR 50.59 Safety Evaluation

Page 3 of 4

The only equipment important to safety in the defueled condition is the equipment required for maintaining Spent Fuel Pool integrity (ref. 2.3.1).

There is no interface between rad monitors R-18 and R-22 and equipment important to safety (Systems, Structures, and Components (SSC) which are necessary for maintaining water in the SFP).

No malfunction or operator error of equipment important to safety applies to the design changes of this DCP.

R-22 monitors discharges from the Liquid Waste Management System for compliance with 10CFR20. Its failure will not result in an uncontrolled release as the Liquid Management System releases batches of less than 20,000 gallons which are monitored for activity prior to release. A complete failure of R-22 would not result in exceeding the EPA Protective Action guidelines.

R-18 monitored the Service Water System for leakage from radioactive systems such as spent fuel pool cooling. This function is no longer required. Therefore failure of R-18 would not result in any increase in offsite or onsite dose.

3.4 May the proposed change:

- a. Increase the probability of occurrence of a malfunction of equipment important to safety (see definition) previously evaluated in the SAR?

YES _____ NO X _____

DISCUSSION:

As stated in section 3.3 above, there are no malfunctions of equipment important to safety associated with this change. The design changes outlined in this DCP do not increase the probability of occurrence of malfunctions of equipment important to safety as previously evaluated in the SAR.

- b. Increase the consequences of a malfunction of equipment important to safety (see definition) previously evaluated in the SAR?

YES _____ NO X _____

DISCUSSION:

As stated in section 3.3 above, there are no malfunctions of equipment important to safety associated with this change. The proposed change cannot create a release of radioactive material; therefore this change does not increase the consequences of malfunctions of equipment important to safety as previously evaluated in the SAR.

3.5 May the proposed change:

- a. Create the possibility of an accident of a different type than any previously evaluated in the SAR?

YES _____ NO X _____

DISCUSSION:

The proposed change is limited to disconnect an existing power source, connect a new one, and relocate recorders. The affected equipment is Service Water and Liquid Waste Management Systems instrumentation with functions required to show conformance with discharge limits per 10CFR20, these functions remain unchanged, therefore this change cannot create the possibility of an accident of a different type than those evaluated in the SAR.

- b. Create the possibility of a malfunction of a different type than any previously evaluated in the SAR?

YES _____ NO X _____

DISCUSSION:

As stated in section 3.3 above, there are no malfunctions of equipment important to safety associated with this change. Since this change does not affect the design function of the Service Water and Liquid Waste Management Systems, it cannot create the possibility of a malfunction of a different type than those evaluated in the SAR.

Form 2 - 10 CFR 50.59 Safety Evaluation

Page 4 of 4

3.6 Does the proposed change reduce the margin of safety as defined in the basis for any technical specification? YES _____ NO X

Discuss the basis for the determinations and identify the pertinent Technical Specification sections that were reviewed to make the determination.

Technical Specification Basis 3/4.3.3.7 "Radioactive Liquid Effluent Monitoring Instrumentation" and 3/4.3.3.8 "Radioactive Gaseous Effluent Monitoring Instrumentation" have been relocated to the REMODCM by Amendment 195.

Technical Specification Basis 3/4.3.3.7 "Radioactive Liquid Effluent Monitoring Instrumentation" and 3/4.3.3.8 "Radioactive Gaseous Effluent Monitoring Instrumentation" have been relocated to the REMODCM by Amendment 195.

Sections C.1 "Liquid Effluents" and D.1 "Gaseous Effluent" of the REMODCM were reviewed. The controls and surveillance requirements established in these sections ensure compliance with 10CFR Part 20 and are not affected by this change. The proposed change will not reduce the margin of safety as established in the REMODCM "Bases" (alarm/trip will occur prior to exceeding the limits of 10CFR20). Sections C.1 "Liquid Effluents" and D.1 "Gaseous Effluent" of the REMODCM were reviewed. The controls and surveillance requirements established in these sections ensure compliance with 10CFR Part 20 and are not affected by this change. The proposed change will not reduce the margin of safety as established in the REMODCM "Bases" (alarm/trip will occur prior to exceeding the limits of 10CFR20).

4.0 IS PROPOSAL A SAFE PLANT CHANGE?

YES X NO _____

Explain:

As demonstrated above, this change does not increase the probability or consequences of an accident or malfunction of equipment important to safety. This change does not create the possibility of a new accident or malfunction nor does it decrease the margin of safety. Therefore, the proposed change does not result in an unreviewed safety question and will not pose an undue risk to the health and safety of the public. By this modification the Service Water System and the Liquid Waste Management System maintain operability, to conform to 10CFR Part 20, after the Bechtel Control Room goes "Cold and Dark"

5.0 CONCLUSION

If ALL answers in Section 3 are NO, the proposed change does NOT involve a USQ.

If ANY answer in Section 3 is YES, the proposed change involves a USQ.

Is a USQ involved?

YES _____ NO X

If a USQ is involved, STOP. Obtain assistance from Licensing for additional processing.

6.0 APPROVAL

Preparer: Armando Vilches - Elec. Engrg. Armando Vilches Date 5/4/00

Approver: Bruce Smith - Licensing Bruce H. Smith Date 5/4/2000

Discipline Supervisor: Girvan Lyttle Girvan Lyttle Date 5/4/2000

Supporting Disciplines

Discipline: Health Physics - Jay Tarzia Approval: _____ Date _____

PORC Chairman: Robert M. M. Mtg. No. 2000-37 Date 5-4-00

Safety Evaluation and attached Applicability Review sent to Nuclear Safety Assessment Board (NSAB) and Nuclear Document Services, and 10 CFR 50.59(b)(2) Report (Form 3) sent to Licensing:

PORC Secretary: Robert M. M. Date 5-4-2000

Form 3 - 10 CFR 50.59 (b)(2) Report

Safety Evaluation Number: _____ Revision: 0

Document Number: 24265-000-DCP-00013 Revision: 0

Document Title: Rad Monitors R-18 & R-22 Repowering, Relocation of CR Recorders, and Rewiring of Flow Switch
FIS-204

This summary applies to (check all that apply):

DCP	<u> X </u>	Setpoint Change	_____
Test Procedure	_____	Tech Requirements Manual Change	_____
Experiment	_____	Tech Specs Basis Change only	_____
Procedure Change	<u> X </u>	FSAR Changes	<u> X </u>
Jumper Bypass	_____	Other (REMODCM)	<u> X </u>

1. Brief Description of Change:

This DCP provides instructions to repower Rad Monitors R-18, R-22, and solenoid operated valve FRCV 1003 to allow for continuing operation after implementation of DCP # 24265-000-DCP-00047 that will shutdown the Bechtel Control Room leaving it "Cold and Dark".

In addition, the associated recorders will be relocated from the Bechtel Control Room to the PAB and new alarms will be installed locally to replace the existing ones located in the Bechtel Control Room.

New power will be provided from panel LP-P1-1 located in the PAB, this panel is being repowered to stay in operation after the deenergization of transformer 389.

2. Reason for the Change:

River Effluent Rad Monitor R-18 and Waste Test Tank Effluent Monitor R-22 are required to stay operational after shutdown of the Bechtel Control Room. The existing system is powered from Semi-Vital Panel # 1, which will be shutdown when the Bechtel Control room is shutdown upon implementation of the scheduled isolation of the 389 Station Transformer.

Implementation of this modification will keep Rad Monitors R-18 and R-22 Operable in conformance with 10CFR Part 20.

3. Safety Evaluation Summary:

This change does not constitute an unreviewed safety question because:

There is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The basis for this statement is:
(Provide concise summary of responses to Questions 3.2a, 3.2b, 3.4a and 3.4b from Form 2)

As it was established in Form 2 Section 3.2.a, no work will be performed in the Spent Fuel Building; therefore this change will not increase the probability of a Fuel Handling Accident. Work in the PAB and in the Bechtel Control Room will only involve electrical connections of the monitors and physical relocation of recorders. All Service Water and Radiation Waste Management System's automatic functions remain unchanged, therefore the probability of a Radioactive Waste System Failure will not be increased by this change.

As it was established in Form 2 Section 3.2.b, the resin fire having the larger dose consequence, has been determined to be the bounding dose for all other accidents at the site (ref. 2.3.1). The proposed change cannot create a resin fire, or

Form 3 - 10 CFR 50.59 (b)(2) Report

Page 2 of 2

any other accident that could create a release of radioactive material, therefore it cannot increase the consequences of accidents as evaluated in the SAR.

The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report has not been created. The basis for this statement is:

(Provide concise summary to Questions 3.5a and 3.5b from Form 2)

The proposed change is limited to disconnect an existing power source, connect a new one, and relocate recorders. The affected equipment is Service Water and Liquid Waste Management Systems instrumentation with functions required to show conformance with discharge limits per 10CFR20, these functions remain unchanged, therefore this change cannot create the possibility of an accident of a different type than those evaluated in the SAR.

The proposed change is limited to disconnect an existing power source, connect a new one, and relocate recorders. The affected equipment is Service Water and Liquid Waste Management Systems instrumentation with functions required to show conformance with discharge limits per 10CFR20, these functions remain unchanged, therefore this change cannot create the possibility of an accident of a different type than those evaluated in the SAR.

The margin of safety as defined in the basis for any technical specification has not been reduced. The basis for this statement is:

(Provide concise summary to Question 3.6 from Form 2)

The proposed change is limited to disconnect an existing power source, connect a new one, and relocate recorders. The affected equipment is Service Water and Liquid Waste Management Systems instrumentation with functions required to show conformance with discharge limits per 10CFR20, these functions remain unchanged, therefore this change cannot create the possibility of an accident of a different type than those evaluated in the SAR.

Preparer *Armando Villalobos* Date *4/7/00*

Attachment 2
Connecticut Yankee REM/ODCM Change Request
Page 1 of 3

Check One: REMM Change ODCM Change Change Request # 00-04

I. Originator Name (Print): Mark Reimnitz
(Attach markup pages)

Section No.	Section Title	Page No.	Description of Changes & Reason
REMM			
Table C-1 Section B.	Liquid Effluents	C-2	Delete "Service Water Effluent" from Table.
Table C.3.3 Section 2.	Liquid Effluents	C-12	Delete this section in its entirety. Service Water Effluent Line monitor instrumentation is no longer required.
Table C.3.3 Action 47	Liquid Effluents	C-13	Delete ACTION 47. Service Water Effluent Line monitor instrumentation is no longer required.
Table C.4.3 Section 2.	Liquid Effluents	C-14	Delete this section in its entirety. Service Water Effluent Line monitor instrumentation is no longer required.
ODCM			
E.2	Table of Contents	T of C - 1	Delete E.2. Service Water Effluent Line monitor instrumentation is no longer required.
E.2	Service Water Effluent Line Monitor (R-18)	E-3	Delete this section in its entirety. Service Water Effluent Line monitor instrumentation is no longer required. Justification for above changes: Based on the following there are no radiological liquid waste effluent sources, other than what is routed through R-22, that are discharged through the service water return header. <ul style="list-style-type: none"> • The Service Water system is no longer connected to the Spent Fuel Heat Exchangers. Leakage through these heat exchangers was the largest single potential source of activity that R-18 was monitoring. • The piping downstream of valve WD-V-167 (16102-26030 Sh. 4 (H-2)) has been previously "ABANDONED" and is no longer utilized as a drain line from the Boron Waste Storage Tanks and Storm Drain Sump to the Service Water Discharge header. Valve WD-V-167 is locked closed. This liquid effluent is processed and the release is monitored by R-22. • The Main Steam system has been previously "ABANDONED", thereby eliminating any liquid supply from the Main Steam system to the Service Water return header. The drain line for the Steam Generator Blowdown Tank and Steam Generators has been

Attachment 2
Connecticut Yankee REM/ODCM Change Request
Page 1^a of 3

			<p>previously cut and capped thereby eliminating the drain route from the main steam system to the service water discharge header.</p> <ul style="list-style-type: none">• The Radioactive Liquid Waste Effluents are processed to the Waste Test Tanks and are monitored by R-22 prior to discharging into the Service Water return header. In the event radiation levels are above the expected level, R-22 automatically closes WD-FRCV-1003 thereby stopping the radioactive liquid waste effluent discharges.• The flow path of the service water that returns to the header monitored by R-18 is limited to through the PAB Component Cooling Heat Exchangers (E-4-1A & 1B) and the Steam Generator Blowdown Tank Condensers (E-90-1A & 1B). The shell sides of these heat exchangers have been drained and the piping supplies to the shell side have been isolated and categorized as "ABANDONED".• <i>The basis for removing Service Water on a continuous release pathway is summarized above. All inputs, except R-22 and the Test Tanks, have been cut and capped. Weekly Sampling of Service Water will continue under the 80-10 sampling program which was revised to include weekly sampling of Service Water. This is to confirm there is no leak by the double isolation valves between the Test Tanks and Service Water. Weekly Sampling of Service water will continue (gamma & Tritium analysis) as long as there is a permanent connection to Service Water.</i> <p><i>Request for PORC requests for approval of Rev 14 REM/ODCM</i></p>
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Originator signature: *Mark P. Reardon* Date: 7/10/00

Attachment 2
Connecticut Yankee REM/ODCM Change Request
Page 2 of 3

II.

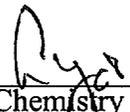
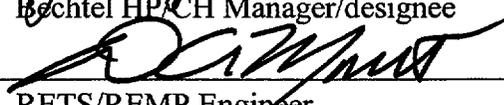
List the procedures and/or setpoints that require revision in order to implement the proposed change.

	Estimated date for <u>implementation</u>	Name of Manager <u>responsible to implement</u>
Liquid Disch. Permits D6401 - CNDRE-4-3	* Aug 20, 2000	J. Tarzia
SW Effluent sampling R1003 - REM 17.4-1D	* Aug 20, 2000	J. Tarzia
Monthly/Gross Liquid R1020 - REM 17.4-1F	* Aug 20, 2000	J. Tarzia
	* could be done sooner - dependent of time REM/ODCM PORC approval. 8-13-00	

III.

Technical Reviewers:

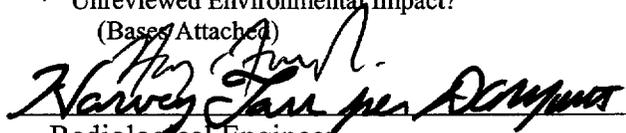
- * Approve or disapprove
- * If disapproving, attach bases.
- * List procedures/setpoints that require revision in Section II.

 Bechtel Chemistry Supervisor	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	7/13/00 Date
 Bechtel HP/CH Manager/designee	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	7/13/00 Date
 RETS/REMP Engineer	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	8/27/2000 Date

IV.

Radiological Environmental Review:

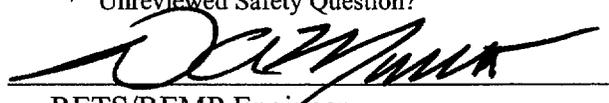
- * Unreviewed Environmental Impact?
(Bases Attached)

 Radiological Engineer	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	8/24/2000 Date
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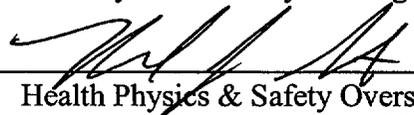
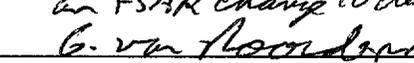
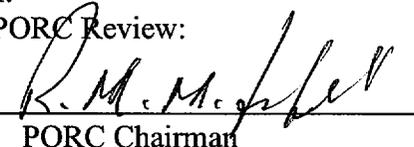
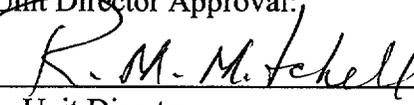
V.

10 CFR 50.59 Safety Evaluation and/or Applicability Review:

- * Safety Evaluation Required ?
(Applicability Review Attached) SY-EV-00-0021 Yes No
- * Unreviewed Safety Question? Yes No N/A

 RETS/REMP Engineer		8/24/2000 Date
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Attachment 2
Connecticut Yankee REM/ODCM Change Request
Page 3 of 3

VI. Health Physics & Safety Oversight Review:  Health Physics & Safety Oversight Manager	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	8/24/00 Date
VII. Compliance Review: <i>Approval of this change request should trigger an FSAR change to delete R-18 from Section 11.2 and</i>  Regulatory Affairs Manager	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	8/24/00 Date
VIII. PORC Review:  PORC Chairman	Meeting No. 2000-66 Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	9/27/00 Date
IX. Unit Director Approval:  Unit Director	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	9/27/00 Date
X. CY NSAB Approval: (As required)  NSAB Chairman	Approve <input type="checkbox"/> Disapprove <input type="checkbox"/>	_____ Date
XI. Verify that the Section II procedure and/or setpoint changes have been approved and are consistent with this Change Request. Effective Date of REM/ODCM Revision:  RETS/REMP Engineer	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	9/27/2000 9/27/2000 Date
XII. Changes sent to Administration for Implementation:  RETS/REMP Engineer	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/>	9/27/2000 Date
XIII. Changes documented in annual Radioactive effluent Report:  RETS/REMP Engineer	Approve <input type="checkbox"/> Disapprove <input type="checkbox"/>	9/26/2001 Date

Bechtel CH / HP Intradepartmental Correspondence

BPC CH / HP 00-0052

To: Dave Montt – CY RETS/REMP Engineer

From: Harvey Farr – Bechtel Rad./Chem. Engineering Supervisor

Date: 7/31/00

Re: Environmental Review for REM/ODCM Change Request #00-04

The REM/ODCM change request #00-04 pertains to the removal of continuous monitoring (R-18) and the composite sample analysis of the Service Water System. The Service Water System was evaluated in the "System Review in Response to IE Bulletin 80-10", revision 1, dated November 14, 1997. This review found that no activity had been found in samples from this system, but includes the potential of activity being released by this pathway due to the activity sources that Service Water flowed through (cooled). The decommissioning activities to date have removed the sources of water that could potentially leak into Service Water.

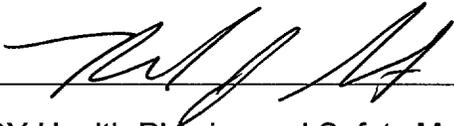
The monitoring of Service Water by weekly composite analysis has not identified activity since the IE Bulletin 80-10 System Review was distributed. The potential release of "pockets" or fixed contamination is highly unlikely since Service Water is a single pass through system and has been in continuous operation since the plant was shutdown. Potential leaks that may develop in the heat exchangers that Service Water flows through would not release activity to the environment since the operating pressure of the system would send the water "into" the heat exchanger.

Service Water is the motive flow for the release of a test tank, but R-18 is not required to perform this release. The monitoring requirement to ensure 10 CFR Part 20 limits are not exceeded during a release will continue to be fulfilled by the Test Tank Radiation Monitor (R-22).

The removal of R-18 will not increase the amount of activity released to the environment. The potential activity that would be detected by the monitoring of Service Water continuously (R-18) or by sampling has been eliminated,

therefore, it is acceptable to remove these two requirements from the REM/ODCM.

Based upon this information, it has been determined that the removal of monitoring for the Service Water System does not represent an Unreviewed Radiological Environmental Impact. This change maintains the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, 10 CFR 50 Appendix I and will not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.


CY Health Physics and Safety Manager


Date

DESIGN CHANGE DETAILS**1.0 Justification:**

The Service Water system is no longer connected to the Spent Fuel Heat Exchangers. This was the largest single potential source of activity that R-18 was monitoring.

The piping downstream of valve WD-V-167 (16102-26030 Sh. 4 (H-2)) has been previously "ABANDONED" and is no longer utilized as a drain line from the Boron Waste Storage Tanks and Storm Drain Sump to the service Water Discharge header. Valve WD-V-167 is locked closed and the abandoned pipe upstream of valve SW-V-698 (16103-26014 Sh. 5 (B-12)) will be cut and capped to isolate from the discharge header.

The Main Steam system has been previously "ABANDONED", thereby eliminating any liquid supply from the Main Steam system to the Service Water return header. The drain line for the Steam Generator Blowdown Tank and Steam Generators has been previously cut and capped thereby eliminating the drain route from the main steam system to the service water discharge header.

The Radioactive Liquid Waste Effluents are processed to the Waste Test Tanks and are monitored by R-22 prior to discharging into the Service Water return header. In the event radiation levels are above the expected level, R-22 automatically closes WD-FRCV-1003 thereby stopping all liquid waste effluent discharges.

The flow path of the service water that returns to the header monitored by R-18 is limited to through the PAB Component Cooling Heat Exchangers (E-4-1A & 1B) and the Steam Generator Blowdown Tank Condensers (E-90-1A & 1B). The shell sides of these heat exchangers have been drained and the piping supplies to the shell side have been isolated and categorized as "ABANDONED". Any potential leaks that may develop in these heat exchangers would not release activity to the environment since the operating pressure of the Service Water system would leak "into" the heat exchangers.

The monitoring of the Service Water by weekly composite analysis has not identified any activity in the system. The potential release of "pockets" of contaminated material or fixed contamination is highly unlikely since the service water is a single pass through system and has been in continuous operation.

REMODCM Control C.3.3 of Part I requires that the radioactive liquid effluent instrumentation in Table C.3.3 have alarm setpoints in order to ensure that the limits of Control C.3.1 are not exceeded. Control C.3.1 of Part I requires that the concentration of radioactive material released from the site shall not exceed the concentrations specified in 10 CFR Part 20, Appendix B.

Based on the above there are no radiological liquid waste effluent sources other than what is routed through R-22 that are discharged through the service water return header. R-22 will fulfill the requirements of REMODCM Control C.3.1. Therefore, R-18 is no longer required and can be "ABANDONED".

2.0 REFERENCES

1. REMODCM "Radiological Effluent Monitoring & Offsite Dose Calculation Manual
2. Drawings 16103-26014 Shts. 4 to 7, & 9 "Service Water System"
3. Drawing 16103-26012 Sht. 8 "Main Steam System"
4. Drawing 16103-26030 Shts. 2 & 4, "Liquid Waste System"

3.0 DETAILED DESIGN/DESIGN ACTIVITY

Drawing revised to indicate new SSC Categorization of R-18 as "ABANDONED".

Electrical Design removes the interlock with WD-FRCV-1003, removes 120 VAC power and control external connections from R18 skid and removes connections to the SFI/New Control Room PLC.

4.0 IMPLEMENTATION CONSIDERATIONS

- Disconnect 120 VAC power to the radiation monitoring skid for R18 before disconnecting the external cables.
- Verify that valve WD-V-167 (16102-26030 Sh. 4 (H-2)) is locked closed and the abandoned pipe upstream (4"-WBTD-151-1) of valve SW-V-698 (16103-26014 Sh. 5 (B-12)) has been cut and capped to isolate from the discharge header prior to abandoning R-18.
- Do not implement R-18 changes shown in 24265-000-DCP-00013-000.
- Verify REMODCM change request has been approved prior to implementing this DCP.

5.0 OPERATIONAL CONSIDERATIONS

Inform the operators in the new control room before implementing these changes. Inputs to the SFI/New Control Room PLC may initiate a control room alarm.

6.0 TEST REQUIREMENTS

N/A

7.0 OPEN ITEM

Revise Plant/Decommissioning procedures to remove R-18.

ATTACHMENTS

Attachment A – DCP Supporting Documents (Drawing Changes) (16 pages)

Attachment B – SSC Category Documents (3 pages)

Attachment C – Safety Evaluation (9 pages)

Form 1 - 10 CFR 50.59 Applicability Review
Page 1 of 3

Document Number: 24265-000-DCP-00063-000

Rev.: 0

Document Title: Abandonment of R-18 Effluent Radiation Monitor

1. Does the proposal fall into one of the following categories (see Procedure Step 1.6.1e)? [] YES [X] NO
[] TPC incorp. * [] Typographic error [] Format change [] Title/Name change
[] Minor admin. or editorial corrections to drawings**
If Yes, check applicable category and proceed to Section 11. If No, complete remainder of the form.

2. Describe the change, reason and expected effects:

CHANGE:

Categorize R-18 Effluent Radiation Monitor as ABANDONED and remove from service.

REASON:

Based on the following there are no radiological liquid waste effluent sources, other than what is routed through R-22, that are discharged through the service water return header.

- The Service Water system is no longer connected to the Spent Fuel Heat Exchangers. Leakage through these heat exchangers was the largest single potential source of activity that R-18 was monitoring.
- The piping downstream of valve WD-V-167 (16102-26030 Sh. 4 (H-2)) has been previously "ABANDONED" and is no longer utilized as a drain line from the Boron Waste Storage Tanks and Storm Drain Sump to the service Water Discharge header. Valve WD-V-167 is locked closed and the abandoned pipe upstream of valve SW-V-698 (16103-26014 Sh. 5 (B-12)) will be cut and capped to isolate from the discharge header.
- The Main Steam system has been previously "ABANDONED", thereby eliminating any liquid supply from the Main Steam system to the Service Water return header. The drain line for the Steam Generator Blowdown Tank and Steam Generators has been previously cut and capped thereby eliminating the drain route from the main steam system to the service water discharge header.
- The Radioactive Liquid Waste Effluents are processed to the Waste Test Tanks and are monitored by R-22 prior to discharging into the Service Water return header. In the event radiation levels are above the expected level, R-22 automatically closes WD-FRCV-1003 thereby stopping the radioactive liquid waste effluent discharges. Multi-valve isolation is utilized to isolate the Test Tank discharge system during periods when discharges are not being made. Operating procedures for Test Tank discharges require independent verification of valve alignment prior to and upon completion of discharges to prevent unmonitored discharges into the service water header.
- The flow path of the service water that returns to the header monitored by R-18 is limited to through the PAB Component Cooling Heat Exchangers (E-4-1A & 1B) and the Steam Generator Blowdown Tank Condensers (E-90-1A & 1B). The shell sides of these heat exchangers have been drained and the piping supplies to the shell side have been isolated and categorized as "ABANDONED".
- The monitoring of the Service Water by weekly composite analysis has not identified any activity in the system. The potential release of "pockets" of contaminated material or fixed contamination is highly unlikely since the service water is a single pass through system and has been in continuous operation.

REMODCM Control C.3.3 of Part I requires that the radioactive liquid effluent instrumentation in Table C.3.3 have alarm setpoints in order to ensure that the limits of Control C.3.1 are not exceeded. Control C.3.1 of Part I requires that the concentration of radioactive material released from the site shall not exceed the concentrations specified in 10 CFR Part 20, Appendix B.

R-22 fulfills the requirements of REMODCM Control C.3.1 for radioactive liquid effluent instrumentation requirements. Therefore, R-18 is no longer required and can be "ABANDONED". However, a change to the REMODCM is required in order to delete R-18.

Form 1-10 CFR 50.59 Applicability Review
Page 2 of 3

EXPECTED EFFECTS:

R-18 will be abandoned. R-22 will continue to be utilized for monitoring radioactive liquid waste effluent discharges.

3. List SAR and LB/DB document items/sections reviewed:

- USFAR Section 9.2.1, "Service Water Systems"
- UFSAR Section 11.2, "Liquid Waste Management Systems"
- UFSAR Section 11.5, "Process and Effluent Radiological Monitoring"
- LD/DB Chapter 2, 12 and 15
- REMODCM, "Radiological Effluent Monitoring & Offsite Dose Calculation Manual"

4. Does the activity require a change to the Operating License or Technical Specifications? YES NO
Basis R-18 is not discussed in the CY Technical Specification or Operating License. TS Section 6.6.3 provides the requirements for making changes to the Radiological Effluent Monitoring and Offsite Dose Calculation Manual (REMOCDM)

List TS/OL Sections reviewed: Entire CY Operating License. Technical Specification Section 6.6.3

If Yes, contact Licensing before implementing the change, obtain a PTSCR and complete remainder of form.

PTSCR No. _____

5. Is the activity bounded by a previously performed 10 CFR 50.59 Safety Evaluation?*** YES NO
SE No.: _____

If Yes, sections 6, 7 and 8 may be omitted.

6. Does the activity make changes to the facility as described in the SAR? YES NO
Basis Revisions to SAR are required to remove R-18 Service Water Discharge Liquid Effluent Monitor

7. Does the activity make changes to procedures as described in the SAR? YES NO
Basis There are no procedures applicable to the R-18 Service Water Liquid effluent Monitor described in the SAR that are changed by this activity.

8. Does the activity involve a test or experiment not described in the SAR? YES NO
Basis This is a re-categorization of equipment in support of the decommissioning process. It does not involve any test or experiment.

- 9a. Does the activity require a change to the LB/DB Document? YES NO

- 9b. If YES, does this change constitute a change that affects the Licensing Basis or Design Basis Sections of any chapter of the LB/DB Document, to the extent that it impacts the ability of the SSC to satisfy any Licensing Basis statement (see Section 1.6.1d)? YES NO

Basis _____

10. Does the activity involve (a) contamination of a non-radioactive system and the resulting potential for unmonitored, uncontrolled release of radioactivity to the environment (IE Bulletin 80-10), OR (b) movement and subsequent storage of radioactive material in an unshielded area without evaluating high radiation area controls (Technical Specification 6.12 and 10 CFR 20.1601), RCA boundary dose rate and site boundary dose limitations (10 CFR 20.1301, 40 CFR 190)?

If Yes, Identify (a) and/or (b) as applicable: _____ YES NO

11. Complete, if applicable: FSARCR No. 00-CY-27 TRMCR No. _____ LB/DBCR No. _____

12. Does the proposed change foreclose (preclude) release of the site for possible unrestricted use? YES NO
Discussion: R-18 is being abandoned to support decommissioning activities.

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13. Does the proposed change result in a significant environmental impact not previously reviewed? [] YES [X] NO
Discussion: R-22 continues to monitor radioactive liquid waste effluent discharges. Abandonment of R-18 supports decommissioning activities.
14. Does the proposed change result in there no longer being reasonable assurance that adequate funds will be available for decommissioning? [] YES [X] NO
Discussion: The change is within the scope of work of the DOC and funds for its implementation and ultimate removal are already allocated. Therefore, the proposed activity will not impact the availability for decommissioning funds.

DISCIPLINE PRINT NAME SIGNATURE

Preparer: Engineering Mark Reimnitz Mark P. Reimnitz Date: 8/2/00

Approver ⁽¹⁾ Licensing Robert Prunty RW Prunty Date: 8/2/00

Attach additional sheets if needed

NOTE: If any response to Sections 6, 7, 8, 9b or 10 is answered Yes, a Safety Evaluation is required, unless Section 5 is "Yes". If a Safety Evaluation is required, complete Form 2 and attach this form to Form 2.
Preparer attach this form to the parent document.
If any answer in Section 12, 13, or 14 is Yes, the proposed change involves a UDQ.
If a UDQ is involved STOP. Obtain assistance from licensing for additional processing.
* Incorporation of Temporary Procedure Changes which have a completed screening sheet.
** See Attachment 5, Section B.5 for guidance.
*** For partially bounding previous safety evaluations, see Attachment 4, Section B.7 for guidance.
⁽¹⁾Decommissioning Director or Unit Director shall review this form in the event an Engineering recommendation regarding Tech. Spec. changes is modified.

Form 2 - 10 CFR 50.59 Safety Evaluation

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Safety Evaluation Number: SY-EV-00-0021 Revision: 0

Document Number: DCP # 24265-000-DCP-00063-000 Revision: 0

Document Title: Abandonment of R-18 Effluent Radiation Monitor

1.0 10 CFR 50.59 APPLICABILITY REVIEW

10 CFR 50.59 is required as documented on Form 1, attached.

2.0 DESCRIPTION

2.1 The modification or activity being evaluated, the reason for the change, and its expected effects is described in Form 1, attached.

2.2 Identify the parameters and systems affected by the change.

R-18 is being re-categorized as ABANDONED. The Radioactive Liquid Waste Effluents are processed to the Waste Test Tanks and will continue to be monitored by R-22 prior to discharging into the Service Water return header.

2.3 List references used for this Safety Evaluation.

2.3.1 ENG1.7-156, "System Category Determination in a Decommissioned Plant"

2.3.2 REMODCM, "Radiological Effluent Monitoring & Offsite Dose Calculation Manual"

2.3.3 UFSAR 15.2 "Radioactive Release From a Subsystem or Component"

2.4 Other discussion, if applicable.

N/A

3.0 USQ DETERMINATION

3.1 Which postulated design basis accidents and design basis events previously evaluated in the SAR are considered applicable to the proposed change? None.

Section 15.2 of the SAR identifies four accidents considered for a radioactive waste system failure. They are a waste evaporator failure, a waste gas incident, a solid waste system failure and a liquid waste system failure (hypothetical release of RWST). Likewise, "other decommissioning activity accidents" of Section 15.2 involve particulate airborne release. Eliminating R-18, a liquid effluent radiation monitor for the service water system, does not affect either the probability or the consequences of these accidents.

3.2 May the proposed change:

a. Increase the probability of an accident or event previously evaluated in the SAR?

YES _____ NO X

DISCUSSION:

As noted in Section 3.1 there are no design basis accidents that are affected by this proposed activity. Therefore, removing R-18 from service does not increase the probability of a previously evaluated accident or event in the SAR.

Form 2 - 10 CFR 50.59 Safety Evaluation

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b. Increase the consequences of an accident or event previously evaluated in the SAR?

YES _____ NO X

DISCUSSION:

As noted in Section 3.1, there are no design basis accidents that are affected by this proposed activity. Therefore, removing R-18 from service does not increase the consequences of a previously evaluated accident or event in the SAR.

3.3 What malfunctions (includes operator error) of equipment important to safety (see definition) are considered applicable to the proposed change?

NONE. The only safety related function that remains in the decommissioned plant is to keep the spent fuel covered with water and cooled. The R-18 Service Water Discharge Liquid Effluent Monitor being abandoned by this proposed activity does not interface with the SFP Island in any direct or indirect way. Therefore there is no equipment important to safety that is affected by this proposed change.

3.4 May the proposed change:

a. Increase the probability of occurrence of a malfunction of equipment important to safety (see definition) previously evaluated in the SAR?

YES _____ NO X

DISCUSSION:

As noted in 3.3, there is no equipment important to safety affected by this change. Therefore, there is no increase in probability of a malfunction of equipment important to safety.

b. Increase the consequences of a malfunction of equipment important to safety (see definition) previously evaluated in the SAR?

YES _____ NO X

DISCUSSION:

As noted in 3.3, there is no equipment important to safety affected by this change. Therefore, there is no increase in consequences of malfunction of equipment important to safety.

3.5 May the proposed change:

a. Create the possibility of an accident of a different type than any previously evaluated in the SAR?

YES _____ NO X

DISCUSSION:

Radioactive waste system failures were previously evaluated in the SAR. The proposed activity - abandoning the R-18 Service Water Discharge Liquid Effluent Monitor - does not create the possibility of an accident of a different type than that evaluated in the SAR. R-18 provides a monitoring function and neither its operation nor abandonment can cause an accident.

b. Create the possibility of a malfunction of a different type than any previously evaluated in the SAR?

YES _____ NO X

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DISCUSSION:

The proposed activity does not provide any new equipment or components. R-18 provides a monitoring function and neither its operation nor abandonment can cause a malfunction of a different type than previously evaluated in the SAR.

3.6 Does the proposed change reduce the margin of safety as defined in the basis for any technical specification?

YES _____ NO _____ X _____

The plant Technical Specifications no longer contain radiation monitor requirements or the basis for them, with the exception of administrative controls in Section 6.0. This describes the administrative policies to be established, implemented, and maintained for the radiological effluent control program. There are no margins of safety for the radiological effluent control program. Therefore the proposed changes do not reduce the margin of safety as defined in the basis for any technical specification.

4.0 IS PROPOSAL A SAFE PLANT CHANGE? -

YES _____ X _____ NO _____

Explain:

There are no radiological liquid waste effluent sources, other than what is routed through R-22, that are discharged through the service water return header. This proposed design causes no significant increase in risk to public health and safety and therefore is a safe plant change.

5.0 CONCLUSION

If ALL answers in Section 3 are NO, the proposed change does NOT involve a USQ.
If ANY answer in Section 3 is YES, the proposed change involves a USQ.

Is a USQ involved?

YES _____ NO _____ X _____

If a USQ is involved, STOP. Obtain assistance from Licensing for additional processing.

6.0 APPROVAL

Preparer Mark P. Reimnitz [Signature] Date 8/2/00

Approver: Robert Prunty [Signature] Date 8/2/00

Supporting Disciplines

Discipline: Health Physics [Signature] Approval: [Signature] Date 8/2/00

Discipline: _____ Approval: _____ Date _____

Discipline: _____ Approval: _____ Date _____

PORC Chairman: R. M. M. [Signature] Mtg. No. 2000-57 Date 8-1-00

Safety Evaluation and attached Applicability Review sent to Nuclear Safety Assessment Board (NSAB) and Nuclear Document Services, and 10 CFR 50.59(b)(2) Report (Form 3) sent to Licensing:

PORC Secretary: _____ Date _____

Form 3 - 10 CFR 50.59 (b)(2) Report

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Safety Evaluation Number: SY-EV-00-0021 Revision: 0

Document Number: DCP # 24265-000-DCP-00063-000 Revision: N/A

Document Title: Abandonment of R-18 Effluent Radiation Monitor

This summary applies to (check all that apply):

DCR	_____	Setpoint Change	_____
Test Procedure	_____	Tech Requirements Manual Change	_____
Experiment	_____	Tech Specs Basis Change only	_____
Procedure Change	_____	FSAR Changes	_____
Jumper Bypass	_____	Other – DCP, REMODCM	<u>X</u>

1. Brief Description of Change:

Service Water Effluent Radiation Monitor R-18 is being re-categorized as ABANDONED and removed from service.

2. Reason for the Change:

In support of the decommissioning process, the radiological effluent sources that were previously available during normal plant operation which could have potentially entered the service water discharge have been isolated and/or removed. The Radioactive Liquid Waste Effluents are processed to the Waste Test Tanks and are monitored by R-22 prior to discharging into the Service Water return header.

3. Safety Evaluation Summary:

This change does not constitute an unreviewed safety question because:

There is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The basis for this statement is:

(Provide concise summary of responses to Questions 3.2.a, 3.2.b, 3.4.a, and 3.4.b from Form 3)

Section 15.2 of the SAR identifies four accidents considered for a radioactive waste system failure. They are a waste evaporator failure, a waste gas incident, a solid waste system failure and a liquid waste system failure. Likewise, "other decommissioning activity accidents" of Section 15.2 involve particulate airborne release, eliminating R-18, a liquid effluent radiation monitor for the service water system, does not affect either the probability or the consequences of these accidents.

The only safety related function that remains in the decommissioned plant is to keep the spent fuel covered with water and cooled. The R-18 Service Water Discharge Liquid Effluent Monitor being abandoned by this proposed activity does not interface with the SFP Island in any direct or indirect way. Therefore, there is no equipment important to safety that is affected by this proposed change.

The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report has not been created. The basis for this statement is:

(Provide a concise summary to questions 3.5.a and 3.5.b from Form 2)

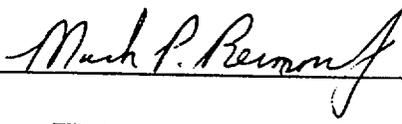
Radioactive waste system failures were previously evaluated in the SAR. The proposed activity – abandoning the R-18 Service Water Discharge Liquid Effluent Monitor - does not create the possibility of an accident of a different type than that evaluated in the SAR. The proposed activity does not provide any new equipment. R-18 provides a monitoring function and neither its operation nor abandonment can cause an accident or malfunction of a different type than previously evaluated in the SAR.

The margin of safety as defined in the basis for any technical specification has not been reduced. The basis for this statement is:

(Provide concise summary to Question 3.6 from Form 2.

The plant Technical Specifications no longer contain radiation monitor requirements or the basis for them, with the exception of administrative controls in Section 6.0. This describes the administrative policies to be established, implemented, and maintained for the radiological effluent control program. There are no margins of safety for the radiological effluent control program. Therefore the proposed changes do not reduce the margin of safety as defined in the basis for any technical specification.

Preparer Mark Reimnitz



Date 8/2/00