New Hampshire
Yankee

NYN-89107

August 30, 1989

United States Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

References: a) Facility Operating License NPF-67, Docket No. 50-443

b) Seabrook Station Technical Specification 6.8.1.4, "Semiannual Radioactive Effluent Release Report"

Subject: Seabrook Station Semiannual Radioactive Effluent Release Report

Gentlemen:

In accordance with the requirements of reference (b), enclosed is the Seabrook Station Semiannual Radioactive Effluent Release Report. This report is submitted for the reporting period beginning with the initial criticality of Seabrook Station, which was achieved on June 13, 1989, and ending June 30, 1989.

The effluent and waste disposal information contained in this report is submitted in the format specified by Appendix B to Regulatory Guide 1.21, Revision 1 (June 1974). The additional information required by Reference (b) is provided as appendices to the report.

Should you have any questions regarding this report, please contact Mr. Richard P. Belanger at (603) 474-9521, extension 4048.

Very truly yours,

Ted C. Feigenbaum
Senior Vice President
and Chief Operating Officer

Enclosure

TEA8
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cc: Mr. William T. Russell
Regional Administrator
United States Nuclear Regulatory Commission
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Mr. Victor Nerses, Project Manager
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United States Nuclear Regulatory Commission
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Washington, DC 20555

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NRC Senior Resident Inspector
P.O. Box 1149
Seabrook, NH 03874

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

SEABROOK STATION	Unit 1	Quarter 1	Quarter 2	Est. Total Error, %
A. Fission & activation gases				
1. Total release	Ci	. E	ND. E	. E
2. Average release rate for period	µCi/sec	. E	ND. E	
3. Percent of technical specification limit	%	. E	ND. E	
B. Iodines				
1. Total iodine-131	Ci	. E	ND. E	. E
2. Average release rate for period	µCi/sec	. E	ND. E	
3. Percent of technical specification limit	%	. E	ND. E	
C. Particulates				
1. Particulates with half-lives >8 days	Ci	. E	ND. E	. E
2. Average release rate for period	µCi/sec	. E	ND. E	
3. Percent of technical specification limit	%	. E	ND. E	
4. Gross alpha radioactivity	Ci	. E	ND. E	
D. Tritium				
1. Total release	Ci	. E	1.05 E-05	3.0 E01
2. Average release rate for period	µCi/sec	. E	1.35 E-06	
3. Percent of technical specification limit	%	. E	ND. E	

NOTE: Initial criticality occurred on June 13, 1989.

ND = none detected

TABLE 1B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

		CONTINUOUS MODE		BATCH MODE	
Nuclides Released	Unit 1	Quarter 1	Quarter 2	Quarter 1	Quarter 2
1. Fission gases					
krypton-85	Ci	. E	ND. E	. E	ND. E
krypton-85m	Ci	. E	ND. E	. E	ND. E
krypton-87	Ci	. E	ND. E	. E	ND. E
krypton-88	Ci	. E	ND. E	. E	ND. E
xenon-133	Ci	. E	ND. E	. E	ND. E
xenon-135	Ci	. E	ND. E	. E	ND. E
xenon-135m	Ci	. E	ND. E	. E	ND. E
xenon-138	Ci	. E	ND. E	. E	ND. E
Others (specify)	Ci	. E	ND E	. E	ND. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	ND. E	. E	ND. E
Total for period	Ci	. E	ND. E	. E	ND. E
B. Iodines					
iodine-131	Ci	. E	ND. E	. E	ND. E
iodine-133	Ci	. E	ND. E	. E	ND. E
iodine-135	Ci	. E	ND. E	. E	ND. E
Total for period	Ci	. E	ND. E	. E	ND. E
C. Particulates					
strontium-89	Ci	. E	ND. E	. E	ND. E
strontium-90	Ci	. E	ND. E	. E	ND. E
cesium-134	Ci	. E	ND. E	. E	ND. E
cesium-137	Ci	. E	ND. E	. E	ND. E
barium-lanthanum-140	Ci	. E	ND. E	. E	ND. E
Others (specify)	Ci	. E	ND. E	. E	ND. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	ND. E	. E	ND. E

NOTE: Initial criticality occurred on June 13, 1989. No activity was detected during this period.

ND = none detected

TABLE 1C

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

		CONTINUOUS MODE		BATCH MODE	
Nuclides Released	Unit 1	Quarter 1	Quarter 2	Quarter 1	Quarter 2
1. Fission gases					
krypton-85	Ci	. E	ND. E	. E	ND. E
krypton-85m	Ci	. E	ND. E	. E	ND. E
krypton-87	Ci	. E	ND. E	. E	ND. E
krypton-88	Ci	. E	ND. E	. E	ND. E
xenon-133	Ci	. E	ND. E	. E	ND. E
xenon-135	Ci	. E	ND. E	. E	ND. E
xenon-135m	Ci	. E	ND. E	. E	ND. E
xenon-138	Ci	. E	ND. E	. E	ND. E
Others (specify)	Ci	. E	ND. E	. E	ND. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	ND. E	. E	ND. E
Total for period	Ci	. E	ND. E	. E	ND. E
B. Iodines					
iodine-131	Ci	. E	ND. E	. E	ND. E
iodine-133	Ci	. E	ND. E	. E	ND. E
iodine-135	Ci	. E	ND. E	. E	ND. E
Total for period	Ci	. E	ND. E	. E	ND. E
C. Particulates					
strontium-89	Ci	. E	ND. E	. E	ND. E
strontium-90	Ci	. E	ND. E	. E	ND. E
cesium-134	Ci	. E	ND. E	. E	ND. E
cesium-137	Ci	. E	ND. E	. E	ND. E
barium-lanthanum-140	Ci	. E	ND. E	. E	ND. E
Others (specify)	Ci	. E	ND. E	. E	ND. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	ND. E	. E	ND. E

NOTE: Initial criticality occurred on June 13, 1989. No activity was detected during this period.

ND = none detected

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

	Unit 1	Quarter 1	Quarter 2	Est. Total Error, %
A. Fission and activation products				
1. Total release (not including tritium, gases, alpha)	Ci	. E	ND. E	. E
2. Average diluted concentration during period	µCi/ml	. E	ND. E	
3. Percent of applicable limit	%	. E	ND. E	
B. Tritium				
1. Total release	Ci	. E	ND. E	. E
2. Average diluted concentration during period	µCi/ml	. E	ND. E	
3. Percent of applicable limit	%	. E	ND. E	
C. Dissolved and entrained gases				
1. Total release	Ci	. E	ND. E	. E
2. Average diluted concentration during period	µCi/ml	. E	ND. E	
3. Percent of applicable limit	%	. E	ND. E	
D. Gross alpha radioactivity				
1. Total Release	Ci	. E	ND. E	. E
E. Volume of waste released (prior to dilution)	liters	. E	3.56 E6	1.0 E01
F. Volume of dilution water used during period	liters	. E	3.35 E10	1.0 E01

NOTE: Initial criticality occurred on June 13, 1989. No activity was detected during this period.

ND = none detected

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
Nuclides Released	Unit 1	Quarter 1	Quarter 2	Quarter 1	Quarter 2
strontium-89	Ci	. E	ND. E	. E	ND. E
strontium-90	Ci	. E	ND. E	. E	ND. E
cesium-134	Ci	. E	ND. E	. E	ND. E
cesium-137	Ci	. E	ND. E	. E	ND. E
iodine-131	Ci	. E	ND. E	. E	ND. E
cobalt-58	Ci	. E	ND. E	. E	ND. E
cobalt-60	Ci	. E	ND. E	. E	ND. E
iron-59	Ci	. E	ND. E	. E	ND. E
zinc-65	Ci	. E	ND. E	. E	ND. E
manganese-54	Ci	. E	ND. E	. E	ND. E
chromium-51	Ci	. E	ND. E	. E	ND. E
zirconium-niobium-95	Ci	. E	ND. E	. E	ND. E
molybdenum-99	Ci	. E	ND. E	. E	ND. E
technetium-99m	Ci	. E	ND. E	. E	ND. E
barium-lanthanum-140	Ci	. E	ND. E	. E	ND. E
cerium-141	Ci	. E	ND. E	. E	ND. E
Other (specify)	Ci	. E	ND. E	. E	ND. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	ND. E	. E	ND. E
Total for period (above)	Ci	. E	ND. E	. E	ND. E
xenon-133	Ci	. E	ND. E	. E	ND. E
xenon-135	Ci	. E	ND. E	. E	ND. E

NOTE: Initial criticality occurred on June 13, 1989. No activity was detected during this period.
ND = none detected

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Type of waste (No shipments made)	Unit	First 6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	. E . E	. E
b. Dry compressible waste, contaminated equip, etc.	m^3 Ci	. E . E	. E
c. Irradiated components, control rods etc.	m^3 Ci	. E . E	. E
d. Other (described)	m^3 Ci	. E . E	. E

2. Estimate of major nuclide composition (by type of waste)

a.			
b.			
c.			
d.			

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
None		

B. IRRADIATED FUEL SHIPMENTS (Disposition)

Number of Shipments	Mode of Transportation	Destination
None		

NOTES

1) Class A waste
2) Class B waste
3) Class C waste
4) Type of container =
5) Type of container =
6) Solidification agent =

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information 1989 Second Quarter

Facility: Seabrook Unit 1 Licensee: New Hampshire Yankee

1. Regulatory Limits

   a. Fission and activation gases: 0.5 mrad per quarter gamma air dose, 1.0 mrad per quarter beta air dose. See note 1.

   b. Iodines: 0.75 mrem per quarter to any organ. See note 1.

   c. Particulates, half-lives > 8 days: Particulates and iodines are included in step b.

   d. Liquid effluents: 1.5 mrem per quarter whole body and 5 mrem per quarter to any organ.

2. Maximum Permissible Concentrations

   Provide the MPC's used in determining allowable releases rates or concentrations.

   a. Fission and activation gases: 1 MPC
   b. Iodines: 1 MPC
   c. Particulates, half-lives > 8 days: 1 MPC
   d. Liquid effluents: 1 MPC

3. Average Energy

   Not calculated at this time, fission and activation gases were not released this period.

4. Measurements and Approximations of Total Radioactivity

   Provide the methods used to measure or approximate the total radioactivity in effluents and the methods used to determine radionuclide composition.

   a. Fission and activation gases: Determined by gamma spectroscopy.

   b. Iodines: Determined by collection on charcoal with subsequent gamma spectroscopy analysis.

   c. Particulates: Determined by collection on fixed filter with subsequent gamma spectroscopy analysis, strontium is determined by composite analysis of filters by liquid scintillation, gross alpha by proportional counter, and iron 55 by liquid scintillation.

   d. Liquid Effluents: Determined by gamma spectroscopy, strontium of composite by liquid scintillation, tritium by liquid scintillation, alpha by proportional counter, and iron 55 by liquid scintillation.

5. Batch Releases

Provide the following information relating to batch releases of radioactive materials in liquid and gaseous effluents.

a. Liquid

1. Number of batch releases: 13
2. Total time for batch releases: 5685 minutes
3. Maximum time period for batch releases: 1044 minutes
4. Average time period for batch release: 437 minutes
5. Minimum time period for a batch release: 85 minutes
6. Average stream flow during periods of release of effluent into a flowing stream: 1.35 E06 liters per minute.

b. Gaseous

1. Number of batch releases: 5
2. Total time period for batch releases: 6972 minutes
3. Maximum time period for a batch release: 4588 minutes
4. Average time period for batch releases: 1394 minutes
5. Minimum time period for a batch releases: 433 minutes

6. Abnormal Releases

a. Liquid

1. Number of releases: 0
2. Total activity releases: N/A

b. Gaseous

1. Number of releases: 0
2. Total activity released: N/A

NOTES

1. Pending review and resolution of the staff's concern regarding applied dispersion parameters for Method I gaseous dose calculations, these limits reflect a reduction by a factor of 10.

APPENDIX A

Off-Site Dose Calculation Manual

Requirement: Technical Specification 6.13.2.b requires that licensee initiated changes to the Off-Site Dose Calculation Manual be submitted to the Commission in the Semiannual Radioactive Effluent Release Report for the period in which the change(s) was made effective. Include in this changes to the Radiological Environmental Program in accordance with Technical Specifications 3.12.1 and 3.12.2.

Response: No changes to the ODCM or Radiological Environmental Program were made during this reporting period.

APPENDIX B

Process Control Program

Requirement: Technical Specification 6.12.2.a requires that licensee initiated changes to the Process Control Program be submitted to the Commission in the Semiannual Radioactive Effluent Release Report for the period in which the changes(s) were made.

Response: No changes to the Process Control Program were made during this reporting period.

APPENDIX C

Radioactive Liquid Effluent Monitoring Instrumentation

Requirement: Radioactive liquid effluent monitoring instrumentation channels are required to be operable in accordance with Technical Specification 3.3.3.9.b. With less than the minimum number of channels operable for 30 days, Technical Specification 3.3.3.9.b requires an explanation for the delay in correcting the inoperability in the next Semiannual Effluent Release Report in accordance with Technical Specification 6.8.1.4.

Response: No radioactive liquid effluent monitors were out of service for more than 30 days during this reporting period.

APPENDIX D

Radioactive Gaseous Effluent Monitoring Instrumentation

Requirement: Radioactive gaseous effluent monitoring instrumentation channels are required to be operable in accordance with Technical Specification 3.3.3.10.b. With less than the minimum number of channels operable for 30 days, Technical Specification 3.3.3.10.b requires an explanation for the delay in correcting the inoperability in the next Semiannual Effluent Release Report in accordance with Technical Specification 6.8.1.4.

Response: The turbine gland seal condenser exhaust sampler (1-RM-CP-510) required by Technical Specification 3.3.3.10.b was out of service from May 6, 1989 through July 6, 1989, due to inadequate sample flow. A design change which adds a pump to this system will be completed prior to plant restart for power ascension.

APPENDIX E

Liquid Holdup Tanks

Requirement: Technical Specification 3.11.1.4 limits the quantity of radioactive material contained in any outside temporary tank. With the quantity of radioactive material in any outside temporary tank exceeding the limits of Technical Specification 3.11.1.4, a description of the events leading to this condition is required in the next Semiannual Effluent Release Report in accordance with Technical Specification 6.8.1.4.

Response: The limits of Technical Specification 3.11.1.4 were not exceeded during this reporting period.

APPENDIX F

Radwaste Treatment Systems

Requirement: Technical Specification 6.14.1 requires that licensee initiated major changes to the Radwaste Treatment Systems (liquid, gaseous, and solid) be submitted to the Commission in the Semiannual Radioactive Effluent Release Report for the period in which the change was made.

Response: No major changes to Radwaste Treatment Systems which would require reporting pursuant to Technical Specification 6.14.1 were made during this reporting period.

APPENDIX G

Unplanned Releases

Requirement: Technical Specification 6.8.1.4 requires a list and description of unplanned releases from the site to UNRESTRICTED AREAS of radioactive materials in gaseous and liquid effluents made during the reporting period.

Response: No unplanned releases to unrestricted areas were made during the reporting period.