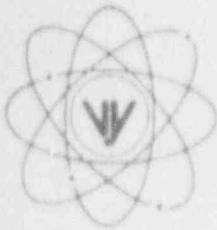


VERMONT YANKEE NUCLEAR POWER CORPORATION



Ferry Road, Brattleboro, VT 05301-7002

VERMONT
ENGINEERING OFFICE
550 MAIN STREET
BOLTON, MA 01740
(508) 778-6711

August 28, 1992
BVY 92-101

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

References: a. License No. DPR-28 (Docket No. 50-271)

Subject: Vermont Yankee Effluent and Waste Disposal Semiannual Report
for the First and Second Quarters, 1992

Dear Sir:

Enclosed herewith please find one copy of the Vermont Yankee Nuclear Power Corporation subject report. This report covers the period beginning January 1, 1992 and ending June 30, 1992 and is submitted in accordance with our Technical Specification 6.7.C.1.a and 10CFR50.36a(a)(2).

We trust that the enclosed information is satisfactory; however, should you have any questions, please contact this office.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Leonard A. Tremblay, Jr.
Leonard A. Tremblay, Jr.
Senior Licensing Engineer

cc: USNRC Region I Administrator
USNRC Resident Inspector - VYNPS
USNRC Project Manager - VYNPS

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EFFLUENT AND WASTE DISPOSAL
SEMIANNUAL REPORT
FOR
FIRST AND SECOND QUARTERS, 1992

VERMONT YANKEE NUCLEAR POWER STATION

8851R

TABLE 1A

Vermont Yankee

Effluent and Waste Disposal Semiannual Report

First and Second Quarters, 1992

Gaseous Effluents - Summation of All Releases

Unit	Quarter 1	Quarter 2	Est. Total Error, %
------	--------------	--------------	------------------------

A. Fission and Activation Gases

1. Total release	Ci	1.66E+03	1.32E+03	±1.00E+02
2. Average release rate for period	uCi/sec	2.11E+02	1.68E+02	
3. Percent of Tech. Spec. limit	%			

B. Iodines

1. Total Iodine-131	Ci	3.18E-02	3.57E-03	±5.00E+01
2. Average release rate for period	uCi/sec	4.05E-03	4.51E-04	
3. Percent of Tech. Spec. limit	%			

C. Particulates

1. Particulates with T-1/2 > 8 days	Ci	1.05E-02	4.57E-03	±5.00E+01
2. Average release rate for period	uCi/sec	1.34E-03	5.81E-04	
3. Percent of Tech. Spec. limit	%			
4. Gross alpha radioactivity	Ci	2.13E-06	2.64E-06	

D. Tritium

1. Total release	Ci	1.03E+01	4.49E+00	±5.00E+01
2. Average release rate for period	uCi/sec	1.32E+00	5.71E-01	
3. Percent of Tech. Spec. limit	%			

TABLE 1B

Vermont Yankee

Effluent and Waste Disposal Semiannual Report

First and Second Quarters, 1992

Gaseous Effluents - Elevated Release

		Continuous Mode		(1) Batch Mode	
Nuclides Released	Unit	Quarter	Quarter	Quarter	Quarter
		1	2	1	2
1. Fission Gases					
Krypton-85	Ci	ND	ND		
Krypton-85m	Ci	5.91E+00	4.95E+00		
Krypton-87	Ci	3.81E+01	3.44E+01		
Krypton-88	Ci	2.22E+01	1.87E+01		
Xenon-133	Ci	3.30E+00	1.94E+00		
Xenon-135	Ci	3.42E+01	2.87E+01		
Xenon-135m	Ci	2.15E+02	1.84E+02		
Xenon-138	Ci	1.07E+03	8.84E+02		
Unidentified	Ci				
Total for period	Ci	1.66E+03	1.32E+03		
2. Iodines					
Iodine-131	Ci	2.01E-02	3.06E-03		
Iodine-133	Ci	9.42E-02	1.35E-02		
Iodine-135	Ci	1.61E-01	8.96E-02		
Total for period	Ci	2.75E-01	1.06E-01		
3. Particulates					
Strontium-89	Ci	1.41E-03	1.18E-03		
Strontium-90	Ci	1.99E-05	1.28E-05		
Cesium-134	Ci	ND	ND		
Cesium-137	Ci	1.52E-05	9.99E-06		
Barium-Lanthanum-140	Ci	4.22E-03	1.89E-03		
Manganese-54	Ci	ND	2.70E-05		
Chromium-51	Ci	8.73E-05	ND		
Cobalt-58	Ci	ND	2.33E-06		
Cobalt-60	Ci	3.86E-05	9.03E-05		
Cerium-141	Ci	1.06E-04	ND		
Zinc-65	Ci	2.89E-05	ND		
Unidentified	Ci				

(1) There were no batch mode gaseous releases for this reporting period.

ND Not detected at the plant stack.

TABLE 1C
Vermont Yankee
Effluent and Waste Disposal Semiannual Report
First and Second Quarters, 1992
Gaseous Effluents - Ground Level Releases

		(1)			
		Continuous Mode		Batch Mode	
Nuclides Released	Unit	Quarter	Quarter	Quarter	Quarter
		1	2	1	2
1. Fission Gases					
Krypton-85	Ci	ND	ND		
Krypton-85m	Ci	1.34E+00	4.01E-01		
Krypton-87	Ci	8.62E+00	2.41E+00		
Krypton-88	Ci	5.03E+00	1.34E+00		
Xenon-133	Ci	7.48E-01	6.36E-02		
Xenon-135	Ci	7.75E+00	1.90E+00		
Xenon-135m	Ci	4.89E+01	1.21E+01		
Xenon-138	Ci	2.43E+02	6.29E+01		
Unidentified	Ci				
Total for period	Ci	3.13E+02	8.11E+01		
2. Iodines					
Iodine-131	Ci	1.16E-02	5.10E-04		
Iodine-133	Ci	5.87E-02	1.50E-03		
Iodine-135	Ci	9.65E-02	2.24E-02		
Total for period	Ci	1.67E-01	2. -02		
2. Particulates					
Strontium-89	Ci	1.02E-03	9.95E-04		
Strontium-90	Ci	1.13E-05	8.42E-06		
Cesium-134	Ci	ND	ND		
Cesium-137	Ci	1.54E-05	ND		
Barium-Lanthanum-140	Ci	3.22E-03	3.55E-04		
Cerium-141	Ci	1.29E-04	ND		
Chromium-51	Ci	1.31E-04	ND		
Zinc-65	Ci	1.26E-05	ND		
Manganese-54	Ci	ND	3.06E-06		

(1) There were no batch mode gaseous releases for this reporting period.

ND Not detected at the plant stack.

TABLE 1D
Vermont Yankee
Effluent and Waste Disposal Semiannual Report
First and Second Quarters, 1992
Gaseous Effluents - Nonroutine Releases (2)

Nuclides Released	Unit	(1)		(3)	
		Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
1. Fission Gases					
Krypton-85	Ci			ND	
Krypton-85m	Ci			ND	4.43E-04
Krypton-87	Ci			9.74E-01	2.32E-03
Krypton-88	Ci			ND	1.53E-03
Xenon-133	Ci			ND	2.80E-04
Xenon-135	Ci			9.59E-01	3.83E-03
Xenon-135m	Ci			9.40E+00	6.01E-03
Xenon-138	Ci			2.04E+01	2.45E-02
Unidentified	Ci				
Total for period	Ci			3.17E+01	3.89E-02
2. Iodines					
Iodine-131	Ci			1.08E-04	
Iodine-133	Ci			ND	
Iodine-135	Ci			ND	
Total for period	Ci			1.08E-04	
3. Particulates					
Rubidium-89	Ci			ND	1.47E-05
Niobium-97	Ci			ND	6.93E-07
Cesium-138	Ci			ND	1.63E-04
Barium-139	Ci			ND	2.56E-06
Barium-Lanthanum-140	Ci			3.00E-04	
Cerium-141	Ci			9.00E-06	
Unidentified	Ci				

(1) There were no continuous mode nonroutine gaseous releases for this reporting period.

(2) The values in this table are conservative estimates of the actual releases.

(3) The release points are the plant stack and the AOG Building for the first and the second quarters, respectively.

ND Not detected at the plant stack.

8851R

TABLE 2A

Vermont Yankee

Effluent and Waste Disposal Semiannual Report

First and Second Quarters, 1992

Liquid Effluents - Summation of All Releases

There were no liquid releases during the first or second quarters of 1992.

TABLE 2B
Vermont Yankee
Effluent and Waste Disposal Semiannual Report
First and Second Quarters, 1992
Liquid Effluents - Nonroutine Releases

There were no nonroutine or accidental releases during the first or second quarters of 1992.

Vermont Yankee

First and Second Quarters, 1992

A. Solid Waste Shipped Off-Site for Burial or Disposal (Not Irradiated Fuel)

2. Estimate of Major Nuclide Composition (By Type of Waste):8851R

TABLE 3
(Continued)

3. Solid Waste Disposition:

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
11	Truck	Barnwell, SC

B. Irrad'ated Fuel Shipments (Disposition): None

C. Supplemental information

- 1) Class of solid waste containers shipped: 16A (Unstable), 5A, 4B
- 2) Types of containers used: 9 Type A, 16 Strong-Tight Container
- 3) Solidification agent or absorbent: None

APPENDIX A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information
First and Second Quarters, 1992

Facility: Vermont Yankee Nuclear Power Station

Licensee: Vermont Yankee Nuclear Power Corporation

1A. Technical Specification Limits - Dose and Dose Rate

Technical Specification and Category Limit
a. Noble Gases

3.8.E.1	Total body dose rate	500 mrem/yr
3.8.E.1	Skin dose rate	3000 mrem/yr
3.8.F.1	Gamma air dose	5 mrad in a quarter
3.8.F.1	Gamma air dose	10 mrad in a year
3.8.F.1	Beta air dose	10 mrad in a quarter
3.8.F.1	Beta air dose	20 mrad in a year

b. Iodine-131, Iodine-133, Tritium and Radionuclides
in Particulate Form With Half-Lives
Greater Than 8 Days

3.8.E.1	Organ dose rate	1500 mrem/yr
3.8.G.1	Organ dose	7.5 mrem in a quarter
3.8.G.1	Organ dose	15 mrem in a year

c. Liquids

3.8.B.1	Total body dose	1.5 mrem in a quarter
3.8.B.1	Total body dose	3 mrem in a year
3.8.B.1	Organ dose	5 mrem in a quarter
3.8.B.1	Organ dose	10 mrem in a year

a. Fission and Activation Gases

Continuous stack monitors monitor gross Noble Gas radioactivity released from the plant stack. Total Noble Gas release rates are calculated using this monitor. On days the monitor shows less than detectable release of fission gases, a zero release is considered. To determine the isotopic breakdown of the release, samples are taken of the Steam Jet Air Ejector, which is the source gas for the releases. These samples are analyzed by gamma spectroscopy to determine the isotopic composition. The isotopic composition is then proportioned to the gross releases determined from the stack monitor to quantify the individual isotopic releases. These are indicated in Table 1B and the totals of Table 1A.

Beginning in the fourth quarter of 1991, grab samples were obtained from the Turbine Building roof vents. In January, only Xe-135 was detected in these samples. The remainder of the gases indicated were calculated by ratioing the indicated Xe-135 to the other gases using the Steam Jet Air Ejector samples as mentioned above. For the remainder of this reporting period, only Cs-138 was detected in these samples. The remainder of the gases indicated were calculated by assuming Cs-138 solely from the decay of Xe-138 and then ratioing Xe-138 to the other gases using the Steam Jet Air Ejector samples as mentioned above. These results are indicated in Table 1C and the totals of Table 1A.

The error involved in these steps may be approximately ± 100 percent.

b. Iodines

Continuous isokinetic samples are drawn from the plant stack through a particulate filter and charcoal cartridge. Beginning in the fourth quarter of 1991, continuous particulate and charcoal samples were also taken at the Turbine Building roof vents. The filters and cartridges are normally removed weekly and are analyzed for Iodine-131, 132, 133, 134, and 135. The error involved in these steps may be approximately ± 50 percent.

c. Particulates

The particulate filters described in b. above are also counted for particulate radioactivity. The error involved in this sample is also approximately ± 50 percent.

d. Liquid Effluents

Radioactive liquid effluents released from the facility are continuously monitored. Measurements are also made on a representative sample of each batch of radioactive liquid effluents released. For each batch, station records are retained of the total activity (mCi) released, concentration (uCi/ml) of gross radioactivity, volume (liters), and approximate total quantity of water (liters) used to dilute the liquid effluent prior to release to the Connecticut River.

Each batch of radioactive liquid effluent released is analyzed for gross gamma and gamma isotopic radioactivity. A monthly proportional composite sample, comprising an aliquot of each batch released during a month, is also analyzed for tritium, SR-89, SR-90, gross beta and gross alpha radioactivity, in addition to gamma spectroscopy.

There were no liquid releases during the reporting period.

5. Batch Releases

a. Liquid

There were no routine liquid batch releases during the reporting period.

b. Gaseous

There were no routine gaseous batch releases during the reporting period.

6. Abnormal Releases

a. Liquid

There were no nonroutine liquid releases during the reporting period.

b. Gaseous

There were two batch mode nonroutine gaseous releases during the reporting period. The total curies of radioactive materials released as a result of these two releases was conservatively estimated to be $3.17\text{E}+01$ curies. The activity values are included in Table 1D.

APPENDIX B

LIQUID HOLDUP TANKS

Requirement: Technical Specification 3.8.D.1 limits the quantity of radioactive material contained in any outside tank. With the quantity of radioactive material in any outside tank exceeding the limits of Technical Specification 3.8.D.1, a description of the events leading to this condition is required in the next Semiannual Effluent Release Report per Technical Specification 6.7.C.1.

Response: The limits of Technical Specification 3.8.D.1 were not exceeded 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 Table 3.9.1. If an inoperable radioactive liquid effluent monitoring instrument is not returned to operable status prior to a release pursuant to Note 4 of Table 3.9.1, an explanation in the next Semiannual Effluent Release Report of the reason(s) for delay in correcting the inoperability are required per Technical Specification 6.7.C.1.

Response: Since the requirements of Technical Specification Table 3.9.1 governing the operability of radioactive liquid effluent monitoring instrumentation were met for this reporting period, no response is required.

APPENDIX D

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Requirement: Radioactive gaseous effluent monitoring instrumentation channels are required to be operable in accordance with Technical Specification Table 3.9.2. If inoperable gaseous effluent monitoring instrumentation is not returned to operable status within 30 days pursuant to Note 5 of Table 3.9.2, an explanation in the next Semiannual Effluent Release Report of the reason(s) for the delay in correcting the inoperability is required per Technical Specification 6.7.C.1.

Response: Since the requirements of Technical Specification Table 3.9.2 governing the operability of radioactive gaseous effluent monitoring instrumentation were met for this reporting period, no response is required.

The Turbine Building Effluent Sampling System was inoperable for two short intervals of time totaling seven hours approximately. The reporting of this inoperability is not required by the Technical Specifications, but is noted here for information only.

APPENDIX E

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Requirement: The Radiological Environmental Monitoring program is conducted in accordance with Technical Specification 3.9.C. With milk samples no longer available from one or more of the sample locations required by Technical Specification Table 3.9.3, Technical Specification 6.7.C.1 requires the following to be included in the next Semiannual Effluent Release Report:

- (1) identify the cause(s) of the sample(s) no longer being available,
- (2) identify the new location(s) for obtaining available replacement samples, and
- (3) include revised ODCM figure(s) and table(s) reflecting the new location(s).

Response: Although several changes were made in the radiological environmental monitoring program as identified in the ODCM, none were in response to the unavailability of milk samples. These changes are described in Appendix H "Off-Site Dose Calculation Manual," of this report.

APPENDIX F

LAND USE CENSUS

Requirement: A land use census is conducted in accordance with Technical Specification 3.9.D. With a land use census identifying a location(s) which yields at least a 20 percent greater dose or dose commitment than the values currently being calculated in Technical Specification 4.8.G.1, Technical Specification 6.7.C.1 requires the identification of the new location(s) in the next Semiannual Effluent Release Report.

Response: The 1992 land use census was not performed during this reporting period. It will be completed during the next reporting period (second half of 1992).

APPENDIX G

PROCESS CONTROL PROGRAM

Requirement: Technical Specification 6.12.A.1 requires that licensee initiated changes to the Process Control Program (PCP) be submitted to the Commission in the Semiannual Radioactive Effluent Release Report for the period in which the change(s) was made.

Response: There were no licensee-initiated changes to the Process Control Program during this reporting period.

APPENDIX H

OFF-SITE DOSE CALCULATION MANUAL

Requirement: Technical Specification 6.13.A.1 requires that licensee initiated changes to the Off-Site Dose Calculation Manual (ODCM) be submitted to the Commission in the Semiannual Radioactive Effluent Release Report for the period in which the change(s) was made effective.

Response: In Revision 13, the licensee-initiated changes to the ODCM were as follows:

1. Doses were re-evaluated for all milk animal locations following the discovery that milk animals at one farm were kept at a different location than previously believed. Following the evaluation, several changes were made in the milk sampling program. Specifically, the Miller (TM-11), Brown (TM-14), and Blodgett (TM-18) farms were identified as the three locations that would be used to satisfy Technical Specification 4.9.C.1. The Gayland Farm (TM-15) was changed in ODCM Table 4.1 to an "unofficial" sampling location. The Dominick Farm (TM-12) remained unchanged in the program. The same changes were made to the silage sampling locations.
2. Several minor corrections were made to Table 4.1 of the ODCM. The distance to the Brown Farm (TM-14) was corrected from 2.6 to 2.1 km, and the sector for the N. Hinsdale mixed vegetation sampling location (TG-12) was changed from NNE to NNW.
3. The sector designation for the Vernon Pond fish sampling location (FH-11) was changed from "on-site" to a more detailed footnote explanation. The sectors for the sediment sampling locations (SE-11 and SE-12) were changed from "on-site" to an actual sector designation.

4. Footnote (2) to Table 4.1 of the ODCM was reworded for clarification.
5. A typographical error on Table 5.2-1 was corrected.

The above-noted changes have no relationship to the performance of dose or setpoint calculations, and therefore, will not reduce the accuracy or reliability of dose or setpoint determinations.

The revised ODCM pages for the above revision are attached.

VERMONT YANKEE NUCLEAR POWER STATION
OFF-SITE DOSE CALCULATION MANUAL
REVISION # 13

Reviewed 92.29 / 4/29/92
Plant Operations Review Date
Committee

Approved RJ Wanczyk for DAR / 4/29/92
Plant Manager Date

Approved WPM / 4/30/92
Senior Vice President, Date
Operations

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Revision 13 Date 5/1/92

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LIST OF AFFECTED PAGES

<u>Page</u>	<u>Revision No.</u>	<u>Date</u>
ii	13	05/01/92
iii	12	09/19/91
iv - v	0	03/01/84
vi - x	12	09/19/91
1.1	10	04/04/91
1.2 - 1.5	0	03/01/84
1.6 - 1.7	3	12/22/86
1.8 - 1.10	12	09/19/91
1.11	9	03/02/90
1.12 - 1.22	12	09/19/91
2.1 - 2.4	9	03/02/90
3.1 - 3.3	3	12/22/86
3.4	12	09/19/91
3.5 - 3.6	3	12/22/86
3.7	9	03/02/90
3.8 - 3.13	3	12/22/86
3.14 - 3.56	12	09/19/91
4.1	10	04/04/91
4.1A	9	03/02/90
4.1B	4	12/30/87
4.2 - 4.2A	13	05/01/92
4.3	13	05/01/92
4.5	13	05/01/92
4.6 - 4.9	10	04/04/91
5.1 - 5.8	0	03/01/84
5.9 - 5.10	4	12/30/87
5.11	3	12/22/86
5.12 - 5.17	12	09/19/91
5.18	4	12/30/87
5.19 - 5.20	3	12/22/86
5.21	13	05/01/92
5.22	9	03/02/90
6.1 - 6.8	0	03/01/84
6.9	9	03/02/90
6.10	0	03/01/84
A1 - A3	3	12/22/86
A4 - A5	12	09/19/91
A6	3	12/22/86
A7 - A8	12	09/19/91
A9	3	12/22/86
A10 - A11	12	09/19/91
A12	3	12/22/86
A13 - A24	12	09/19/91
A-25 - A29	4	12/30/87
B-1 - C39	9	01/02/90

Revision 13 Date 5/1/92

Table 4.1

Radiological Environmental Monitoring Stations⁽¹⁾

<u>Exposure Pathway and/or Sample</u>	<u>Sample Location and Designated Code</u> (2)		<u>Distance (km)</u> (6)	<u>Direction</u> (6)
1. AIRBORNE (Radioiodine and Particulate)				
	AP/CF-11	River Station No. 3.3	1.9	SSE
	AP/CF-12	N. Hinsdale, NH	3.6	NNW
	AP/CF-13	Hinsdale Substation	3.1	E
	AP/CF-14	Northfield, MA	11.3	SSE
	AP/CF-15	Tyler Hill Road(4)	3.2	WNW
	AP/CF-21	Spofford Lake	16.1	NNE
2. WATERBORNE				
a. Surface	WR-11	River Station No. 3.3	1.9	Downriver
	WR-21	Rt. 9 Bridge	12.8	Upriver
b. Ground	WG-11	Plant Well	--	On-Site
	WG-12	Vernon Nursing Well	2.0	SSE
	WG-22	Skibniowsky Well	14.3	N
c. Sediment	SE-11	Shoreline Downriver	0.8	SSE
From	SE-12	North Storm	0.15	E
Shoreline		Drain Outfall(3)		
3. INGESTION				
a. Milk	TM-11	Miller Farm	0.8	WNW
	TM-12	Dominick(5)	5.2	E
	TM-14	Brown Farm	2.1	S
	TM-15	Gayland Farm(4)	4.7	WNW/NW
	TM-18	Blodgett Farm	3.4	SE
	TM-24	County Farm	22.5	N
b. Mixed Grasses	TG-11	River Station No. 3.3	1.9	SSE
	TG-12	N. Hinsdale, NH	3.6	NNW
	TG-13	Hinsdale Substation	3.1	E
	TG-14	Northfield, MA	11.3	SSE
	TG-15	Tyler Hill Rd.(4)	3.2	WNW
	TG-21	Spofford Lake	16.1	NNE

Revision 13 Date 5/01/1992

Table 4.1
(continued)

Radiological Environmental Monitoring Stations(1)

<u>Exposure Pathway and/or Sample</u>	<u>Sample Location and Designated Code(2)</u>		<u>Distance (km)(6)</u>	<u>Direction(6)</u>
c. Silage	TC-11	Miller Farm	0.8	WNW
	TC-12	Dominick(5)	5.2	E
	TC-14	Brown Farm	2.1	S
	TC-15	Gayland Farm(4)	4.7	WNW/NW
	TC-18	Blodgett Farm	3.4	SE
	TC-24	County Farm	22.5	N
d. Fish	FH-11	Vernon Pond	(7)	(7)
	FH-21	Rt. 9 Bridge	12.8	Upriver

4. DIRECT RADIATION

DR-1	River Station No. 3.3	1.6	SSE
DR-2	N. Hinsdale, NH	3.9	NNW
DR-3	Hinsdale Substation	3.0	E
DR-4	Northfield, MA	11.0	SSE
DR-5	Spofford Lake	16.3	NNE
DR-6	Vernon School	0.46	WSW
DR-7	Site Boundary	0.27	W
DR-8	Site Boundary	0.25	SW
DR-9	Inner Ring	2.1	N
DR-10	Outer Ring	4.6	N
DR-11	Inner Ring	2.0	NNE
DR-12	Outer Ring	3.6	NNE
DR-13	Inner Ring	1.4	NE
DR-14	Outer Ring	4.3	NE
DR-15	Inner Ring	1.4	ENE
DR-16	Outer Ring	2.9	ENE
DR-17	Inner Ring	1.2	E
DR-18	Outer Ring	3.0	E
DR-19	Inner Ring	3.5	ESE
DR-20	Outer Ring	5.3	ESE
DR-21	Inner Ring	1.8	SE
DR-22	Outer Ring	3.2	SE
DR-23	Inner Ring	1.8	SSE
DR-24	Outer Ring	3.9	SSE
DR-25	Inner Ring	2.0	S

Revision 13 Date 5/01/1992

Table 4.1
(continued)

Radiological Environmental Monitoring Stations⁽¹⁾

<u>Exposure Pathway and/or Sample</u>	<u>Sample Location and Designated Code⁽²⁾</u>	<u>Distance (km)⁽⁶⁾</u>	<u>Direction⁽⁵⁾</u>
	DR-26 Outer Ring	3.7	S
	DR-27 Inner Ring	1.0	SSW
	DR-28 Outer Ring	2.2	SSW
	DR-29 Inner Ring	0.7	WSW
	DR-30 Outer Ring	2.3	SW
	DR-31 Inner Ring	0.8	W
	DR-32 Outer Ring	5.0	WSW
	DR-33 Inner Ring	0.9	WNW
	DR-34 Outer Ring	4.9	W
	DR-35 Inner Ring	1.4	WNW
	DR-36 Outer Ring	4.7	WNW
	DR-37 Inner Ring	3.0	NW
	DR-38 Outer Ring	7.7	NW
	DR-39 Inner Ring	3.2	NNW
	DR-40 Outer Ring	5.8	NNW

-
- (1) Sample locations are shown on Figures 4.1 to 4.6.
- (2) Station Nos. 10 through 19 are indicator stations. Station Nos. 20 through 29 are control stations (for all but the direct radiation stations).
- (3) To be sampled and analyzed semiannually.
- (4) Non-Tech Spec station.
- (5) Non-Tech Spec station. Sample will be collected as available.
- (6) Distance and direction from the center of the Turbine Building for direct radiation monitors; from the plant stack for all others.
- (7) Fish samples are collected from anywhere in Vernon Pond, which is adjacent to the plant (see Figure 4-1).

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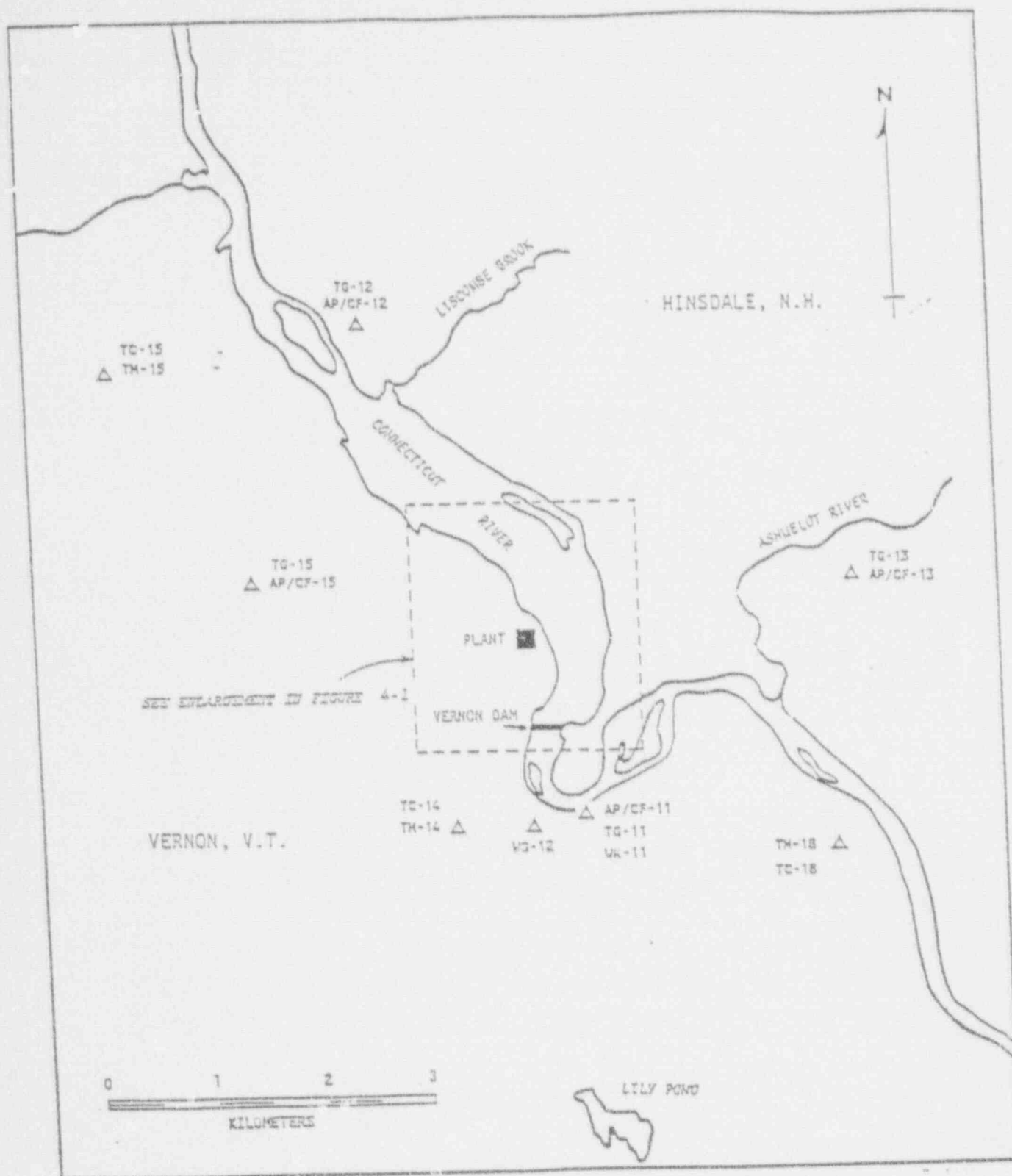


Figure 4-2 Environmental Sampling Locations Within 5 km of Plant

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TAB. 5.2-1

Relative Fractions of Core Inventory
Noble Gases After Shutdown

Time	Kr-83m	Kr-85m	Kr-85	Kr-87	Kr-88	Xe-131m	Xe-133m	Xe-133	Xe-135m	Xe-135	Xe-138
t < 24 h	.02	.043	.001	.003	.118	.002	.010	.306	.061	.093	.263
24 hr ≤ t < 48 h	—	.003	.004	—	.001	.004	.022	.758	.010	.198	—
48 h ≤ t < 5 d	—	—	.005	—	—	.006	.024	.907	.001	.058	—
5 d ≤ t < 10 d	—	—	.007	—	—	.008	.016	.969	—	—	—
10 d ≤ t < 15 d	—	—	.014	—	—	.014	.006	.966	—	—	—
15 d ≤ t < 20 d	—	—	.026	—	—	.022	.002	.950	—	—	—
20 d ≤ t < 30 d	—	—	.048	—	—	.014	.001	.917	—	—	—
30 d ≤ t < 40 d	—	—	.152	—	—	.070	—	.777	—	—	—
40 d ≤ t < 50 d	—	—	.378	—	—	.105	—	.517	—	—	—
50 d ≤ t < 60 d	—	—	.652	—	—	.108	—	.240	—	—	—
60 d ≤ t < 70 d	—	—	.835	—	—	.083	—	.082	—	—	—
t > 70 d	—	—	.920	—	—	.055	—	.024	—	—	—

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APPENDIX I

RADIOACTIVE LIQUID, GASEOUS, AND SOLID WASTE TREATMENT SYSTEMS

Requirement: Technical Specification 6.14.A requires that licensee initiated major changes to the radioactive waste systems (liquid, gaseous, and solid) be reported to the Commission in the Semiannual Radioactive Effluent Release Report for the period in which the evaluation was reviewed by the Plant Operation Review Committee.

Response: There were no licensee initiated major changes to the radioactive waste systems (liquid, gaseous, and solid) during this reporting period.

APPENDIX J

ON-SITE DISPOSAL OF SEPTIC WASTE

Requirement: Off-Site Dose Calculational Manual, Appendix B requires that the dose impact due to on-site disposal of septic waste during the reporting year and from previous years be reported to the Commission in the Semiannual Radioactive Effluent Report filed after January 1, if disposals occur during the reporting year.

Response: No response is required for this reporting period.