

PREFACE

This Semiannual Monitoring Report for the period of July 1, 1992, through December 31, 1992, is submitted in accordance with Point Beach Nuclear Plant Unit Nos. 1 and 2 Technical Specification 15.7.8.4 and filed under Docket Nos. 50-266 and 50-301 for Facility Operation License Nos. DPR-24 and DPR-27, respectively.

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SEMIANNUAL MONITORING REPORT
July 1, 1992 to December 31, 1992

1.0 RADIOACTIVE LIQUID RELEASES

The total radioactive liquid release, excluding tritium for this reporting period, was $3.32\text{E-}01$ curies. This included $2.33\text{E-}01$ curies in processed radioactive waste and primary coolant system letdown, $2.42\text{E-}04$ curies in Unit 1 steam generator blowdown, $1.00\text{E-}01$ curies in Unit 2 steam generator blowdown and $1.70\text{E-}04$ curies in retention pond effluent.

The total tritium release for this reporting period was $2.17\text{E+}02$ curies. This included $2.17\text{E+}02$ curies in processed radioactive waste and primary coolant system letdown, $7.37\text{E-}02$ curies in Unit 1 steam generator blowdown, $5.51\text{E-}01$ curies in Unit 2 steam generator blowdown and $9.33\text{E-}02$ curies in retention pond effluent.

1.1 Circulating Water Radionuclide Release Summary

1.1.1 Releases During Current Reporting Period

Radioactive liquid releases via the circulating water discharge are summarized by individual source, total and equivalent curie release on a monthly basis and presented in Table 1-1.

1.1.2 Additions to Previous Semiannual Monitoring Report

The following information was not available at the time of the previous report preparation and should be added to Table 1-1 of the Semiannual Monitoring Report for January 1, 1992, through June 30, 1992.

	<u>MAY</u>	<u>JUNE</u>	<u>6-MONTH TOTAL</u>
Total Activity Released (Ci)			
Gross Alpha	$6.2\text{E-}05$	<MDA	$6.4\text{E-}05$
Strontium	<MDA	$2.5\text{E-}05$	$1.0\text{E-}04$
Average Diluted Discharge Concentration ($\mu\text{Ci/cc}$)			
Gross Alpha	$1.1\text{E-}12$	<MDA	
Strontium	<MDA	$4.5\text{E-}13$	

TABLE 1-1

ISOTOPIC COMPOSITION OF CIRCULATING WATER DISCHARGE
JULY 1, 1992 THROUGH DECEMBER 31, 1992

	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>TOTAL</u>
Total Activity Released (Ci)							
Gamma Scan	2.19E-02	2.22E-03	2.66E-01	3.30E-03	9.12E-03	9.62E-03	3.32E-01
Gross Alpha	1.8 E-07	<MDA	9.2 E-06	<MDA	<MDA	(1)	(1)
Tritium	5.44E+01	3.85E+01	4.88E+01	5.68E+00	3.59E+01	3.40E+01	2.17E+02
Strontium	2.6 E-05	<MDA	1.3 E-04	3.9 E-05	1.1 E-05	(1)	(1)
Total Volumes Released (Gal)							
Processed Waste	1.19E+05	1.39E+05	2.04E+05	1.35E+05	1.41E+05	7.30E+04	7.84E+04
(U1) Steam Generator Blowdown	3.57E+06	3.57E+06	3.46E+06	3.67E+06	3.39E+06	3.57E+06	2.12E+07
(U2) Steam Generator Blowdown	3.57E+06	3.57E+06	3.03E+06	(2)	2.03E+06	3.95E+06	1.62E+07
Retention Pond	2.49E+06	2.39E+06	2.44E+06	2.86E+06	2.55E+06	2.44E+06	1.52E+07
Total	9.75E+06	9.67E+06	9.13E+06	6.67E+06	8.11E+06	1.00E+07	5.33E+07
Volume of Dilution Water (Gal)	1.52E+10	1.52E+10	1.47E+10	1.56E+10	1.49E+10	1.31E+10	8.87E+10
Average Diluted Discharge Concentration (uCi/cc)							
Gross Gamma	3.81E-10	3.86E-10	4.77E-09	5.58E-11	1.62E-10	1.95E-10	
Gross Alpha	3.1 E-15	<MDA	1.6 E-13	<MDA	<MDA	(1)	
Tritium	9.47E-07	6.70E-07	8.75E-07	9.60E-08	6.37E-07	6.89E-07	
Strontium	8.1 E-13	<MDA	2.3 E-12	6.5 E-13	1.9 E-13	(1)	
Maximum Discharge Concentration During Release Period (uCi/cc)							
Gross Gamma	9.31E-10	8.19E-10	6.21E-08	1.45E-09	1.38E-09	1.52E-09	
Tritium	3.25E-05	2.15E-05	1.85E-05	6.15E-06	3.40E-05	6.25E-05	
Total Equivalent Curies Released							
Co-60 Equivalent Curies	3.13E-03	4.02E-03	3.10E+00	3.44E-02	1.27E-01	9.40E-03	3.28E+00
% Annual RETS Limit	3.31E-03	4.75E-03	3.27E-00	3.63E-02	1.34E-01	9.93E-03	3.46E+00
I-131 Equivalent Curies	3.12E-03	2.42E-03	1.02E-02	6.92E-04	4.79E-05	3.22E-04	1.68E-02
% Annual RETS Limit	1.19E-02	9.27E-03	3.89E-02	2.64E-03	1.83E-04	1.23E-03	6.37E-02
Tritium Equivalent Curies	5.44E+01	3.85E+01	4.88E+01	5.68E+00	3.59E+01	3.40E+01	2.17E+02
% Annual RETS Limit	2.82E-01	1.99E-01	2.53E-01	2.94E-02	1.86E-01	1.76E-01	1.13E+00

(1) Information unavailable at time of report preparation.

(2) Unit 2 refueling shutdown from September 26, 1992 to November 18, 1992.

Note: Dissolved noble gases detected in liquid effluents are included in airborne release totals
RETS = Radiological Effluent Technical Specifications.

1.2 Isotopic Composition of Circulating Water Discharges

1.2.1 Releases During Current Reporting Period

The isotopic composition of circulating water discharges during the current reporting period is presented in Table 1-2.

1.2.2 Additions to Previous Semiannual Monitoring Report

The following information was not available at the time of report preparation and should be added to Table 1-2 of the Semiannual Monitoring Report for January 1, 1992, through June 30, 1992.

	<u>MAY</u>	<u>JUN</u>	<u>6-MONTH TOTAL</u>
Sr-89 (Ci)	<MDA	<MDA	<MDA
Sr-90 (Ci)	<MDA	2.5 E-05	1.0 E-04

1.3 Subsoil Drain System Releases of Tritium

1.3.1 Releases During Current Reporting Period

The releases of tritium via the subsoil drain system during the current reporting period is presented in Table 1-3.

TABLE 1-3

SUBSOIL SYSTEM DRAINS - TRITIUM SUMMARY
July 1, 1992 through December 31, 1992

<u>First Quarter</u>	<u>S-1</u>	<u>S-3</u>	<u>S-9</u>	<u>S-10</u>	<u>Totals</u>
H-3 (μCi/cc)	<MDA	<MDA	No Sample	<MDA	
Ave. Flow (gpd)	4.65E+03	3.17E+03	No Flow	6.09E+04	
<u>Second Quarter</u>					
H-3 (μCi/cc)	<MDA	<MDA	<MDA	<MDA	
Ave. Flow (gpd)	4.08E+04	3.64E+04	360	6.70E+04	
<u>Semiannual Totals</u>					
Total Released (Ci)	<MDA	<MDA	<MDA	<MDA	<MDA
Total Flow (gals)	4.18E+06	3.64E+06	3.31E+03	1.18E+07	1.96E+07

TABLE 1-2

ISOTOPIC COMPOSITION OF CIRCULATING WATER DISCHARGES
JULY 31, 1992 THROUGH DECEMBER 31, 1992

NUCLIDES RELEASED	JUL (Curies)	AUG (Curies)	SEP (Curies)	OCT (Curies)	NOV (Curies)	DEC (Curies)	TOTAL (Curies)
Tritium	5.54E+01	3.85E+01	4.88E+01	5.68E+00	3.59E+01	3.40E+01	2.17E+02
I-131	1.14E-03	3.61E-04	7.12E-03	6.92E-04	<MDA	<MDA	9.31E-03
I-132	2.78E-03	2.67E-03	3.69E-03	<MDA	<MDA	<MDA	9.14E-03
I-133	6.39E-03	6.36E-03	1.03E-02	3.02E-06	2.17E-04	1.46E-03	2.47E-02
I-134	9.29E-04	1.21E-03	1.22E-03	<MDA	<MDA	<MDA	3.36E-03
I-135	3.07E-03	3.73E-03	4.63E-03	<MDA	<MDA	<MDA	1.14E-02
F-18	6.78E-03	7.00E-03	2.31E-03	<MDA	1.45E-03	7.37E-03	2.49E-02
Cr-51	<MDA	<MDA	8.27E-05	<MDA	<MDA	<MDA	8.27E-05
Mn-54	<MDA	<MDA	6.32E-05	<MDA	<MDA	<MDA	6.32E-05
Mn-56	<MDA	2.36E-04	2.84E-04	<MDA	<MDA	<MDA	5.20E-04
Co-57	<MDA	<MDA	7.04E-06	<MDA	<MDA	<MDA	7.04E-06
Co-58	3.98E-05	2.87E-05	2.94E-03	9.00E-06	9.79E-05	5.77E-05	3.17E-03
Co-60	1.69E-04	3.61E-04	2.26E-03	8.66E-04	7.00E-04	1.44E-04	4.50E-03
Zn-65	<MDA	<MDA	6.74E-06	<MDA	<MDA	<MDA	6.74E-06
Zn-69m	<MDA	<MDA	<MDA	<MDA	9.74E-05	<MDA	9.74E-05
Sr-92	<MDA	<MDA	8.88E-05	<MDA	<MDA	<MDA	8.88E-05
Nb-95	<MDA	<MDA	1.78E-04	<MDA	<MDA	<MDA	1.78E-04
Zr-95	<MDA	<MDA	9.30E-05	<MDA	<MDA	<MDA	9.30E-05
Nb-97	<MDA	<MDA	1.11E-05	1.55E-05	2.00E-05	6.12E-06	5.27E-05
Ag-110m	<MDA	<MDA	2.27E-05	1.58E-05	1.17E-05	6.07E-05	1.11E-04
Sb-125	<MDA	<MDA	7.52E-02	<MDA	<MDA	<MDA	7.52E-02
Te-132	<MDA	<MDA	4.43E-06	<MDA	2.49E-06	<MDA	6.92E-06
Cs-134	<MDA	<MDA	7.15E-02	8.18E-04	2.69E-03	1.09E-04	7.51E-02
Cs-136	<MDA	<MDA	4.48E-04	6.68E-05	<MDA	<MDA	5.15E-04
Cs-137	1.89E-04	2.35E-04	8.32E-02	8.16E-04	3.82E-03	4.18E-04	8.87E-02
La-140	<MDA	<MDA	2.69E-06	<MDA	<MDA	<MDA	2.69E-06
Ba-141	3.69E-04	<MDA	<MDA	<MDA	<MDA	<MDA	3.96E-04
Ce-141	<MDA	<MDA	2.70E-04	<MDA	<MDA	<MDA	2.70E-04
Hg-203	<MDA	<MDA	<MDA	<MDA	3.14E-06	<MDA	3.14E-06
Sr-89	<MDA	<MDA	5.0 E-05	<MDA	<MDA	<MDA	(1)
Sr-90	2.6 E-05	<MDA	7.6 E-05	3.9 E-05	1.1 E-05	(1)	(1)

(1) Information unavailable at time of report preparation.

Note: Dissolved noble gases detected in liquid effluents are included in airborne release totals.

1.4 Land Application of Sewage Sludge

Trace amounts of radionuclides may be land-applied with sewage sludges on various Department of Natural Resources approved Wisconsin Electric Power Company properties surrounding the Point Beach Nuclear Plant in accordance with approved methodologies pursuant to 10 CFR 20.302. The amounts discharged in the sewage during this reporting period are presented in Table 1-4.

TABLE 1-4

SEWAGE SLUDGE LAND APPLICATIONS
July 1, 1992 through December 31, 1992

<u>Date of Application</u>	<u>Gallons</u>	<u>Site</u>	<u>Activity Released (Ci)</u>
December 10, 1992	12,000	PB-02	<MDA

1.5 Correction to Previous Table 1-4

Table 1-4 in the previous Semiannual Report incorrectly indicated that the data were from January 1, 1991 through June 30, 1992. The correct starting date should have been January 1, 1992.

2.0 RADIOACTIVE AIRBORNE RELEASES

The release paths contributing to radioactive airborne release totals during this reporting period were the auxiliary building vent stack, drumming area vent stack, gas stripper building vent stack, Unit 1 containment purge stack, Unit 2 containment purge stack, combined air ejector decay duct exhaust and turbine building ventilation exhaust.

There were two gas decay tank releases during this reporting period.

2.1 Radioactive Airborne Release Summary

2.1.1 Release During Current Reporting Period

Radioactivity released in airborne effluent for the current reporting period are summarized in Table 2-1.

2.1.2 Additions to Previous Semiannual Monitoring Report

The following information was not available at the time of the last report preparation and should be added to Table 2-1 of the Semiannual Monitoring Report for January 1, 1992 through June 30, 1992.

Strontium (Ci)	
JAN	1.4E-06
FEB	1.3E-06
MAR	1.3E-06
APR	<MDA
MAY	<MDA
JUN	<MDA
TOTAL	4.0E-06

2.2 Isotopic Airborne Releases

2.2.1 Releases During Current Reporting Period

The monthly isotopic airborne releases for the current reporting period are presented in Table 2-2.

TABLE 2-1

RADIOACTIVE AIRBORNE RELEASE SUMMARY
JULY 1, 1992 THROUGH DECEMBER 31, 1992

	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>TOTAL</u>
Total Noble Gases (Ci): (2)	1.00E+00	1.41E+00	8.41E+00	9.44E+00	6.17E-01	9.85E-01	2.19E+01
Total Radiiodines (Ci):	2.29E-05	9.16E-06	7.43E-05	1.17E-04	2.12E-04	1.20E-05	4.47E-04
Total Particulates (Ci):	4.82E-05	3.02E-05	9.47E-06	2.26E-05	3.93E-03	9.25E-05	4.13E-03
Alpha (Ci):	3.96E-07	1.32E-06	3.53E-07	3.83E-06	5.59E-07	1.43E-06	7.89E-06
Strontium (Ci):	<MDA	<MDA	<MDA	(1)	(1)	(1)	(1)
All Others (Ci):	4.78E-05	2.89E-05	9.12E-06	1.88E-05	3.93E-03	9.11E-05	4.13E-03
Total Tritium (Ci):	5.30E+00	5.22E+00	6.96E+00	1.62E+01	6.98E+00	7.60E+00	4.83E+01
Maximum Hourly Average Release Rate (3) (Curies/Second)	1.06E-05	1.82E-05	3.58E-04	7.55E-04	2.46E-04	1.88E-04	
Total Equivalent Curies Released							
Co-60 Equivalent Curies	1.27E-05	2.08E-05	1.14E-07	1.82E-04	4.70E-02	1.56E-04	4.74E-02
% Annual RETS Limit	7.38E-04	1.21E-03	6.63E-06	1.06E-02	2.73E+00	9.07E-03	2.75E+00
I-131 Equivalent Curies	6.51E-06	5.74E-06	5.44E-05	1.10E-04	1.67E-04	1.20E-05	3.56E-04
% Annual RETS Limit	1.85E-03	1.63E-03	1.55E-01	3.13E-02	4.74E-02	3.41E-03	1.01E-01
Xe-133 Equivalent Curies (2)	4.02E+00	5.25E+00	1.36E+01	2.15E+01	6.67E+00	8.78E+00	5.98E+01
% Annual RETS Limit	3.87E-04	5.05E-04	1.31E-03	2.07E-03	6.41E-04	8.44E-04	5.76E-03
Tritium Equivalent Curies	5.30E+00	5.22E+00	6.96E+00	1.62E+01	6.98E+00	7.60E+00	4.83E+01
% Annual RETS Limit	1.83E-02	1.80E-02	2.40E-02	5.59E-02	2.41E-02	2.62E-02	1.67E-01

(1) Information unavailable at time of report preparation, but values typically do not alter monthly totals.

(2) Includes noble gas contribution from liquid releases.

(3) Expressed as Xe-133 equivalents.

TABLE 2-2

RADIOACTIVE AIRBORNE RELEASE SUMMARY
JULY 1, 1992 THROUGH DECEMBER 31, 1992

NUCLIDES RELEASED	JUL (Curies)	AUG (Curies)	SEP (Curies)	OCT (Curies)	NOV (Curies)	DEC (Curies)	TOTAL (Curies)
Tritium	5.30E+00	5.22E+00	6.96E+00	1.62E+01	6.98E+00	7.60E+00	4.83E+01
Xe-133	7.98E-01	1.15E+00	7.92E+00	8.38E+00	2.16E-01	6.11E-01	1.91E+01
Kr-85m	2.58E-03	2.77E-03	4.21E-03	1.73E-02	1.02E-02	1.17E-02	4.88E-02
Kr-88	5.92E-03	5.60E-03	7.62E-03	4.08E-02	1.97E-02	2.51E-02	1.05E-01
Xe-133m	8.56E-03	1.16E-02	5.01E-02	6.69E-03	1.87E-03	4.35E-03	8.32E-02
Xe-135	2.06E-02	2.09E-02	5.91E-02	1.45E-01	1.06E-01	9.95E-02	4.51E-01
Xe-138	2.18E-02	1.97E-02	2.34E-02	1.60E-01	6.50E-02	8.55E-02	3.75E-01
Kr-87	4.94E-03	4.72E-03	5.62E-03	3.58E-02	1.48E-02	1.94E-02	8.53E-02
Xe-135m	7.69E-03	8.14E-02	1.03E-02	5.36E-02	1.98E-02	2.92E-02	2.02E-01
Ar-41	6.43E-02	9.63E-02	1.30E-01	1.30E-01	7.65E-02	9.92E-02	5.96E-01
Kr-85	6.31E-02	9.27E-02	1.97E-01	1.22E-01	8.16E-02	<MDA	5.52E-01
Xe-131m	<MDA	<MDA	<MDA	3.50E-01	5.60E-03	<MDA	3.56E-01
I-131	5.07E-06	5.19E-06	4.84E-05	1.08E-04	1.52E-04	1.20E-05	3.31E-04
I-132	5.85E-06	1.14E-06	2.86E-07	<MDA	<MDA	<MDA	7.28E-06
I-133	4.63E-06	2.27E-06	2.50E-05	9.48E-06	5.99E-05	1.98E-09	1.01E-04
I-134	1.80E-06	5.56E-07	<MDA	<MDA	<MDA	<MDA	2.36E-06
I-135	5.57E-06	<MDA	6.30E-07	<MDA	<MDA	<MDA	6.20E-06
F-18	6.15E-06	2.49E-06	6.25E-07	3.89E-07	<MDA	7.64E-05	8.61E-05
Co-58	<MDA	<MDA	<MDA	2.54E-06	3.39E-06	<MDA	5.93E-06
Co-60	1.20E-05	2.05E-05	<MDA	1.06E-06	6.97E-06	<MDA	4.05E-05
Rb-88	2.12E-05	4.87E-06	7.16E-06	<MDA	2.20E-06	8.87E-07	3.63E-05
Te-132	1.45E-09	<MDA	<MDA	<MDA	6.98E-07	<MDA	6.99E-07
Cs-134	<MDA	<MDA	<MDA	7.64E-06	1.77E-03	<MDA	1.78E-03
Cs-136	<MDA	<MDA	<MDA	<MDA	2.21E-06	<MDA	2.21E-06
Cs-137	<MDA	<MDA	<MDA	7.12E-06	2.12E-03	1.34E-05	2.14E-03
Cs-138	8.52E-06	1.04E-06	1.34E-06	<MDA	3.71E-07	3.83E-07	1.17E-05
Au-198	<MDA	<MDA	<MDA	<MDA	2.24E-05	<MDA	2.24E-05
Sr-89	<MDA	<MDA	<MDA	(1)	(1)	(1)	(1)
Sr-90	<MDA	<MDA	<MDA	(1)	(1)	(1)	(1)
Alpha	3.96E-07	1.32E-06	3.53E-07	3.83E-06	5.99E-07	1.43E-06	7.93E-06

(1) Information unavailable at time of report preparation, but values typically do not alter monthly totals reported in Table 2-1.

2.2.2 Additions to Previous Semiannual Monitoring Report

The following information was not available at the time of previous report preparation and should be added to Table 2-2 of the Semiannual Monitoring Report, covering the period January 1, 1992, through June 30, 1992.

	<u>Sr-89 (Ci)</u>	<u>Sr-90 (Ci)</u>
January	1.3 E-06	1.1 E-07
February	1.2 E-06	9.9 E-08
March	1.2 E-06	1.1 E-07
April	<MDA	<MDA
May	<MDA	<MDA
June	<MDA	<MDA
Totals	3.7 E-06	3.2 E-07

3.0 RADIOACTIVE SOLID WASTE SHIPMENTS

Solid wastes shipped for burial during this reporting period were as follows:

<u>DATE OF SHIPMENT TO BURIAL</u>	<u>VOLUME (CUBIC FEET)</u>	<u>TOTAL ACTIVITY (Curies)</u>	<u>BURIAL SITE</u>
7/31/92	9.9 (3)	1.60E-03	Barnwell SC
8/08/92	39.0 (1)	1.72E-01	Barnwell SC
8/12/92	1.2 (1)	1.53E-02	Barnwell SC
8/17/92	2.7 (1)	6.00E-04	Barnwell SC
8/31/92	1.5 (1)	1.63E-02	Barnwell SC
9/16/92	25.5 (1)	1.31E-02	Barnwell SC
9/28/92	360.2 (2)	4.78E+00	Barnwell SC
9/29/92	20.3 (1)	1.62E-02	Barnwell SC
10/12/92	49.0 (3)	7.00E-07	Barnwell SC
10/16/92	56.5 (1)	1.71E-02	Barnwell SC
10/16/92	485.3 (1)	3.43E-01	Barnwell SC
10/17/92	10.9 (1)	2.00E-03	Barnwell SC
10/20/92	42.0 (3)	6.00E-07	Barnwell SC
11/03/92	12.9 (1)	9.50E-03	Barnwell SC
11/18/92	51.6 (1)	1.53E-02	Barnwell SC
11/19/92	54.7 (1,3)	2.68E-02	Barnwell SC
11/19/92	101.9 (1,3)	1.49E-01	Barnwell SC
11/24/92	5.4 (1)	1.20E-02	Barnwell SC
11/28/92	66.3 (1,3)	2.33E-02	Barnwell SC
11/28/92	147.5 (1,3)	2.76E-02	Barnwell SC
12/03/92	7.0 (1,3)	1.00E-07	Barnwell SC
12/03/92	7.0 (1,3)	4.00E-04	Barnwell SC
12/03/92	28.0 (1,3)	1.70E-03	Barnwell SC
12/03/92	56.0 (1,3)	3.30E-03	Barnwell SC
12/04/92	3.3 (1,3)	2.00E-04	Barnwell SC
12/07/92	7.0 (1,3)	2.00E-04	Barnwell SC
12/07/92	14.6 (1,3)	6.00E-04	Beatty NV
12/07/92	27.0 (1,3)	2.56E-02	Barnwell SC
12/08/92	7.0 (1,3)	2.00E-04	Barnwell SC
12/08/92	7.0 (1,3)	5.00E-04	Barnwell SC
12/09/92	6.0 (1)	1.46E-02	Barnwell SC
12/09/92	11.1 (1)	9.00E-03	Barnwell SC
12/10/92	0.6 (1)	2.23E-01	Beatty NV
12/10/92	12.8 (1)	4.70E-03	Beatty NV
12/12/92	7.0 (1,3)	2.00E-04	Barnwell SC
12/14/92	9.3 (1)	1.32E-02	Barnwell SC
12/14/92	116.9 (1,3)	1.24E-02	Barnwell SC
12/17/92	24.3 (1)	9.00E-04	Beatty NV

12/17/92	26.4 (1)	2.00E-03	Beatty NV
12/21/92	39.0 (1)	1.40E-03	Beatty NV
12/22/92	17.6 (1,3)	2.90E-03	Barnwell SC
12/22/92	30.0 (1,3)	5.00E-04	Barnwell SC
12/22/92	37.0 (1,3)	1.7E-02	Barnwell SC
12/22/92	56.0 (1,3)	2.80E-03	Barnwell SC
12/23/92	13.7 (1)	5.00E-04	Beatty NV
12/28/92	3.9 (1)	4.80E-03	Barnwell SC
12/28/92	9.9 (1,3)	1.20E-03	Barnwell SC
12/28/92	10.2 (1,3)	5.00E-04	Barnwell SC
12/28/92	12.5 (1)	8.60E-03	Barnwell SC
12/28/92	16.4 (1)	1.66E-02	Barnwell SC
12/28/92	28.5 (1)	1.41E-02	Barnwell SC
12/28/92	31.7 (1,3)	8.20E-03	Barnwell SC
12/30/92	2.1 (1)	1.50E-03	Barnwell SC
12/31/92	0.9 (1)	1.08E-02	Barnwell SC
TOTAL	2232.4	6.05E+00	

- (1) Dry Active Waste
- (2) Evaporator Concentrates
- (3) Scrap Metal

4.0 NEW AND SPENT FUEL SHIPMENTS AND RECEIPTS

During this reporting period, a total of 28 new fuel assemblies were received from Westinghouse Electric Corporation for Unit 2. The new fuel assemblies received for Unit 2 were used for the Fall 1992 refueling.

There were no spent fuel shipments made from Point Beach Nuclear Plant during this reporting period.

5.0 RADIOLOGICAL ENVIRONMENTAL MONITORING

5.1 Introduction

The results in this Semiannual Report are presented in the new format which was initiated with the January - June 1992 Report. Results are reported directly as measured, including negative and zero values. This eliminates the distortion of the results and long-term trends which occurs when the LLD is used to censor results that are below the LLD. This reporting convention follows that recommended in Health Physics Society Committee Report HPSR-1 (1980) released as document EPA 520/1-80-012.

The REMP results are presented in Table 5.1. This table contains the following information:

Sample:	the type of the sample medium
Description:	the type of measurement
LLD:	the <u>a priori</u> lower limit of detection
N:	the number of samples analyzed
Low:	the lowest measured value \pm its associated 2 σ counting error
Average:	the average value \pm the standard deviation of N samples
High:	the highest measured value \pm its associated 2 σ counting error
Units:	the units of measurement

Additional information also is presented in Table 5.1. Not all of the results in Table 5.1 are required by the PBNP radiological effluent technical specifications (RETS). Non-RETS items and values are noted by an asterisk (*). For certain analyses, an

LLD which is lower than that required by RETS is used. For these analyses, both LLDs are listed with the RETS LLD given in parentheses. Occasionally, anomalous results are obtained which lie well outside of the range of expected values. If, upon investigation, these values are found not to be the result of PBNP operations they will not be listed in the table. In this case, the highest reported value will be footnoted and the omitted value discussed in the narrative portion of this section. Blank values have not been subtracted from the results presented in Table 5.1.

5.2 Discussion

Radiological environmental monitoring conducted at the Point Beach Nuclear Plant from July 1, 1992 through December 31, 1992 consisted of air filters, milk, lake water, well water, soil, fish, shoreline sediments, algae, vegetation, and TLDs.

All TLD results for the reporting period were within the normal range. Although the third quarter value for site E-32 was above the average of the other sites, it was within the normal range. This site had the highest result for three of the four quarters of 1992. Results from two nearby sites were comparable to the remaining sites. The reason for the higher values at E-32 is unknown. Results will be tracked to see if a pattern develops.

The analyses for individual radionuclides in environmental samples does not reveal any unexpected results. Sr-90 and Cs-137 continue to persist in milk, water, sediment, fish, algae, and soil. These radionuclides routinely occur in environmental samples collected around the world. The occurrence of these radionuclides in the environment is attributable to the large scale atmospheric weapons tests of the 1960's, less frequent testing in the 70's and 80's, and to the Chernobyl accident. Tritium concentrations continue to be low and are slightly lower than the first 6 months of 1992. Two H-3 concentrations are not statistically different from zero.

Measured concentrations of other radionuclides occur as positive and negative values scattered around zero. Although the positive values are usually smaller than their associated error, small, non-zero values (below the associated LLDs) occur for Ba-La-140 in milk (1 of 18 samples), I-131 in water (3 of 30 samples), and Co-60 and Mn-54 in water (each 1 of 30 samples). However, the values are comparable to the values obtained for "blanks" so that there would be no statistical difference from zero if blank values were subtracted. Therefore, these results appear to be attributable to statistical variations. Three of the four filamentous algae samples had small amounts of Co-60 and/or Cs-134, both of which were discharged from PBNP during this reporting period. This result is not surprising because these algae are known to have high bioaccumulation factors for Cs and Co: Cs-137, +1000; Co-60, 250-2800 (NCRP 76). One of the Co-60 results may be due to statistical fluctuations. However, two October results probably are real because they are associated with Cs-137 concentrations (0.100 and 0.071 pCi/g) about 2 times greater than the August samples. Furthermore, in the sample with the highest Cs-137, the Cs-134 value, 0.54 pCi/g, is six standard deviations greater than zero. The highest October result for algae occurs at a site 1.6 miles N of PBNP where the predominant current direction is from N to S.

Pursuant to Technical Specification 15.7.7.D, a visual verification of animals grazing in the vicinity of the Point

Beach Nuclear Plant site boundary was completed on July 28, 1992, to ensure that milk sampling locations remain as conservative as practicable. No significant change in the use of pasture lands was noted. The existing milk sampling program conducted at PBNP continues to be acceptable.

TABLE 5.1
RADIOLOGICAL ENVIRONMENTAL MONITORING RESULTS

Sample	Description	LLD	N	Low	Average	High	Units
TLD	Environmental Radiation	(*)	54	0.55 ± 0.05	0.88 ± 0.19	1.36 ± 0.09	mR/7days
Air	Gross beta	0.01	156	0.005 ± 0.003	0.021 ± 0.009	0.050 ± 0.005	pCi/m ³
	Cs-137	0.01(0.06)	12	-0.0007 ± 0.0006	0.0004 ± 0.0007	0.0022 ± 0.0021	pCi/m ³
	Cs-134	0.05	12	-0.0010 ± 0.0011	-0.0002 ± 0.0003	0.0001 ± 0.0012	pCi/m ³
	I-131	0.03(0.07)	156	-0.014 ± 0.013	0.000 ± 0.005	0.011 ± 0.017	pCi/m ³
	Other gamma emitters(*)	0.1(*)	12	-0.0006 ± 0.0010	-0.0000 ± 0.0007	0.0008 ± 0.0007	pCi/m ³
Milk	I-131	0.5	18	-0.10 ± 0.17	0.06 ± 0.10	0.23 ± 0.26	pCi/l
	Sr-89(*)	5(*)	18	-1.4 ± 1.2	0.01 ± 0.55	1.3 ± 1.7	pCi/l
	Sr-90(*)	1(*)	18	0.6 ± 0.4	1.57 ± 0.39	2.1 ± 0.5	pCi/l
	Cs-134	5(15)	18	-1.3 ± 2.0	0.18 ± 0.61	0.9 ± 2.0	pCi/l
	Cs-137	5(18)	18	-0.4 ± 2.0	0.99 ± 1.01	3.0 ± 2.1	pCi/l
	Ba-La-140	5(15)	18	-4.4 ± 2.2	-0.73 ± 1.74	2.5 ± 2.4	pCi/l
	Other gamma emitters(*)	15(*)	18	-1.4 ± 2.6	0.87 ± 1.44	4.6 ± 3.4	pCi/l
Lake water	Gross beta	4	30	1.6 ± 0.6	2.61 ± 0.77	4.8 ± 0.6	pCi/l
	I-131	0.5(2)	30	-0.21 ± 0.24	0.06 ± 0.14	0.41 ± 0.31	pCi/l
	Mn-54	10(15)	30	-1.6 ± 2.7	0.38 ± 1.08	3.1 ± 2.7	pCi/l
	Fe-59	30	30	-8.7 ± 8.9	-0.56 ± 3.21	5.4 ± 5.8	pCi/l
	Co-58	10	30	-2.3 ± 3.3	-0.10 ± 1.21	2.0 ± 3.3	pCi/l
	Co-60	10	30	-1.5 ± 1.7	0.47 ± 1.35	4.0 ± 3.5	pCi/l
	Zn-65	30	30	-7.5 ± 6.1	-0.97 ± 2.81	6.1 ± 6.3	pCi/l
	Zr-Nb-95	15	30	-7.3 ± 4.4	-0.18 ± 2.94	6.1 ± 6.6	pCi/l
	Cs-134	10(15)	30	-7.5 ± 2.1	-0.74 ± 1.56	1.9 ± 2.4	pCi/l
	Cs-137	10(18)	30	-0.5 ± 2.6	1.35 ± 0.95	3.6 ± 2.2	pCi/l
	Ba-La-140	15	30	-9.7 ± 11.7	-0.96 ± 3.18	3.1 ± 5.9	pCi/l
	Other gamma emitters(*)	30(*)	30	-5.2 ± 2.9	-0.76 ± 1.59	1.7 ± 3.4	pCi/l
	H-3	500(3000)	10	3 ± 88	113 ± 54.5	171 ± 88	pCi/l
	Sr-89(*)	5(*)	10	-0.7 ± 1.2	0.22 ± 0.49	0.7 ± 0.9	pCi/l
	Sr-90(*)	1(*)	10	0.4 ± 0.3	1.00 ± 1.07	1.1 ± 0.4	pCi/l
Algae	Gross beta	0.25	3 ¹	2.22 ± 0.21	4.52 ± 2.44	7.08 ± 0.92	pCi/g
	Co-58	0.25	4	-0.008 ± 0.042	0.001 ± 0.010	0.014 ± 0.017	pCi/g
	Co-60	0.25	4	0.001 ± 0.025	0.018 ± 0.018	0.042 ± 0.032	pCi/g
	Cs-134	0.25	4	-0.033 ± 0.030	0.010 ± 0.037	0.054 ± 0.016	pCi/g
	Cs-137	0.25	4	0.024 ± 0.021	0.061 ± 0.032	0.100 ± 0.017	pCi/g

Sample	Description	LLD	N	Low	Average	High	Units.
Fish	Gross beta (*)	0.5 (*)	5	2.20 ± 0.05	2.73 ± 0.49	3.25 ± 0.10	pCi/g
	Mn-54	0.13	5	-0.004 ± 0.008	0.001 ± 0.004	0.004 ± 0.006	pCi/g
	Fe-59	0.26	5	-0.028 ± 0.045	0.010 ± 0.028	0.042 ± 0.057	pCi/g
	Co-58	0.13	5	-0.005 ± 0.009	0.001 ± 0.006	0.007 ± 0.014	pCi/g
	Co-60	0.13	5	-0.007 ± 0.015	-0.002 ± 0.003	0.000 ± 0.008	pCi/g
	Zn-65	0.26	5	-0.010 ± 0.019	-0.001 ± 0.007	0.008 ± 0.033	pCi/g
	Cs-134	0.13	5	-0.004 ± 0.005	-0.001 ± 0.002	0.001 ± 0.006	pCi/g
	Cs-137	0.15	5	0.044 ± 0.016	0.068 ± 0.022	0.096 ± 0.014	pCi/g
	Other gamma emitters (*)	0.5 (*)	5	0.000 ± 0.018	-0.005 ± 0.006	-0.008 ± 0.026	pCi/g
	Gross beta	4	2	-0.2 ± 1.8	0.1 ± 0.4	0.4 ± 1.2	pCi/l
Well water	I-131	0.5 (2)	2	0.02 ± 0.02	0.04 ± 0.02	0.05 ± 0.18	pCi/l
	Mn-54	10 (15)	2	-0.2 ± 3.1	0.20 ± 0.57	0.6 ± 2.9	pCi/l
	Fe-59	30	2	-1.5 ± 5.9	-1.40 ± 0.14	-1.3 ± 5.0	pCi/l
	Co-58	10	2	-1.0 ± 2.8	0.50 ± 2.12	2.0 ± 3.0	pCi/l
	Co-60	10	2	0.4 ± 2.4	0.70 ± 0.42	1.0 ± 2.5	pCi/l
	Zn-65	30	2	4.8 ± 5.2	-3.10 ± 2.40	-1.4 ± 5.2	pCi/l
	Zr-Nb-95	15	2	0.1 ± 4.3	0.25 ± 0.21	0.4 ± 5.1	pCi/l
	Cs-134	10 (15)	2	0.1 ± 2.2	0.30 ± 0.28	0.5 ± 2.2	pCi/l
	Cs-137	10 (18)	2	0.0 ± 2.2	1.00 ± 1.41	2.0 ± 2.2	pCi/l
	Ba-La-140	15	2	-2.0 ± 2.8	-1.85 ± 0.21	-1.7 ± 3.6	pCi/l
	Other gamma emitters (*)	30 (*)	2	-0.9 ± 3.2	0.15 ± 1.48	1.2 ± 3.1	pCi/l
	H-3	500	2	-75.6 ± 81.1	-42.8 ± 46.4	-10.0 ± 80.8	pCi/l
	Sr-89 (*)	5 (*)	2	0.0 ± 0.8	0.2 ± 0.2	0.3 ± 1.0	pCi/l
	Sr-90 (*)	1 (*)	2	0.0 ± 0.2	0.1 ± 0.1	0.2 ± 0.3	pCi/l
	Gross beta	2	8	14.64 ± 1.59	21.69 ± 4.43	27.1 ± 2.0	pCi/g
	Cs-137	0.15	8	0.28 ± 0.02	0.56 ± 0.28	0.98 ± 0.07	pCi/g
	Gross beta	2	5	7.7 ± 1.9	9.3 ± 1.4	10.8 ± 2.1	pCi/g
	Cs-137	0.15	5	0.015 ± 0.026	0.039 ± 0.020	0.055 ± 0.024	pCi/g
Vegetation	Gross beta (*)	0.25 (*)	16	2.53 ± 0.11	4.46 ± 1.34	6.40 ± 0.20	pCi/g
	Cs-134	0.06	16	-0.009 ± 0.012	0.000 ± 0.004	0.007 ± 0.010	pCi/g
	Cs-137	0.08	16	0.010 ± 0.012	0.010 ± 0.015	0.056 ± 0.021	pCi/g
	I-131	0.06	16	-0.025 ± 0.028	-0.001 ± 0.003	0.015 ± 0.023	pCi/g

*Sample lost prior to gross beta count.

6.0 NONRADIOACTIVE CHEMICAL RELEASES

6.1 Scheduled Chemical Waste Releases

Scheduled chemical waste releases to the circulating water system from July 1, 1992, to December 31, 1992, included 5.20E+06 gallons of neutralized wastewater. The wastewater contained 6.47E+02 pounds of suspended solids and 4.14E+05 pounds of dissolved solids.

Scheduled chemical waste releases are based on the average analytical results obtained from sampling a representative number of neutralizing tanks.

6.2 Miscellaneous Chemical Waste Releases

Miscellaneous chemical waste releases from the retention pond (based on effluent analyses) to the circulating water for July 1, 1992, to December 31, 1992, included 1.52E+07 gallons of clarified wastewater. The wastewater contained 1.69E+03 pounds of suspended solids.

- * Miscellaneous chemical waste released directly to the circulating water, based on amount of chemicals used for July 1, 1992, to December 31, 1992, included 9.28E+04 pounds of sodium bisulfite and 4.02E+04 pounds of sodium hypochlorite.

7.0 CIRCULATING WATER SYSTEM OPERATION

The circulating water system operation during this reporting period for periods of plant operation is described in Table 7-1.

TABLE 7-1

CIRCULATING WATER SYSTEM OPERATION
July 1, 1992 to December 31, 1992

		<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
Average Volume Cooling U1		489.6	489.6	490.7	504.0*	498.6*	420.8
Water Discharge							
(Million gal/day)**	U2	489.6	489.6	455.7*	*	443.4*	420.8
Average Cooling Water U1		59	57	49	50	44	39
Intake Temperature							
(Degrees F)	U2	59	57	49*	*	42*	39
Average Cooling Water U1		78	76	68	68	63	61
Discharge Temperature							
(Degrees F)	U2	78	76	66*	*	56*	60
Average Ambient Lake							
Temperature							
(Degrees F)		58	56	47	49	42	37

(*Unit 2 refueling shutdown from September 26, 1992 to November 18, 1992)

(**For days with cooling water discharge flow)

8.0 LEAK TESTING OF RADIOACTIVE SOURCES

During this reporting period, all applicable sealed radioactive sources were leak tested in accordance with Technical Specification 15.4.12. Leak test results were all $<0.005 \mu\text{Ci}$.

9.0 MISCELLANEOUS REPORTING REQUIREMENTS

9.1 Revisions to the PBNP Office Dose Calculation Manual (ODCM) and Process Control Program (PCP)

No revisions were made to the PCP during this reporting period. The Environmental Manual, Revision 9, was issued in November. The revision consisted of the addition of five new TLD sites and minor administrative changes such as the incorporation of the new PBNP form numbering system. Revision 6 of the ODCM was approved in December and issued on January 1, 1993. The ODCM changes were too extensive to detail herein. The main change is the elimination of equivalent curies and the incorporation of dose calculations to track compliance with emission limits. Complete copies are being sent to the NRC under separate cover.

9.2 Interlaboratory Comparison Program

The analytical laboratory contracted to perform the radioanalyses of the PBNP environmental samples participated in the EPA Interlaboratory Comparison Program during this reporting period.

9.3 Deviations from Specified Environmental Sample Types, Locations, and Frequencies

Sample types, sampling locations, and collection frequencies complied with Technical Specification 15.7.7.A during this reporting period.

9.4 Summary of Unachievable Specified Environmental LLDs

All LLDs listed in Table 15.7.7-2 of the PBNP Technical Specifications achieved were during this sampling period.

9.5 Special Circumstances

No special circumstances report regarding operation of the explosive gas monitor for the waste gas holdup system was needed during this reporting period.