



**Wisconsin  
Electric**  
POWER COMPANY

231 W Michigan, P.O. Box 2046, Milwaukee, WI 53201

(414) 221-2345

VPNPD-90-093  
NRC-90-014

February 27, 1990

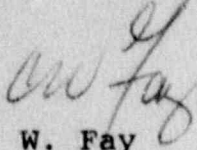
U. S. NUCLEAR REGULATORY COMMISSION  
Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

Gentlemen:

DOCKETS 50-266 AND 50-301  
SEMIANNUAL MONITORING REPORT  
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

Enclosed is the Semiannual Monitoring Report for Point Beach Nuclear Plant, Units 1 and 2, for the period July 1 through December 31, 1989. This report is submitted in accordance with Technical Specification 15.7.8.4.A and contains information regarding plant releases, solid waste shipments, new and spent fuel shipments, environmental monitoring, circulating water system operations, leak testing of sources, and other miscellaneous reportable items from this reporting period. Three copies of this report are provided for your convenience.

Very truly yours,

  
C. W. Fay  
Vice President  
Nuclear Power

Enclosures

Copies to NRC Regional Administrator, Region III  
NRC Resident Inspector

9003090192 891231  
PDR ADOCK 05000266  
R PDC

*TEAS*  
*11*

WISCONSIN ELECTRIC

POWER COMPANY

POINT BEACH NUCLEAR PLANT

UNIT NOS. 1 AND 2

SEMIANNUAL

MONITORING REPORT

JULY 1, 1989 through DECEMBER 31, 1989

U.S. Nuclear Regulatory Commission  
Docket Nos. 50-266 and 50-301  
Facility Operating License Nos.  
DPR-24 and DPR-27

## PREFACE

This Semiannual Monitoring Report for the period of July 1, 1989, through December 31, 1989, 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.



## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.0	Radioactive Liquid Releases	1
2.0	Radioactive Airborne Releases	5
3.0	Radioactive Solid Waste Shipments	9
4.0	New and Spent Fuel Shipments	9
5.0	Radiological Environmental Monitoring	9
6.0	Non-Radioactive Chemical Releases	12
7.0	Circulating Water System Operation	12
8.0	Leak Testing of Radioactive Sources	12
9.0	Miscellaneous Reporting Requirements	14

## 1.0 RADIOACTIVE LIQUID RELEASES

The total radioactive liquid release excluding tritium for this reporting period was  $5.69\text{E-}02$  curies. This included  $4.24\text{E-}02$  curies in processed radioactive waste and primary coolant system letdown,  $1.03\text{E-}03$  curies in Unit 1 steam generator blowdown,  $6.00\text{E-}03$  curies in Unit 2 steam generator blowdown and  $7.44\text{E-}03$  curies in the retention pond.

The total tritium release for this reporting period was  $3.75\text{E+}02$  curies. This included  $3.73\text{E+}02$  curies in processed radioactive waste and primary coolant system letdown,  $4.55\text{E-}02$  curies in Unit 1 steam generator blowdown,  $8.88\text{E-}01$  curies in Unit 2 steam generator blowdown, and  $1.49\text{E+}00$  curies in the retention pond.

All radioactive liquid releases to Lake Michigan were made through the circulating water discharge system.

### 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, 1989 through June 30, 1989

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>6-Month Total</u>
Total Activity Released (Ci)							
Gross Alpha	$5.10\text{E-}06$	<MDA	<MDA	<MDA	<MDA	<MDA	$5.10\text{E-}06$
Strontium	$5.32\text{E-}05$	$9.43\text{E-}05$	<MDA	<MDA	$4.19\text{E-}07$	<MDA	$1.48\text{E-}04$
Average Diluted Discharge Con- centration ( $\mu\text{Ci/cc}$ )							
Gross Alpha	$1.37\text{E-}13$	<MDA	<MDA	<MDA	<MDA	<MDA	
Strontium	$1.43\text{E-}12$	$2.81\text{E-}12$	<MDA	<MDA	$6.34\text{E-}15$	<MDA	

TABLE 1-1

ISOTOPIC COMPOSITION OF CIRCULATING WATER DISCHARGE  
JULY 1, 1989 THROUGH DECEMBER 31, 1989

	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Total Activity Released (Ci)							
Gamma Scan	4.03E-04	4.24E-02	3.16E-03	5.14E-05	1.27E-03	3.46E-04	4.76E-02
Gross Alpha	<MDA	5.50E-05	<MDA	1.01E-05	(1)	(1)	(1)
Tritium	2.27E+01	2.34E+02	6.43E+01	2.14E+01	1.19E+01	2.07E+01	3.75E+02
Strontium	1.81E-07	8.82E-05	<MDA	2.84E-05	(1)	(1)	(1)
Total Volumes Released (Gal)							
Processed Waste	2.51E+04	1.36E+05	6.52E+04	1.25E+05	1.08E+05	3.88E+04	4.98E+05
(U1) Steam Generator Blowdown	2.71E+06	2.55E+06	2.59E+06	2.54E+06	2.52E+06	2.68E+06	1.56E+07
(U2) Steam Generator Blowdown	2.67E+06	2.89E+06	2.09E+06	0.00E+00	1.25E+06	2.71E+06	1.16E+07
Retention Pond	2.47E+06	2.87E+06	3.30E+06	3.81E+06	4.33E+06	4.11E+06	2.09E+07
Total	7.85E+06	8.31E+06	7.98E+06	6.35E+06	8.10E+06	9.50E+06	4.81E+07
Volume of Dilution Water (Gal)	1.72E+10	1.72E+10	1.67E+10	1.77E+10	1.64E+10	9.82E+09	9.50E+10
Average Diluted Discharge Concentration (uCi/cc)							
Gross Gamma	6.41E-12	6.68E-10	5.72E-11	1.02E-12	1.44E-10	9.60E-12	(1)
Gross Alpha	<MDA	8.45E-13	<MDA	1.51E-13	(1)	(1)	(1)
Tritium	3.68E-07	3.59E-06	1.02E-06	3.18E-07	1.91E-07	5.57E-07	(1)
Strontium	2.77E-15	1.27E-12	<MDA	4.23E-13	(1)	(1)	(1)
Maximum Discharge Concentration During Release Period (uCi/cc)							
Gross Gamma	4.57E-11	6.25E-09	6.27E-10	7.05E-11	3.69E-10	5.84E-11	(1)
Tritium	7.24E-05	1.06E-04	1.08E-04	7.02E-05	1.03E-05	1.17E-04	(1)
Total Equivalent Curies Released							
Co-60 Equivalent Curies & Annual RETS Limit	2.92E-03	4.86E-02	2.16E-03	7.84E-05	1.36E-02	1.47E-04	6.75E-02
I-131 Equivalent Curies & Annual RETS Limit	3.08E-03	5.13E-02	2.28E-03	8.28E-05	1.44E-02	1.55E-04	7.13E-02
Tritium Equivalent Curies & Annual RETS Limit	4.36E-05	4.13E-04	1.19E-03	3.16E-06	3.08E-05	1.30E-04	1.81E-03
	1.66E-04	1.58E-03	4.54E-03	1.21E-05	1.18E-04	4.96E-04	6.91E-03
	2.27E+01	2.34E+02	6.43E+01	2.14E+01	1.19E+01	2.07E+01	3.75E+02
	1.18E-01	1.21E+00	3.33E-01	1.11E-01	6.17E-02	1.07E-01	1.94E+00

(1) Information unavailable at time of report preparation.

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, 1989 through June 30, 1989.

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>6-Month Total (Ci)</u>
Sr-89	2.26E-06	2.99E-06	<MDA	<MDA	<MDA	<MDA	5.25E-06
Sr-90	5.09E-05	9.13E-05	<MDA	<MDA	4.19E-07	<MDA	1.43E-04

## 1.3 Subsoil Drain System Releases of Tritium

### 1.3.1 Releases During Current Reporting Period

The release 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, 1989 through December 31, 1989

	<u>LOCATION</u>				
	<u>S-1</u>	<u>S-3</u>	<u>S-9</u>	<u>S-10</u>	<u>Totals</u>
<u>Third Quarter</u>					
H-3 ( $\mu\text{Ci/cc}$ )	<MDA	<MDA	No sample	<MDA	
Ave. Flow (gpd)	4.95E+03	4.60E+02	No flow	1.67E+04	
<u>Fourth Quarter</u>					
H-3 ( $\mu\text{Ci/cc}$ )	<MDA	<MDA	No sample	<MDA	
Ave. Flow (gpd)	1.91E+03	9.64E+02	No flow	1.58E+04	
<u>Semiannual Totals</u>					
Total Released (Ci)	<MDA	<MDA	No sample	<MDA	<MDA
Total Flow (gallons)	5.98E+05	1.31E+05	No flow	2.99E+06	3.72E+06

TABLE 1-2

ISOTOPIC COMPOSITION OF CIRCULATING WATER DISCHARGES  
JULY 1, 1989 THROUGH DECEMBER 31, 1989

NUCLIDES RELEASED	JUL (Curies)	AUG (Curies)	SEP (Curies)	OCT (Curies)	NOV (Curies)	DEC (Curies)	TOTAL (Curies)
Tritium	2.27E+01	2.34E+02	6.43E+01	2.14E+01	1.19E+01	2.07E+01	3.75E+02
I-131	<MDA	3.02E-04	8.55E-04	<MDA	<MDA	1.10E-04	1.27E-03
I-132	<MDA	1.23E-04	2.33E-04	<MDA	<MDA	<MDA	3.56E-04
I-133	1.97E-04	4.73E-04	1.47E-03	1.43E-05	1.39E-04	8.83E-05	2.38E-03
Ag-110m	<MDA	4.61E-04	<MDA	<MDA	<MDA	<MDA	4.61E-04
Co-58	4.02E-06	3.01E-03	2.65E-06	2.78E-06	<MDA	<MDA	3.02E-03
Co-60	8.49E-06	1.45E-02	1.26E-05	3.12E-05	2.21E-04	1.47E-04	1.49E-02
Cs-134m	<MDA	<MDA	<MDA	<MDA	5.97E-06	<MDA	5.97E-06
Cs-137	1.93E-04	<MDA	1.42E-04	3.06E-06	8.85E-04	<MDA	1.22E-03
Cr-51	<MDA	<MDA	4.44E-04	<MDA	<MDA	<MDA	4.44E-04
Mn-54	<MDA	2.68E-04	<MDA	<MDA	<MDA	<MDA	2.68E-04
Nb-97	<MDA	3.90E-06	<MDA	<MDA	<MDA	<MDA	3.90E-06
Sb-125	<MDA	2.12E-02	<MDA	<MDA	<MDA	<MDA	2.12E-02
Sr-89	<MDA	<MDA	<MDA	<MDA	(1)	(1)	(1)
Sr-90	1.81E-07	8.28E-05	<MDA	2.84E-05	(1)	(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

Pursuant to 10 CFR 10.302(a) and 10 CFR 51.32, the Nuclear Regulatory Commission has granted PBNP approval to land-apply sewage sludge with trace amounts of radionuclides on various Wisconsin Department of Natural Resources approved Wisconsin Electric Power Company properties surrounding Point Beach Nuclear Plant. 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, 1989 THROUGH DECEMBER 31, 1989

<u>Date of Application</u>	<u>Gallons</u>	<u>Site</u>	<u>Activity Released (Ci)</u>	
September 29, 1989	14,500	PB-01	Co-60	7.30E-06

#### 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 was one gas decay tank released during this reporting period.

##### 2.1 Radioactive Airborne Release Summary

###### 2.1.1 Releases During Current Reporting Period

Radioactivity released in airborne effluents 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 time of the last report preparation and should be added to Table 2-1 of the Semiannual Monitoring Report for January 1, 1989 through June 30, 1989.

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>6-Month Total (Ci)</u>
Strontium (Ci)	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA

TABLE 2-1

RADIOACTIVE AIRBORNE RELEASE SUMMARY  
JULY 1, 1989 THROUGH DECEMBER 31, 1989

	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Total Noble Gases (Ci):(2)	8.54E-01	1.41E+00	7.14E-01	1.68E+00	3.19E-01	2.09E-01	5.19E+00
Total Radioiodines (Ci):	1.03E-04	1.69E-04	1.07E-04	3.47E-06	<MDA	1.74E-07	3.83E-04
Total Particulates (Ci):	6.37E-06	4.11E-05	8.51E-06	1.50E-06	1.84E-03	3.64E-06	1.90E-03
Alpha (Ci):	6.99E-07	1.70E-07	7.71E-07	1.23E-06	1.86E-06	2.44E-06	7.17E-06
Strontium (Ci):	<MDA	<MDA	<MDA	(1)	(1)	(1)	(1)
All Others (Ci):	5.67E-06	4.09E-05	7.74E-06	2.70E-07	1.84E-03	1.20E-06	1.89E-03
Total Tritium (Ci):	7.06E+00	1.23E+01	8.79E+00	2.20E+01	1.72E+01	1.39E+01	8.13E+01
Maximum Hourly Average Release Rate (3) (Curies/Second)	7.02E-05	1.33E-03	1.92E-04	4.29E-04	3.10E-04	2.22E-04	
Total Equivalent Curies Released							
Co-60 Equivalent Curies	2.11E-06	4.59E-04	7.45E-05	2.37E-06	2.06E-02	4.32E-07	2.11E-02
% Annual RETS Limit	1.23E-04	2.67E-02	4.33E-03	1.38E-04	1.20E+00	2.51E-05	1.23E+00
I-131 Equivalent Curies	4.70E-05	6.20E-05	4.42E-05	3.47E-06	<MDA	1.73E-07	1.57E-04
% Annual RETS Limit	1.34E-02	1.76E-02	1.26E-02	9.86E-04	<MDA	4.91E-05	4.46E-02
Xe-133 Equivalent Curies (2)	1.77E+01	3.15E+01	1.20E+01	3.89E+01	6.93E+00	2.94E+00	1.10E+02
% Annual RETS Limit	1.70E-03	3.03E-03	1.15E-03	3.74E-03	6.66E-04	2.83E-04	1.06E-02
Tritium Equivalent Curies	7.06E+00	1.23E+01	8.79E+00	2.20E+01	1.72E+01	1.39E+01	8.13E+01
% Annual RETS Limit	2.43E-02	4.24E-02	3.03E-02	7.59E-02	5.93E-02	4.79E-02	2.80E-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.



## 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.

### 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, 1989 through June 30, 1989.

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>6-Month Total (Ci)</u>
Sr-89	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA
Sr-90	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA



TABLE 2-2

RADIOACTIVE AIRBORNE RELEASE SUMMARY  
JULY 1, 1989 THROUGH DECEMBER 31, 1989

NUCLIDES RELEASED	JUL (Curies)	AUG (Curies)	SEP (Curies)	OCT (Curies)	NOV (Curies)	DEC (Curies)	TOTAL (Curies)
Tritium	7.06E+00	1.23E+01	8.79E+00	2.20E+01	1.72E+01	1.39E+01	8.13E+01
Xe-133	1.23E-01	1.13E-01	1.09E-01	4.58E-02	3.38E-02	9.68E-02	5.21E-01
Kr-85m	2.37E-02	4.19E-02	1.23E-02	5.93E-02	9.08E-03	1.64E-03	1.48E-01
Kr-88	5.96E-02	1.05E-01	3.10E-02	1.48E-01	2.24E-02	3.45E-03	3.1E-01
Xe-133m	8.03E-04	2.66E-04	<MDA	5.66E-04	9.76E-05	2.80E-05	1.76E-03
Xe-135	1.25E-01	1.98E-01	6.71E-02	2.76E-01	4.59E-02	1.79E-02	7.30E-01
Xe-138	2.57E-01	5.17E-01	1.53E-01	6.48E-01	1.01E-01	1.55E-02	1.69E+00
Kr-87	5.26E-02	9.87E-02	2.90E-02	1.36E-01	2.01E-02	3.09E-03	3.39E-01
Xe-135m	7.54E-02	1.51E-01	4.58E-02	1.86E-01	2.83E-02	4.61E-03	4.91E-01
Ar-41	1.37E-01	1.87E-01	1.39E-01	1.80E-01	5.69E-02	6.59E-02	7.66E-01
Kr-85	<MDA	<MDA	1.28E-01	<MDA	<MDA	<MDA	1.28E-01
I-131	2.94E-05	3.81E-05	3.04E-05	3.47E-06	<MDA	1.73E-07	1.02E-04
I-132	<MDA	3.20E-05	9.46E-06	<MDA	<MDA	<MDA	4.15E-05
I-133	7.37E-05	9.88E-05	5.50E-05	<MDA	<MDA	8.48E-10	2.28E-04
I-135	<MDA	<MDA	1.26E-05	<MDA	<MDA	<MDA	1.26E-05
P-18	4.26E-06	3.17E-09	<MDA	1.59E-08	<MDA	<MDA	4.28E-06
Cs-137	1.55E-07	4.10E-05	6.65E-06	2.07E-07	1.84E-03	1.53E-10	1.89E-03
Cs-138	<MDA	<MDA	1.33E-07	<MDA	<MDA	<MDA	1.33E-07
Co-58	<MDA	<MDA	<MDA	<MDA	1.77E-07	1.20E-06	1.38E-06
Co-60	<MDA	<MDA	3.07E-08	5.28E-08	7.09E-07	<MDA	7.93E-07
Tc-99m	<MDA	<MDA	9.24E-07	<MDA	<MDA	<MDA	9.24E-07
Rb-88	1.93E-06	<MDA	<MDA	<MDA	<MDA	<MDA	1.93E-06
Sr-89	<MDA	<MDA	<MDA	(1)	(1)	(1)	(1)
Sr-90	<MDA	<MDA	<MDA	(1)	(1)	(1)	(1)
Alpha	6.99E-07	1.70E-07	7.71E-07	1.23E-06	1.86E-06	2.44E-06	7.17E-06

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

### 3.0 RADIOACTIVE SOLID WASTE SHIPMENTS

Solid wastes shipped off site 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>
08/17/89	26.20 (1)	1.89E-03	Barnwell S.C.
09/19/89	125.20 (2)	2.20E+02	Barnwell S.C.
09/26/89	586.20 (1)	3.66E-01	Barnwell S.C.
10/24/89	4.60 (1)	3.00E-03	Barnwell S.C.
11/27/89	9.80 (1)	1.83E-02	Barnwell S.C.
12/05/89	64.75 (1)	1.17E-01	Barnwell S.C.
12/05/89	9.25 (1)	7.62E-02	Barnwell S.C.
12/13/89	92.50 (1)	3.66E-02	Barnwell S.C.
12/14/89	115.80 (1)	2.92E-03	Barnwell S.C.
12/14/89	95.28 (1)	6.41E-02	Barnwell S.C.
12/14/89	46.25 (1)	1.92E-02	Barnwell S.C.
12/15/89	138.75 (1)	1.08E-01	Barnwell S.C.
12/15/89	87.88 (1)	1.92E-02	Barnwell S.C.
12/16/89	15.70 (1)	9.40E-04	Barnwell S.C.
12/16/89	270.10 (1)	7.30E-03	Barnwell S.C.
12/20/89	3.60 (1)	1.36E-02	Barnwell S.C.
12/26/89	547.80 (1)	3.00E-01	Barnwell S.C.
12/28/89	213.80 (1)	4.07E-02	Barnwell S.C.
12/29/89	455.60 (1)	1.61E-01	Barnwell S.C.
 TOTAL	 2909.06	 2.21E+02	

(1) Dry Active Waste  
(2) Spent Resin

### 4.0 NEW & 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 1989 refueling.

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

### 5.0 RADIOLOGICAL ENVIRONMENTAL MONITORING

Radiological environmental monitoring conducted at Point Beach Nuclear Plant from July 1, 1989 through December 31, 1989 consisted of air filters, milk, lake water, well water, soil, fish, shoreline sediments, algae, vegetation, and TLDs.

No significant deviations from normal results, attributable to the operation of the Point Beach Nuclear Plant, were identified during this six month reporting period.



<u>No.</u>	<u>Sample Type</u>	<u>Low</u>	<u>Average</u>	<u>High</u>	<u>Units</u>
<u>TLDs</u>					
44	Environmental Radiation	0.55	0.94±0.16	1.26	mR/7 days
<u>Air</u>					
162	Gross beta	0.01	0.02±0.01	0.05	pCi/m <sup>3</sup>
162	Radioiodine		all <0.03		pCi/m <sup>3</sup>
12	Cs-137		all <0.01		pCi/m <sup>3</sup>
12	Cs-134		all <0.01		pCi/m <sup>3</sup>
12	Other gamma emitters		all <0.01		pCi/m <sup>3</sup>
<u>Milk</u>					
18	Radioiodine		all <0.5		pCi/l
18	Sr-89		all <5		pCi/l
18	Sr-90	0.8	1.7±0.5	2.8	pCi/l
18	Cs-134		all <5		pCi/l
18	Cs-137		all <5		pCi/l
18	Ba-La-140		all <5		pCi/l
18	Other gamma emitters		all <5		pCi/l
<u>Lake Water</u>					
30	Gross Beta	2.1	2.8±0.6	4.9	pCi/l
10	Tritium	<500	<527±85	768	pCi/l
10	Sr-89		all <5		pCi/l
10	Sr-90		all <1		pCi/l
30	Radioiodine		all <0.5		pCi/l
30	Mn-54		all <10		pCi/l
30	Fe-59		all <30		pCi/l
30	Co-58		all <10		pCi/l
30	Co-60		all <10		pCi/l
30	Zn-65		all <30		pCi/l
30	Zr-Nb-95		all <15		pCi/l
30	Cs-134		all <10		pCi/l
30	Cs-137		all <10		pCi/l
30	Ba-La-140		all <15		pCi/l
30	Other gamma emitters		all <30		pCi/l
<u>Well Water</u>					
2	Gross Beta	1.7	2.8±1.5	3.8	pCi/l
2	H-3		all <500		pCi/l
2	Sr-89		all <5		pCi/l
2	Sr-90		all <1		pCi/l
2	I-131		all <0.5		pCi/l
2	Mn-54		all <10		pCi/l
2	Fe-59		all <30		pCi/l



<u>No.</u>	<u>Sample Types</u>	<u>Low</u>	<u>Average</u>	<u>High</u>	<u>Units</u>
2	Co-58		all <10		pCi/l
2	Co-60		all <10		pCi/l
2	Zn-65		all <30		pCi/l
2	Zr-Nb-95		all <15		pCi/l
2	Cs-134		all <10		pCi/l
2	Cs-137		all <10		pCi/l
2	Ba-La-140		all <15		pCi/l
2	Other Gamma Emitters		all <30		pCi/l
<u>Fish</u>					
5	Gross Beta	2.2	2.5±0.3	3.3	pCi/g wet
5	Mn-54		all <0.13		pCi/g wet
5	Fe-59		all <0.26		pCi/g wet
5	Co-58		all <0.13		pCi/g wet
5	Co-60		all <0.13		pCi/g wet
5	Zn-65		all <0.26		pCi/g wet
5	Cs-134		all <0.13		pCi/g wet
5	Cs-137	<0.15	<0.16±0.02	0.19	pCi/g wet
5	Other Gamma Emitters		all <0.5		pCi/g wet
<u>Soil</u>					
8	Gross Beta	8.1	22.0±6.4	27.3	pCi/g dry
8	Cs-137	0.15	0.57±0.29	0.91	pCi/g dry
8	Other Gamma Emitters		all <0.15		pCi/g dry
<u>Shoreline Sediment</u>					
5	Gross Beta	5.0	7.4±1.3	9.7	pCi/g dry
5	Cs-137		all <0.15		pCi/g dry
5	Other Gamma Emitters		all <0.15		pCi/g dry
<u>Vegetation</u>					
16	Gross Beta	3.4	6.2±1.6	10.6	pCi/g wet
16	Cs-137		all <0.08		pCi/g wet
16	Cs-134		all <0.06		pCi/g wet
16	I-131		all <0.06		pCi/g wet
16	Other Gamma Emitters		all <0.25		pCi/g wet
<u>Algae</u>					
4	Gross Beta	0.9	1.4±0.5	1.9	pCi/g wet
4	Co-58		all <0.25		pCi/g wet
4	Co-60		all <0.25		pCi/g wet
4	Cs-134		all <0.25		pCi/g wet
4	Cs-137		all <0.25		pCi/g wet
4	Other Gamma Emitters		all <0.25		pCi/g wet

## 6.0 NONRADIOACTIVE CHEMICAL RELEASES

### 6.1 Scheduled Chemical Waste Releases\*

Scheduled chemical waste releases to the circulating water system from July 1, 1989 to December 31, 1989 included  $4.19\text{E}+06$  gallons of neutralized wastewater. The wastewater contained  $3.57\text{E}+02$  pounds of suspended solids and  $2.97\text{E}+05$  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, 1989 to December 31, 1989 included  $2.09\text{E}+07$  gallons of clear wastewater. The wastewater contained  $1.78\text{E}+03$  pounds of suspended solids.

\*Miscellaneous chemical waste released directly to the circulating water, based on amount of chemicals received, for July 1, 1989 to December 31, 1989 included  $5.11\text{E}+04$  pounds of sodium bisulfite and  $1.59\text{E}+04$  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.

## 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  $<0.005 \mu\text{Ci}$ .

TABLE 7-1

CIRCULATING WATER SYSTEM OPERATION  
July 1, 1989 through December 31, 1989

		<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
Average Volume Cooling Water Discharge (Million gal/day)	UNIT 1	554.4	554.4	557.3	562.4	547.9	316.8
	UNIT 2	554.4	554.4	554.4*	0*	316.6*	316.8
Average Cooling Water Intake Temperature (Degrees F)	UNIT 1	60.6	63.5	54.7	46.6	42.2	37.1
	UNIT 2	60.6	63.5	56.0*	*	36.9*	37.1
Average Cooling Water Discharge Temperature (Degrees F)	UNIT 1	79.2	79.9	70.7	64.5	61.4	68.5
	UNIT 2	80.4	82.2	72.6*	*	68.0*	69.0
Average Ambient Lake Temperature (Degrees F)		58.0	61.6	53.0	46.4	42.7	35.4

(\* = Unit 2 refueling shutdown from September 23, 1989 to November 25, 1989)



## 9.0 MISCELLANEOUS REPORTING REQUIREMENTS

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

No revisions were made to the ODCM and Environmental Manual during this reporting period. No revisions were made to the PCP.

### 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 were achieved 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.