



Carolina Power & Light Company

Brunswick Nuclear Project  
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BRUNSWICK STEAM ELECTRIC PLANT UNITS 1 AND 2  
DOCKET NOS. 50-325 AND 50-324  
LICENSE NOS. DPR-71 AND DPR-62  
SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

Gentlemen:

Enclosed is the Semiannual Radioactive Effluent Release Report for Brunswick Steam Electric Plant, covering the period from January 1, 1990, through June 30, 1990.

This report is submitted for the Brunswick Steam Electric Plant in accordance with Technical Specification 6.9.1.8.

Very truly yours,

J. L. Harness, General Manager  
Brunswick Nuclear Project

JD/th

Enclosure

cc: Mr. S. D. Ebnetter  
Mr. N. B. Le  
BSEP NRC Resident Office

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Brunswick Steam Electric Plant  
Semiannual Radioactive Effluent Report  
January 1, to June 30, 1990

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ATTACHMENT 1

Supplemental Information

January 1, to June 30, 1990

EFFLUENT WASTE DISPOSAL SEMIANNUAL REPORT  
Supplemental Information

Facility: Brunswick Steam Electric Plant  
Licensee: Carolina Power and Light Company

1. Regulatory Limits

A. Fission and activation gases (Technical Spec. 3.11.2.2)

- \*(1) Calendar Quarter
  - (a) 10 mrad gamma
  - (b) 20 mrad beta

(2) Calendar Year

- (a) 20 mrad gamma
- (b) 40 mrad beta

B. Iodine-131, iodine-133, tritium, and particulates with half-lives greater than eight days (Technical Spec. 3.11.2.3)

- \*(1) Calendar Quarter
  - (a) 15 mrem to any organ

(2) Calendar Year

- (a) 30 mrem to any organ

(3) Calendar Quarter for Burning Contaminated Oil

- (a) 436  $\mu$ Ci

(4) Calendar Year for Burning Contaminated Oil

- (a) 872  $\mu$ Ci

C. Liquid effluents (Technical Specification 3.11.1.2)

\*\* (1) Calendar Quarter

- (a) 3 mrem to total body
- (b) 10 mrem to any organ

(2) Calendar Year

- (a) 5 mrem to total body
- (b) 20 mrem to any organ

NOTE: Dose calculations are determined in accordance with the Off-Site Dose Calculation Manual (ODCM)

\*Used for percent of technical specification limit determinations in Table 1A.

\*\*Used for percent of technical specification limit determinations in Table 2A.



2. Maximum permissible concentrations and dose rates which determine maximum instantaneous release rates.

A. Fission and activation gases (Technical Specification 3.11.2.1.a)

- (1) 500 mrem/year to total body
- (2) 3000 mrem/year to the skin

B. Iodine-131, iodine-133, tritium, and particulates with half-lives greater than eight days (Technical Specification 3.11.2.1.b)

- (1) 1500 mrem/year to any organ

C. Liquid effluents (Technical Specification 3.11.1.1)  
The concentration of radioactive material released in liquid effluents to unrestricted areas after dilution in the discharge canal shall be limited to the concentrations specified in 10CFR20, Appendix B, Table II, column 2, for radionuclides other than noble gases.

- \*\* (1) Tritium:  $MPC = 3 \text{ E-03 } \mu\text{Ci/ml}$  and
- \*\* (2) Dissolved and entrained gases:  $MPC = 2 \text{ E-04 } \mu\text{Ci/ml}$

3. Measurements and Approximations of Total Radioactivity

A. Fission and activation gases

Analysis for specific radionuclides in representative grab samples by gamma spectroscopy.

B. Iodines

Analysis for specific radionuclides collected on charcoal cartridges by gamma spectroscopy.

C. Particulates

Analysis for specific radionuclides collected on filter papers by gamma spectroscopy.

D. Particulates for Burning Oil

Analysis for specific radionuclides by grab samples of each batch of oil to be burned.

E. Liquids Effluents

Analysis for specific radionuclides of individual releases by gamma spectroscopy.

\*\* Used as applicable limits for Table 2A

Nuclear counting statistics are reported utilizing 1-sigma error. Total error where reported represents a best effort to approximate the total of all individual and sampling errors.

#### 4. Batch Releases

##### A. Liquid

(1) Number of batch releases:	8.60E+01
(2) Total time period for batch releases:	9.00E+03 Minutes
(3) Maximum time period for a batch release:	1.57E+02 Minutes
(4) Average time period for a batch release:	1.05E+02 Minutes
(5) Minimum time period for a batch release:	1.40E+01 Minutes
(6) Average stream flow during periods of release of effluent into a flowing stream :	6.56E+05 GPM

##### B. Gaseous

(1) Number of batch releases:	0.00E 00 Minutes
(2) Total time period for a batch release:	0.00E 00 Minutes
(3) Maximum time period for a batch release:	0.00E 00 Minutes
(4) Average time period for a batch release:	0.00E 00 Minutes
(5) Minimum time period for a batch release:	0.00E 00 Minutes

#### 5. Abnormal releases

##### A. Liquid

(1) Number of releases:	0.00E 00
(2) Total activity released:	0.00E 00 Curies

##### B. Gaseous

(1) Number of releases:	0.00E 00
(2) Total activity released:	0.00E 00 Curies

ATTN: WWS

Effluent and Waste Disposal Data

Brunswick Steam Electric Plant

January 1, to June 30, 1990

Enclosure 1

Table 1A: Gaseous Effluents - Summation of all Releases

Table 1B: Gaseous Effluents - Elevated Releases

Table 1C: Gaseous Effluents - Ground Level Releases

Table 2A: Liquid Effluents - Summation of all Releases

Table 3B: Liquid Effluents

Lower Limits of Detection

Table 3: Solid Waste and Irradiated Fuel Shipments

Enclosure 2

Combustion of Waste Oil

TABLE 1A  
Effluent and Waste Disposal Semiannual Report for Year 1990  
Gaseous Effluents - Summation of all Releases

	Unit	Qtr 1	Qtr 2	Est. Tot. Error %
<b>A. <u>FISSION AND ACTIVATION</u></b>				
<b><u>GASES</u></b>				
1. Total release	Ci	2.45E+02	2.89E+02	1.15E 02
2. Average release rate for period	uCi/sec	3.15E+01	3.68E+01	
3. Percent of technical specification limit	%	7.50E-02	5.80E-02	
<b>B. <u>IODINES</u></b>				
1. Total I-131	Ci	1.63E-03	2.07E-03	7.00E 01
2. Average release rate for period	uCi/sec	2.09E-04	2.63E-04	
<b>C. <u>PARTICULATES</u></b>				
1. Total release	Ci	1.25E-03	2.85E-03	7.00E 01
2. Average release rate for period	uCi/sec	1.61E-04	3.63E-04	
3. Gross alpha	Ci	1.82E-06	3.24E-06	
<b>D. <u>Tritium</u></b>				
1. Total release	Ci	7.81E-01	5.83E+00	7.00E 01
2. Average release rate for period	uCi/sec	1.00E-01	7.42E-01	
<b>E. <u>IODINE-131, IODINE-133, TRITIUM AND PARTICULATES</u></b>				
1. Total Release	Ci	7.93E-01	5.85E+00	
2. Average release rate for period	uCi/sec	1.02E-01	7.44E-01	
3. Percent of technical specification limit	%	6.00E-02	8.00E-02	
<b>F. <u>PARTICULATES VIA BURNING CONTAMINATED OIL</u></b>				
1. Total Release	Ci	0.00E+00	0.00E+00	
2. Average release rate for period	uCi/sec	0.00E+00	0.00E+00	
3. Percent of technical specification limit	%	0.00E+00	0.00E+00	



TABLE 1B

Effluent and Waste Disposal Semiannual Report for Year 1990  
Gaseous Effluents - Elevated Releases  
Continuous Release

<u>Nuclides Released</u>	<u>Unit</u>	<u>Qtr 1</u>	<u>Qtr 2</u>
<u>1. FISSION GASES</u>			
argon-41	Ci	4.01E+00	3.91E+00
krypton-85m	Ci	<LLD	7.27E-01
krypton-87	Ci	1.38E+00	7.81E-01
xenon-133	Ci	3.32E+00	4.04E+00
xenon-135m	Ci	2.14E+01	1.79E+01
xenon-135	Ci	1.91E+01	1.27E+01
xenon-137	Ci	5.87E+01	8.62E+01
<u>xenon-138</u>	<u>Ci</u>	<u>4.08E+01</u>	<u>3.44E+01</u>
total for period	Ci	1.49E+02	1.61E+02
<u>2. IODINES</u>			
iodine-131	Ci	1.40E-03	1.72E-03
iodine-132	Ci	3.86E-03	6.24E-03
iodine-133	Ci	7.20E-03	1.08E-02
<u>iodine-135</u>	<u>Ci</u>	<u>8.96E-03</u>	<u>1.25E-02</u>
total for period	Ci	2.14E-02	3.13E-02
<u>3. PARTICULATES</u>			
chromium-51	Ci	<LLD	4.26E-05
manganese-54	Ci	2.33E-05	9.70E-06
cobalt-58	Ci	<LLD	4.47E-06
cobalt-60	Ci	5.15E-05	2.97E-05
strontium-89	Ci	1.52E-04	2.45E-04
strontium-90	Ci	5.90E-07	1.15E-06
cesium-137	Ci	1.54E-05	1.10E-05
barium-140	Ci	1.12E-04	3.15E-04
lanthanum-140	Ci	7.41E-05	2.28E-04
<u>hafnium-181</u>	<u>Ci</u>	<u>1.13E-07</u>	<u>&lt;LLD</u>
total for period	Ci	4.29E-04	8.87E-04
<u>4. TRITIUM</u>			
hydrogen-3	Ci	4.95E-01	3.56E+00

TABLE 1C  
Effluent and Waste Disposal Semiannual Report for Year 1990  
Gaseous Effluents - Ground Level Releases  
Continuous Release

<u>Nuclides Released</u>	<u>Unit</u>	<u>Qtr 1</u>	<u>Qtr 2</u>
<u>1. FISSION GASES</u>			
xenon-133	Ci	7.46E+00	7.88E+01
xenon-135m	Ci	1.59E+01	3.14E+01
<u>xenon-135</u>	<u>Ci</u>	<u>7.23E+01</u>	<u>1.73E+01</u>
total for period	Ci	9.57E+01	1.28E+02
<u>2. IODINES</u>			
iodine-131	Ci	2.27E-04	3.47E-04
iodine-132	Ci	9.79E-04	2.27E-03
iodine-133	Ci	1.88E-03	2.92E-03
iodine-134	Ci	<LLD	3.20E-04
<u>iodine-135</u>	<u>Ci</u>	<u>7.00E-04</u>	<u>2.45E-03</u>
total for period	Ci	3.79E-03	8.31E-03
<u>3. PARTICULATES</u>			
chromium-51	Ci	8.57E-05	1.57E-03
maganese-54	Ci	3.49E-04	1.14E-04
cobalt-58	Ci	1.06E-04	5.60E-05
cobalt-60	Ci	2.68E-04	2.06E-04
strontium-89	Ci	1.60E-06	3.75E-06
strontium-90	Ci	1.86E-07	3.06E-07
<u>cesium-137</u>	<u>Ci</u>	<u>8.18E-06</u>	<u>8.51E-06</u>
total for period	Ci	8.19E-04	1.96E-03
<u>4. TRITIUM</u>			
hydrogen-3	Ci	2.86E-01	2.27E+00

TABLE 2A  
Effluent and Waste Disposal Semiannual Report for Year 1990  
Liquid Effluents - Summation of all Releases

	<u>Unit</u>	<u>Qtr 1</u>	<u>Qtr 2</u>	<u>Est Tot</u> <u>% Error</u>
<b>A. <u>FISSION AND ACTIVATION</u></b>				
<b><u>PRODUCTS</u></b>				
1. Total release (excluding tritium, gases, & alpha)	Ci	1.23E-01	2.45E-02	3.50E 01
2. Avg. diluted conc.	uCi/ml	7.94E-09	3.57E-09	
3. Percent limit	%	1.87E-01	1.98E-02	
<b>B. <u>TRITIUM</u></b>				
1. Total release	Ci	1.95E+00	6.99E+00	4.00E 00
2. Avg. diluted conc.	uCi/ml	1.26E-07	1.02E-06	
3. Percent limit	%	4.20E-03	3.40E-02	
<b>C. <u>DISSOLVED AND ENTRAINED GASES</u></b>				
1. Total release	Ci	9.35E-02	4.02E-02	3.50E 01
2. Avg. diluted conc.	uCi/ml	6.03E-09	5.86E-09	
3. Percent limit	%	3.70E-03	2.03E-03	
<b>D. <u>GROSS ALPHA RADIOACTIVITY</u></b>				
1. Total release	Ci		4.00E 01	4.00E 01
<b>E. <u>VOLUME OF WASTE</u></b>				
	liters	4.53E+00	1.84E+00	1.25E 01
<b>F. <u>TOTAL OF DILUTION WATER</u></b>				
<b><u>(used during release</u></b>				
<b><u>for average dil. conc.)</u></b>				
	liters	1.55E+10	6.86E+09	1.30E 01
<b>G. <u>VOLUME OF COOLING WATER</u></b>				
<b><u>DISCHARGED FROM PLANT</u></b>				
	liters	3.10E+11	3.96E+11	



TABLE 2B  
Effluent and Waste Disposal Semiannual Report for Year 1990  
Liquid Effluents - Batch Mode

<u>Nuclides Released</u>	<u>Unit</u>	<u>Qtr 1</u>	<u>Qtr 2</u>
<u>1. FISSION AND ACTIVATION PRODUCTS</u>			
sodium-24	Ci	1.26E-03	<LLD
chromium-51	Ci	1.74E-02	2.67E-03
manganese-54	Ci	2.15E-02	1.02E-03
iron-55	Ci	<LLD	7.35E-04
cobalt-57	Ci	1.27E-05	<LLD
cobalt-58	Ci	6.29E-03	1.56E-04
iron-59	Ci	6.19E-05	<LLD
cobalt-60	Ci	4.10E-02	7.00E-03
arsenic-76	Ci	5.00E-05	<LLD
strontium-90	Ci	3.44E-05	<LLD
yttrium-91m	Ci	3.18E-04	6.34E-04
yttrium-92	Ci	5.01E-03	8.26E-03
yttrium-93	Ci	<LLD	2.59E-04
strontium-92	Ci	2.94E-05	1.14E-05
technetium-99m	Ci	1.83E-04	4.13E-04
technetium-101	Ci	<LLD	3.48E-05
technetium-104	Ci	9.12E-05	2.57E-05
ruthenium-103	Ci	8.70E-06	<LLD
ruthenium-105	Ci	2.35E-04	9.31E-04
antimony-125	Ci	1.15E-04	<LLD
iodine-131	Ci	5.60E-04	<LLD
tellurium-132	Ci	3.01E-04	<LLD
iodine-132	Ci	2.61E-05	<LLD
iodine-133	Ci	2.31E-03	1.63E-05
iodine-134	Ci	<LLD	3.29E-05
cesium-134	Ci	8.37E-03	1.03E-04
iodine-135	Ci	4.74E-04	<LLD
cesium-137	Ci	1.43E-02	4.83E-04
lanthanum-140	Ci	1.69E-04	2.27E-04
lanthanum-141	Ci	<LLD	1.01E-03
lanthanum-142	Ci	1.12E-04	4.65E-04
neptunium-239	Ci	2.33E-03	<LLD
total for period	Ci	1.23E-01	2.45E-02
<u>2. CASES</u>			
xenon-133	Ci	1.38E-02	4.14E-03
xenon-133m	Ci	1.23E-04	<LLD
xenon-135m	Ci	4.32E-04	4.67E-05
xenon-135	Ci	7.91E-02	3.60E-02
total for period	Ci	9.35E-02	4.02E-02



## Lower Limits of Detection

January through June 1990

uCi/ml

1. Liquid Releases

Na-24	2.19E-08
Co-57	1.11E-08
Sr-90	3.01E-09
Fe-59	1.81E-08
As-76	4.43E-08
Y-93	1.88E-07
I-134	2.89E-08
Tc-101	5.48E-08
Ru-103	1.51E-08
Sb-125	4.08E-08
I-132	2.58E-08
I-131	1.27E-08
Alpha	3.01E-08
Fe-55	1.39E-07
Te-132	1.38E-08
I-135	7.36E-08
Np-239	8.91E-08
La-141	8.90E-07
Xe-133m	1.00E-07

2. Gaseous Releases

Kr-85m	7.24E-09
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3. Iodines and Particulates

Cr-51	3.08E-13
Co-58	2.38E-14
Hf-181	3.95E-14
I-134 T <sup>1/2</sup>	Too short

## NOTES

- 1: The above values represent typical "a priori" LLDs for isotopes where values of "<LLD" are indicated in Tables 1A, 1B, 1C, 2A, and 2B.
- 2: Where activity for any nuclide is reported as " Less than LLD", that nuclide is considered not present and the LLD activity listed is not considered in summary data.

Table 3A  
Effluent and Waste Disposal Semiannual Report for Year 1990  
Solid Waste and Irradiated Fuel Shipments

<u>Waste Class A</u>		<u>January through June</u>		
1. <u>Total volume shipped</u> (cubic meters)		3.17	E2	
Total Curie quantity (estimated)		7.34	E2	
2. <u>Type of Waste</u>		Six-month	Est. Total	
	<u>Units</u>	<u>Period</u>	<u>% Error</u>	
a. Spent resins, filter sludges	meters <sup>3</sup>	6.88 E1		
	Curies	7.05 E2	1.00E1	
b. Dry active waste, compacted	meters <sup>3</sup>	2.49 E2		
noncompactd	Curies	2.88 E1	1.00E1	
c. Irradiated components	meters <sup>3</sup>	0.00 E0		
	Curies	0.00 E0	N/A	
d. Others (oil)	meters <sup>3</sup>	0.00 E0		
	Curies	0.00 E0	N/A	
3. <u>Estimate of major radionuclide composition</u>				
a.	Ni-63	1.84 E0%		
	Mn-54	7.57 E0%		
	Fe-55	5.84 E1%		
	Co-58	7.78 E0%		
	Co-60	2.01 E1%		
	Cs-134	1.06 E0%		
	Cs-137	2.19 E0%		
b.	Mn-54	6.09 E0%		
	Fe-55	8.24 E1%		
	Co-60	1.07 E1%		
c.	N/A	N/A		
d.	N/A	N/A		

Table 3A (cont.)

Effluent and Waste Disposal Semiannual Report for Year 1990  
Solid Waste and Irradiated Fuel Shipments

4. Cross reference table, waste stream, form, and container type.

	<u>Stream</u>	<u>Form</u>	<u>Container type</u>	<u>No. of shipments</u>
a.	Resin	Dewatered & Solidified*	Type A/Type B	13/1
b.	Dry active waste	Compacted/non- compacted waste	STP	18
c.	Irradiated components		N/A	0
d.	Other		N/A	0

\*solidification agent or absorbent  
(e.g., cement, urea formaldehyde)      NONE

5. Shipment Disposition

## a. Solid Waste

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
32	Sole Use	CNSI/Barnwell SC

## b. Irradiated Components

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
0	N/A	N/A



TABLE 3B

Effluent and Waste Disposal Semiannual Report for Year 1990  
Solid Waste and Irradiated Fuel Shipments

Waste Class BJanuary through June

1. <u>Total volume shipped</u> (cubic meters)		0.00 E0	
Total Curie quantity (estimated)		0.00 E0	
2. <u>Type of Waste</u>		Six-month	Est.Total
	<u>Units</u>	<u>Period</u>	<u>% Error</u>
a. Spent resins, filter sludges	meters <sup>3</sup>	0.00 E0	N/A
	Curies	0.00 E0	
b. Dry active waste, compacted, and noncompact	meters <sup>3</sup>	0.00 E0	N/A
	Curies	0.00 E0	
c. Irradiated components	meters <sup>3</sup>	0.00 E0	N/A
	Curies	0.00 E0	
d. Others (describe)	meters <sup>3</sup>	0.00 E0	N/A
	Curies	0.00 E0	
3. <u>Estimate of major radionuclide composition</u>			
a.	N/A	N/A	
b.	N/A	N/A	
c.	N/A	N/A	
d.	N/A	N/A	
4. <u>Cross reference table, waste stream, form and container type</u>			
<u>Stream</u>	<u>Form</u>	<u>Container type</u>	<u>No. of shipments</u>
a. Resin	Dewatered & Solidified	Type A/Type B	0 / 0
b. Dry active	Compacted/non- compacted waste	N/A	0
c. Irradiated components		N/A	0
d. Other		N/A	0
* Solidification agent or absorbent (e.g., cement, urea formaldehyde)			NONE



Table 3B (cont.)  
Effluent and Waste Disposal Semiannual Report for Year 1990  
Solid Waste and Irradiated Fuel Shipments

5. Shipment Disposition

a. Solid Waste

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
0	N/A	N/A

b. Irradiated Fuel

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
0	N/A	N/A

TABLE 3C

Effluent and Waste Disposal Semiannual Report for Year 1990  
Solid Waste and Irradiated Fuel Shipments

<u>Waste Class C</u>		<u>January through June</u>	
1. <u>Total volume shipped</u> (cubic meters)		0.00	E0
Total Curie quantity (estimated)		0.00	E0
2. <u>Type of Waste</u>		Six-month	Est. Tot.
	<u>Units</u>	<u>Period</u>	<u>% Error</u>
a. Spent resins, filter sludges	meters <sup>3</sup>	0.00 E0	N/A
	Curies	0.00 E0	
b. Dry active waste, compacted and noncompact	meters <sup>3</sup>	0.00 E0	N/A
	Curies	0.00 E0	
c. Irradiated components	meters <sup>3</sup>	0.00 E0	N/A
	Curies	0.00 E0	
d. Others (describe)	meters <sup>3</sup>	0.00 E0	N/A
	Curies	0.00 E0	
3. <u>Estimate of major radionuclide composition</u>			
a.	N/A	N/A	
b.	N/A	N/A	
c.	N/A	N/A	
d.	N/A	N/A	
4. <u>Cross reference table, waste stream, form and container type</u>			
<u>Stream</u>	<u>Form</u>	<u>Container Type</u>	<u>No. of shipments</u>
a. Resin	Dewatered & Solidified *	N/A	0/0
b. Dry active waste	Compacted/non-compacted	N/A	0
c. Irradiated components		Type B	0
d. Others		N/A	0
* Solidification agent or absorbent (e.g., cement, urea formaldehyde)			NONE

Table 3C (cont.)  
Effluent and Waste Disposal Semiannual Report for Year 1990  
Solid Waste and Irradiated Fuel Shipments

5. Shipment Disposition

## a. Solid Waste

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
0	N/A	N/A

## b. Irradiated Fuel (non-burial)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
3	sole use/Rail	CP&L/SHNPP



ENCLOSURE 2

Combustion of Waste Oil

January 1, to June 30, 1990

There was no incineration of contaminated waste oil during this reporting period.



ATTACHMENT 3

Off-Site Dose Calculation Manual (ODCM) and  
Process Control Program (PCP) Revisions  
January 1, to June 30, 1990

Brunswick Steam Electric Plant

There were no revisions made to the Process Control Program during this reporting period.

There were no revisions made to the Off-Site Dose Calculational Manual during this reporting period.

ATTACHMENT 4

Environmental Monitoring Program

January 1, to June 30, 1990

Enclosure 1: Milk and Vegetable Sample Locations

Enclosure 2: Land Use Census

ENCLOSURE 1

Milk and Vegetable Sample Locations

January 1, to June 30 1990

No milk sample locations were available during this time period.  
Vegetable sample locations remained unchanged.



ENCLOSURE 2

Land Use Census

January 1, to June 30, 1990

The results of the 1990 Land Use Census will be reported in the July 1, to December 31, 1990 Semianrual Report.

ATTACHMENT 5

Effluent Instrumentation

January 1, to June 30, 1990

- Enclosure 1: Radioactive Liquid Effluent Monitoring Instrumentation.
- Enclosure 2: Radioactive Gaseous Effluent Monitoring
- Enclosure 3: Liquid Hold-Up Tank

ENCLOSURE 1

January 1, to June 30, 1990

Radioactive Liquid Effluent Monitoring Instrumentation

The liquid radwaste effluent flow measurement device (2-G16-FIT-N057) was inoperable for greater than 30 days during this period. The instrument was not returned to service within a 30 day period due to the inability to calibrate the instrument within its design accuracy.



ENCLOSURE 2

January 1, to June 30, 1990

Radioactive Gaseous Effluent Monitoring Instrumentation

Unit 1 & 2 Main Condenser Off-Gas treatment system explosive gas monitors 1(2)-OG-AIT-4284 (SJAE.A.H<sub>2</sub> Analyzer), 1(2)-OG-AIT-4285 (SJAE.A.H<sub>2</sub> Analyzer), 1(2)-OG-AIT-4324 (SJAE.B.H<sub>2</sub> Analyzer), and 1(2)-OG-AIT-4325 (SJAE.B.H<sub>2</sub> Analyzer) were inoperable for greater than a 30 day period during January 1 to June 30, 1990. Due to design problems, these monitors were not returned to service within 30 days.

ENCLOSURE 3

Liquid Hold-Up Tank

January 1, to June 30, 1990

No liquid hold-up tank exceeded the 10 Ci limit during this reporting period.

ATTACHMENT 6

Major Modifications to the Radioactive Waste Treatment System

January 1, to June 30, 1990

As per footnote 7 to Technical Specification 6.15, a discussion of any major modifications to the radioactive waste treatment systems will be submitted with the Final Safety Analysis Report update.



ATTACHMENT 7

Meteorological Data

January 1, to June 30, 1990

As per Technical Specification 6.9.1.10.a footnote 6, the annual summary of meteorological data collected over the calendar year will be submitted to a file and will be available for NRC review upon request.

ATTACHMENT 8

Annual Dose Assessment

January 1, to June 30, 1990

As per Technical Specification 6.9.1.10.b, an assessment of radiation doses due to the radioactive liquid and gaseous effluents released during the calendar year will be reported within 90 days after January 1 of each year. The annual dose assessment is not included with this report.

ATTACHMENT 9

SUPPLEMENT TO PREVIOUS  
SEMIANNUAL REPORT

BRUNSWICK STEAM ELECTRIC PLANT

January 1, to June 30, 1990

The attached sheet should be added to the July 1, to December 31, 1989 Semiannual Report (1989 second report). This information, concerning inoperable radioactive gaseous effluent monitoring instrumentation, was inadvertently omitted.

Please replace page 5/3 of the July 1, to December 31, 1989 Semiannual Environmental and Radioactive Effluent Release Report with the attached page 5/3.



ENCLOSURE 2

July 1, to December 31, 1989

Radioactive Gaseous Effluent Monitoring Instrumentation

Unit 1 & 2 Main Condenser Off-Gas treatment system explosive gas monitors 1(2)-OG-AIT-4284 (SJAE.A.H<sub>2</sub> Analyzer), 1(2)-OG-AIT-4285 (SJAE.A.H<sub>2</sub> Analyzer), 1(2)-OG-AIT-4324 (SJAE.B.H<sub>2</sub> Analyzer), and 1(2)-OG-AIT-4325 (SJAE.B.H<sub>2</sub> Analyzer) were inoperable for greater than a 30 day period during July 1 to December 31, 1989. Due to design problems, these monitors were not returned to service within 30 days.