

Carolina Power & Light Company
P.O. Box 10429
Southport, NC 28461

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

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

Gentlemen:

Enclosed is the Semi-Annual Radioactive Effluent Release Report for the Brunswick Steam Electric Plant, Units 1 and 2 covering the period from July 1, 1995 through December 31, 1995.

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

Please refer any questions regarding this letter to Ms. Jackie Gawron at (910) 457-2447.

Sincerely,

W. Levis - Director Site Operations
Brunswick Steam Electric Plant

WGR/gmt

Enclosure:

1. Report
2. List of Regulatory Commitments

cc: Mr. S. D. Ebner, NRC Regional Administrator, Region II
Mr. C. A. Patterson, NRC Senior Resident Inspector - Brunswick Plant
Mr. D. C. Trimble, Jr., NRR Project Manager - Brunswick Plant
The Honorable H. Wells, Chairman - North Carolina Utilities Commission

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ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

EXECUTIVE SUMMARY

Dose Assessment Summary:

A summary of gaseous and liquid effluents during the period from July, 1 1995 to December 31, 1995 is contained within this report. Also included is the results of a comprehensive off-site dose assessment for the year of 1995 using such information as location of nearby residents, recreational uses of the area, actual wind speed and direction, and water flows. The assessment estimated the likely most exposed individual could have received 0.04 mrem from gaseous effluents and 0.007 mrem from liquid effluents discharged from the plant in 1995. Environmental studies conducted prior to the operation of the plant (1972-1975) determined that measured natural background radiation level for this area is approximately 50 mrem per year. It is concluded that the environmental impact due to radiological effluents from the plant in 1995 was negligible.

Management Philosophy:

Radiological effluents at the Brunswick Steam Electric Plant are managed and monitored to ensure that radioactivity released to the environment is minimal and within regulatory limits. Radiological environmental factors are an integral part of planning, design, construction, and operational decisions. By practicing this philosophy, Brunswick minimizes the impact to the environment and ensures that exposures are maintained below regulatory limits.

Effluent Accountability:

Plant systems are designed to control and minimize effluent discharges by such means as filtration and decay of radioactive constituents. Effluent streams are carefully monitored to ensure accurate accountability of any radioactive effluents that may be released. Monitoring is conducted by both plant instrumentation and laboratory analyses of effluent samples. Data is routinely compiled for assessment of the radiological impact to the public and for compliance with federal regulations using the conservative methodology contained in the plant Off-Site Dose Calculation Manual (ODCM).

Brunswick Steam Electric Plant
Semiannual Radioactive Effluent Report
July 1, to December 31, 1995

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ATTACHMENT 1

Supplemental Information

July 1, to December 31, 1995

EFFLUENT AND 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 uCi

- (4) Calendar Year for Burning Contaminated Oil

- (a) 872 uCi

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) 6 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.

- ** (1) Tritium: limit = 1 E-03 uCi/ml and
- ** (2) Dissolved and entrained gases: limit = 2 E-04 uCi/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:	1.08E+02
(2) Total time period for batch releases:	1.61E+04 Minutes
(3) Maximum time period for a batch release:	3.77E+02 Minutes
(4) Average time period for a batch release:	1.49E+02 Minutes
(5) Minimum time period for a batch release:	1.00E+01 Minutes
(6) Average stream flow during periods of release of effluent into a flowing stream :	8.14E+05 GPM

B. Gaseous

(1) Number of batch releases:	0.00E+00
(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

* There were no abnormal releases that exceeded 10CFR20 or 10CFR50 limits. See Page 6 for a discussion of release events that occurred.

1. Discussion of Tritium in the Storm Drain Collection Pond

Approximately $1.92\text{E}+07$ gallons containing $7.88\text{E}+00$ curies of tritium were released from the Storm Drain Collection Pond (SDCP) to the Intake Canal during this reporting period. The SDCP is a permitted release point.

NOTE 1: Curie totals are included in the quarterly summaries in Table 2A and 2B.

NOTE 2: The quantity of rainwater released from the Storm Drain Collection Basin and/or the Storm Drain Collection Pond is not included in VOLUME OF WASTE on Table 2A.

2. Discussion of Noble Gas Released

Noble gas curies discharged were higher than usual during this report period. On July 25, 1995 Unit 2 developed fuel leaks. It is estimated that 3 fuel rod leaks were present in the core. The effects of these leaks were mitigated by power suppression (by control rod insertion) in two areas of the core. Additionally, it was found that a small portion of the total off-gas flow was being bypassed around the Augmented Off-Gas System (AOG) due to a defect in the 2-AOG-HCV-V102 (AOG bypass valve). A temporary modification was implemented that significantly reduced the impact of this condition.

ATTACHMENT 2

Effluent and Waste Disposal Data

Brunswick Steam Electric Plant

July 1, to December 31, 1995

Enclosure 1

Table 1A:	Gaseous Effluents - Summation of all Releases
Table 1B:	Gaseous Effluents - Elevated Releases
Table 1C:	Gaseous Effluents - Ground Level Releases
Table 1D:	Gaseous Effluents - Ground Level Releases for Burning Contaminated Oil
Table 2A:	Liquid Effluents - Summation of all Releases
Table 2B:	Liquid Effluents - Batch Mode
Appendix A:	Lower Limits of Detection
Table 3A:	Solid Waste and Irradiated Fuel Shipments Waste Class A
Table 3B:	Solid Waste and Irradiated Fuel Shipments Waste Class B
Table 3C:	Solid Waste and Irradiated Fuel Shipments Waste Class C

Enclosure 2

Combustion of Waste Oil

TABLE 1A
Effluent and Waste Disposal Semiannual Report for Year 1995
Gaseous Effluents - Summation of all Releases

	Unit	Qtr 3	Qtr 4	Est. Tot. Error %
A. <u>FISSION AND ACTIVATION GASES</u>				
1. Total release	Ci	3.46E+03	7.28E+02	4.50E+01
2. Average release rate for period	uCi/sec	4.36E+02	9.16E+01	
3. Percent of technical specification limit	%	5.27E-01	1.10E-01	
B. <u>IODINES</u>				
1. Total I-131	Ci	2.07E-03	1.88E-03	3.50E+01
2. Average release rate for period	uCi/sec	2.60E-04	2.36E-04	
C. <u>PARTICULATES</u> <small>NOTE 1</small>				
1. Total release	Ci	2.72E-03	1.86E-03	3.50E+01
2. Average release rate for period	uCi/sec	3.42E-04	2.34E-04	
3. Gross alpha	Ci	1.22E-06	1.27E-06	
D. <u>Tritium</u>				
1. Total release	Ci	1.13E+01	1.24E+01	3.00E+01
2. Average release rate for period	uCi/sec	1.42E+00	1.56E+00	
E. <u>IODINE-131, IODINE-133, TRITIUM AND PARTICULATES</u> <small>NOTE 1</small>				
1. Total Release	Ci	1.13E+01	1.24E+01	
2. Average release rate for period	uCi/sec	1.42E+00	1.56E+00	
3. Percent of technical specification limit	%	7.20E-02	7.20E-02	
F. <u>PARTICULATES VIA BURNING CONTAMINATED OIL</u>				
1. Total Release	Ci	0.00E+00	2.42E-05	
2. Average release rate for period	uCi/sec	0.00E+00	3.05E-06	
3. Percent of technical specification limit	%	0.00E+00	5.55E+00	

NOTE 1 This includes the number of curies released via incineration.

TABLE 1B
Effluent and Waste Disposal Semiannual Report for Year 1995
Gaseous Effluents - Elevated Releases
Continuous Release

<u>Nuclides Released</u>	<u>Unit</u>	<u>Qtr 3</u>	<u>Qtr 4</u>
<u>1. FISSION GASES</u>			
krypton-85m	Ci	3.01E+02	7.64E+01
krypton-87	Ci	3.33E+02	2.93E+01
krypton-88	Ci	5.93E+02	7.19E+01
xenon-133	Ci	1.04E+03	3.81E+02
xenon-135	Ci	9.99E+02	8.73E+01
xenon-135m	Ci	5.14E+01	2.01E+01
xenon-137	Ci	< LLD	5.36E+00
<u>xenon-138</u>	<u>Ci</u>	<u>1.40E+02</u>	<u>4.28E+01</u>
total for period	Ci	3.46E+03	7.14E+02
<u>2. IODINES</u>			
iodine-131	Ci	1.66E-03	1.15E-03
iodine-132	Ci	8.00E-04	5.26E-03
iodine-133	Ci	2.36E-03	5.50E-03
<u>iodine-135</u>	<u>Ci</u>	<u>8.97E-04</u>	<u>7.08E-03</u>
total for period	Ci	5.71E-03	1.90E-02
<u>3. PARTICULATES</u>			
chromium-51	Ci	1.41E-04	5.32E-05
manganese-54	Ci	1.11E-05	1.64E-06
cobalt-60	Ci	5.44E-06	9.35E-06
strontium-89	Ci	2.20E-05	1.28E-04
strontium-90	Ci	1.69E-07	8.08E-07
cesium-137	Ci	< LLD	2.20E-06
barium-140	Ci	7.74E-06	8.61E-05
lanthanum-140	Ci	< LLD	1.06E-04
<u>hafnium-181</u>	<u>Ci</u>	<u>< LLD</u>	<u>1.82E-06</u>
total for period	Ci	1.87E-04	3.90E-04
<u>4. TRITIUM</u>			
hydrogen-3	Ci	4.28E+00	2.75E+00

TABLE 1C
Effluent and Waste Disposal Semiannual Report for Year 1995
Gaseous Effluents - Ground Level Releases
Continuous Release

<u>Nuclides Released</u>	<u>Unit</u>	<u>Qtr 3</u>	<u>Qtr 4</u>
<u>1. FISSION GASES</u>			
krypton-85m	Ci	1.67E-01	9.71E-01
krypton-87	Ci	1.47E-01	< LLD
krypton-88	Ci	6.14E-01	1.78E+00
xenon-133	Ci	2.61E+00	1.36E+00
xenon-135m	Ci	< LLD	5.62E-01
<u>xenon-135</u>	<u>Ci</u>	<u>3.28E+00</u>	<u>9.66E+00</u>
total for period	Ci	6.81E+00	1.43E+01
<u>2. IODINES</u>			
iodine-131	Ci	4.10E-04	7.32E-04
iodine-132	Ci	2.54E-04	2.44E-03
iodine-133	Ci	8.88E-04	4.23E-03
iodine-134	Ci	1.93E-08	5.34E-05
<u>iodine-135</u>	<u>Ci</u>	<u>2.53E-05</u>	<u>2.58E-03</u>
total for period	Ci	1.58E-03	1.00E-02
<u>3. PARTICULATES</u>			
chromium-51	Ci	1.93E-03	1.39E-04
manganese-54	Ci	8.46E-05	1.02E-04
cobalt-58	Ci	4.56E-05	3.53E-05
cobalt-60	Ci	4.11E-04	7.76E-04
strontium-89	Ci	2.14E-05	9.49E-05
strontium-90	Ci	1.20E-06	3.29E-06
cesium-134	Ci	1.84E-05	9.66E-06
cesium-137	Ci	2.39E-05	3.21E-05
barium-140	Ci	2.93E-07	1.07E-04
<u>lanthanum-140</u>	<u>Ci</u>	<u>4.44E-07</u>	<u>1.70E-04</u>
total for period	Ci	2.53E-03	1.47E-03
<u>4. TRITIUM</u>			
hydrogen-3	Ci	6.98E+00	3.63E+00

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TABLE 1D
Effluent and Waste Disposal Semiannual Report for Year 1995
Gaseous Effluents - Ground Level Releases
For Burning Contaminated Oil

<u>Nuclides Released</u>	<u>Unit</u>	<u>Qtr 3</u>	<u>Qtr 4</u>
<u>1. PARTICULATES</u>			
cobalt-60	Ci	0.00E+00	2.05E-05
<u>cesium-137</u>	<u>Ci</u>	<u>0.00E+00</u>	<u>3.74E-06</u>
total for period	Ci	0.00E+00	2.42E-05

TABLE 2A
Effluent and Waste Disposal Semiannual Report for Year 1995
Liquid Effluents - Summation of all Releases

	<u>Unit</u>	<u>Qtr 3</u>	<u>Qtr 4</u>	<u>Est Tot</u> <u>% Error</u>
A. <u>FISSION AND ACTIVATION</u>				
<u>PRODUCTS</u> <u>NOTE 1</u>				
1. Total release (excluding tritium, gases, & alpha)	Ci	5.86E-03	7.95E-03	4.00E+01
2. Avg. diluted conc. <u>NOTE 2</u>	uCi/ml	2.87E-10	2.72E-10	
3. Percent limit	%	8.74E-03	1.21E-02	
B. <u>TRITIUM</u> <u>NOTE 1</u>				
1. Total release	Ci	1.39E+01	1.29E+01	4.50E+01
2. Avg. diluted conc. <u>NOTE 2</u>	uCi/ml	6.81E-07	4.40E-07	
3. Percent limit	%	6.81E-02	4.40E-02	
C. <u>DISSOLVED AND ENTRAINED GASES</u> <u>NOTE 1</u>				
1. Total release	Ci	1.09E-03	3.45E-03	4.00E+01
2. Avg. diluted conc. <u>NOTE 2</u>	uCi/ml	5.36E-11	1.18E-10	
3. Percent limit	%	2.68E-05	5.90E-05	
D. <u>GROSS ALPHA RADIOACTIVITY</u>				
1. Total release	Ci	< LLD	< LLD	4.00E+01
E. <u>VOLUME OF WASTE</u> <u>NOTE 2</u>				
	liters	3.14E+06	4.65E+06	1.50E+01
F. <u>TOTAL OF DILUTION WATER</u> <u>(used during release</u> <u>for average dil. conc.)</u>				
	liters	2.04E+10	2.92E+10	1.30E+01
G. <u>VOLUME OF COOLING WATER</u> <u>DISCHARGED FROM PLANT</u>				
	liters	4.90E+11	4.21E+11	

NOTE 1: Includes radionuclides released via abnormal and/or non-routine release.

NOTE 2: Does not include rainwater released (ie. Storm Drain Collection Basin and/or Storm Drain Collection Pond).

TABLE 2B
Effluent and Waste Disposal Semiannual Report for Year 1995
Liquid Effluents - Batch Mode

<u>Nuclides Released</u>	<u>Unit</u>	<u>Qtr 3</u>	<u>Qtr 4</u>
<u>1. FISSION AND ACTIVATION PRODUCTS</u>			
sodium-54	Ci	2.74E-06	< LLD
chromium-51	Ci	2.85E-04	1.74E-05
manganese-54	Ci	2.63E-04	3.41E-05
iron-55	Ci	< LLD	2.50E-03
cobalt-58	Ci	3.97E-05	< LLD
cobalt-60	Ci	5.01E-03	4.56E-03
zinc-65	Ci	< LLD	3.64E-06
iodine-131	Ci	1.10E-05	1.33E-04
iodine-133	Ci	< LLD	1.20E-04
cesium-134	Ci	1.05E-05	1.07E-06
<u>cesium-137</u>	<u>Ci</u>	<u>2.35E-04</u>	<u>5.84E-04</u>
total for period	Ci	5.86E-03	7.95E-03
<u>2. DISSOLVED AND ENTRAINED GASES:</u>			
<u>Nuclides Released</u>	<u>Unit</u>	<u>Qtr 3</u>	<u>Qtr 4</u>
<u>2. GASES</u>			
xenon-133	Ci	3.02E-04	6.12E-04
<u>xenon-135</u>	<u>Ci</u>	<u>7.90E-04</u>	<u>2.84E-03</u>
total for period	Ci	1.09E-03	3.45E-03

APPENDIX A

Lower Limits of Detection

July through December 1995
uCi/ml

1. Liquid Releases

Na-24	2.34E-08
Mn-54	1.44E-08
Fe-55	5.42E-08
Co-58	2.30E-08
Fe-59	3.29E-08
Co-60	1.95E-08
Zn-65	4.55E-08
Sr-89	1.98E-08
Sr-90	1.26E-08
Mo-99	9.78E-08
I-131	2.00E-08
I-133	1.65E-08
Cs-134	2.13E-08
Cs-137	1.68E-08
Ce-141	1.44E-08
Ce-144	8.79E-08
Alpha	9.99E-08
Kr-87	4.38E-08
Kr-88	4.44E-08
Xe-133m	1.06E-07
Xe-135	1.24E-08
Xe-138	1.84E-07
Xe-133	3.76E-08

2. Gaseous Releases

Kr-87	2.40E-08
Kr-88	2.45E-08
Xe-133	1.53E-08
Xe-133m	4.33E-08
Xe-135	5.55E-09
Xe-135m	1.34E-07
Xe-137	3.89E-05
Xe-138	2.49E-07

3. Iodines and Particulates

Mn-54	4.46E-14
Co-58	3.09E-14
Fe-59	1.04E-13
Co-60	4.38E-14
Zn-65	8.23E-14
Sr-89	2.69E-15
Sr-90	1.58E-15
I-131	8.66E-14
Cs-134	3.53E-14
Cs-137	2.95E-14
La-140	7.95E-14
Ce-141	1.76E-14
Ce-144	9.59E-14
Hf-181	3.15E-14

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. Also included are isotopes specified in Technical Specifications.
- 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 1995
Solid Waste and Irradiated Fuel Shipments

<u>Waste Class A</u>		<u>July through December</u>		
1. <u>Total volume shipped</u> (cubic meters)		0.00E+00		
Total Curie quantity (estimated)		0.00E+00		
2. <u>Type of Waste</u>	<u>Units</u>	<u>Six-month Period</u>	<u>Est.Total % Error</u>	
a. Spent resins, filter sludges	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
b. Dry active waste, compacted and noncompactd	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
c. Irradiated components	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
d. Others (describe)	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
3. <u>Estimate of major radionuclide composition</u>				
a.	N/A			
b.	N/A			
c.	N/A			
d.	N/A			

NOTE:

Solid Radioactive Waste was shipped for processing, however, not for final disposal during the report period. Access to the burial facility at Barnwell, South Carolina was not available.

TABLE 3A (cont.)

Effluent and Waste Disposal Semiannual Report for Year 1995
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	N/A
b. Dry active waste	Compacted/non-compacted waste	N/A	N/A
c. Irradiated components		N/A	N/A
d. Other		N/A	N/A
* Solidification agent or absorbent (e.g., cement, urea formaldehyde)			N/A

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 3B

Effluent and Waste Disposal Semiannual Report for Year 1995
Solid Waste and Irradiated Fuel Shipments

<u>Waste Class B</u>		<u>July through December</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.Total	
	<u>Units</u>	<u>Period</u>	<u>% Error</u>	
a. Spent resins, filter sludges	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
b. Dry active waste, compacted, and noncompactd	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
c. Irradiated components	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
d. Others (describe)	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
3. <u>Estimate of major radionuclide composition</u>				
a.	N/A			
b.	N/A			
c.	N/A			
d.	N/A			

NOTE:

Solid Radioactive Waste was shipped for processing, however, not for final disposal during the report period. Access to the burial facility at Barnwell, South Carolina was not available.

TABLE 3B (cont.)

Effluent and Waste Disposal Semiannual Report for Year 1995
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	N/A
b. Dry active waste	Compacted/non- compacted waste	N/A	N/A
c. Irradiated components		N/A	N/A
d. Other		N/A	N/A
* Solidification agent or absorbent (e.g., cement, urea formaldehyde)			N/A

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 1995
Solid Waste and Irradiated Fuel Shipments

<u>Waste Class C</u>		<u>July through December</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 ³	0.00 E0	N/A	
	Curies	0.00 E0		
b. Dry active waste, compacted and noncompacted	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
c. Irradiated components	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
d. Others (describe)	meters ³	0.00 E0	N/A	
	Curies	0.00 E0		
3. <u>Estimate of major radionuclide composition</u>				
a.	N/A			
b.	N/A			
c.	N/A			
d.	N/A			

TABLE 3C (cont.)

Effluent and Waste Disposal Semiannual Report for Year 1995
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	0/0
b. Dry active waste	Compacted/non- compacted	N/A	0/0
c. Irradiated components		N/A	0/0
d. Others		N/A	0
* Solidification agent or absorbent (e.g., cement, urea formaldehyde)			N/A

5. Shipment Disposition

a. Solid Waste

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
----------------------------	-------------------------------	--------------------

b. Irradiated Fuel

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
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4	Rail Car/ IF-300 Cask Sole Use	CP&L/SHNNP
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ATTACHMENT 2 (cont.)

ENCLOSURE 2

Combustion of Waste Oil

July 1, to December 31, 1995

During this reporting period, approximately 780 gallons of contaminated waste oil were incinerated in the on site oil incinerator. The total activity contained in this quantity of waste oil included $2.05\text{E-}05$ curies of Cobalt-60 and $3.74\text{E-}06$ curies of Cesium-137.

ATTACHMENT 3

Environmental Monitoring Program

July 1, to December 31, 1995

Enclosure 1: Milk and Vegetable Sample Locations

Enclosure 2: Land Use Census

ATTACHMENT 3 (cont.)

ENCLOSURE 1

Milk and Vegetation Sample Locations

July 1, to December 31, 1995

No milk animals were identified during the last Land Use Census, therefore, no milk sample locations were available during this time period.

Vegetation sample locations remained unchanged.

ATTACHMENT 3 (cont.)

ENCLOSURE 2

Land Use Census

July 1, to December 31, 1995

The 1995 Land Use Census was performed during the period of July 12 to July 13, 1995. No locations were identified that are reportable in the Semiannual Radioactive Effluent Release Report.

An update of the Land Use Census is included with the ODCM revision 17 in Attachment 8.

ATTACHMENT 4

Effluent Instrumentation

July 1, to December 31, 1995

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

ATTACHMENT 4 (cont.)

ENCLOSURE 1

July 1, to December 31, 1995

Radioactive Liquid Effluent Monitoring Instrumentation

No Radioactive Liquid Effluent Monitoring Instrumentation was inoperable for a period greater than 30 days.

ATTACHMENT 4 (cont.)

ENCLOSURE 2

July 1, to December 31, 1995

Radioactive Gaseous Effluent Monitoring Instrumentation

No Radioactive Gaseous Effluent Monitoring Instrumentation was inoperable for a period greater than 30 days.

ATTACHMENT 4 (cont.)

ENCLOSURE 3

Liquid Hold-Up Tanks

July 1, to December 31, 1995

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

ATTACHMENT 5

Major Modifications to the Radioactive Waste Treatment System

July 1, to December 31, 1995

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 6

Meteorological Data

July 1, to December 31, 1995

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 7

Annual Dose Assessment

January 1, to December 31, 1995

Attached is the annual dose assessment for the Brunswick Steam Electric Plant for the time period of January 1 to December 31, 1995.

- Enclosure 1: Annual Liquid Dose Assessment
- Enclosure 2: Annual Gaseous Dose Assessment
- Enclosure 3: Dose Assessment Summary

ATTACHMENT 7 (cont.)

ENCLOSURE 1

Annual Liquid Dose Assessment

INCLUDED ARE:

Site Specific Data

Source Term

As Low As Reasonably Achievable Maximum Individual Dose

Summary - Total Integrated and Recreation Population Dose

BSEP UNITS 1 AND 2 LIQUID RELEASES 1995,

DISCHARGE=1.87E+03 CFS

SOURCE TERM MULTIPLIER=1.00E+00

SALTWATER SITE

NO RECONCENTRATION MODEL

50-MILE POPULATION=2.82E+05

FRACTION ---

ADULT=0.71

TEENAGER=0.11

CHILD=0.18

DOSE FACTOR LIBRARY CONTAINS 698 ENTRIES

* * * COST-BENEFIT ANALYSIS * * *

NUCLIDE		RELEASE CI/YR	PERSON-REM DOSE		PERSON-REM PER CURIE	
			TOTAL BODY	THYROID	TOTAL BODY	THYROID
1H	3	5.52E+01	1.47E-06	1.47E-06	2.66E-08	2.66E-08
11NA	24	2.74E-06	2.03E-10	2.03E-10	7.40E-05	7.40E-05
24CR	51	6.09E-02	2.43E-07	2.36E-07	3.99E-06	3.88E-06
25MN	54	1.29E-02	1.47E-05	1.28E-05	1.14E-03	9.90E-04
26FE	55	9.94E-03	4.49E-06	5.34E-12	4.51E-04	5.38E-10
26FE	59	1.34E-05	4.65E-08	2.83E-09	3.47E-03	2.11E-04
27CO	58	8.89E-04	2.96E-07	2.52E-07	3.33E-04	2.83E-04
27CO	60	3.21E-01	4.93E-03	4.88E-03	1.54E-02	1.52E-02
30ZN	65	3.64E-06	1.90E-08	1.95E-09	5.21E-03	5.36E-04
30ZN	69M	1.31E-06	9.43E-12	9.43E-12	7.20E-06	7.20E-06
36KR	85M	1.76E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41NB	95	2.55E-06	3.14E-10	2.77E-10	1.23E-04	1.09E-04
43TC	99M	3.85E-05	8.26E-11	8.26E-11	2.15E-06	2.15E-06
53I	131	1.78E-04	4.13E-09	4.59E-07	2.32E-05	2.58E-03
53I	133	1.36E-04	1.33E-09	1.39E-09	9.80E-06	1.02E-05
54XE	133	1.06E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
54XE	133M	1.12E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
54XE	135	4.96E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
54XE	135M	1.79E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
55CS	134	2.02E-03	1.22E-05	9.80E-06	6.06E-03	4.85E-03
55CS	137	9.46E-03	7.57E-05	6.89E-05	8.00E-03	7.29E-03
72HF	181	2.19E-04	3.27E-08	3.22E-08	1.49E-04	1.47E-04
95AM	241	1.30E-05	1.05E-08	4.74E-09	8.08E-04	3.65E-04
TOTAL			5.04E-03	4.98E-03		

* * * AS LOW AS REASONABLY ACHIEVABLE * * *

A D U L T D O S E S (MREM PER YEAR INTAKE)

DOSE

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		6.87E-05	1.27E-04	1.25E-04	5.06E-06	1.92E-05	2.51E-05	8.46E-04
INVERT		8.47E-05	1.67E-04	2.39E-04	3.30E-06	4.51E-06	3.22E-05	1.94E-03
SHORELINE	5.41E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03
SWIMMING		3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06
BOATING		1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06
TOTAL	5.41E-03	4.75E-03	4.89E-03	4.96E-03	4.61E-03	4.62E-03	4.66E-03	7.39E-03

USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)	SHOREWIDTH FACTOR=0.5
FISH 29.2	30.0	24.00	
INVERT 7.3	30.0	24.00	
SHORELINE 500.0	30.0	0.00	
SWIMMING 100.0	30.0	0.00	
BOATING 100.0	30.0	0.00	

T E E N D O S E S (MREM PER YEAR INTAKE)

DOSE

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		9.48E-05	1.70E-04	1.54E-04	5.55E-06	2.47E-05	3.83E-05	7.71E-04
INVERT		1.16E-04	2.24E-04	3.20E-04	3.89E-06	5.52E-06	5.12E-05	1.77E-03
SHORELINE	5.41E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03
SWIMMING		3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06
BOATING		1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06
TOTAL	5.41E-03	4.81E-03	4.99E-03	5.07E-03	4.61E-03	4.63E-03	4.69E-03	7.14E-03

USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)	SHOREWIDTH FACTOR=0.5
FISH 29.2	30.0	24.00	
INVERT 7.3	30.0	24.00	
SHORELINE 500.0	30.0	0.00	
SWIMMING 100.0	30.0	0.00	
BOATING 100.0	30.0	0.00	

C H I L D D O S E S (MREM PER YEAR INTAKE)

DOSE

PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		2.84E-04	3.44E-04	3.58E-04	1.19E-05	4.67E-05	7.64E-05	6.21E-04
INVERT		3.50E-04	4.52E-04	7.94E-04	9.03E-06	1.00E-05	1.04E-04	1.42E-03
SHORELINE	5.41E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03	4.60E-03
SWIMMING		3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06	3.03E-06
BOATING		1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06
TOTAL	5.41E-03	5.23E-03	5.40E-03	5.75E-03	4.62E-03	4.66E-03	4.78E-03	6.65E-03

USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)	SHOREWIDTH FACTOR=0.5
FISH 29.2	30.0	24.00	
INVERT 7.3	30.0	24.00	
SHORELINE 500.0	30.0	0.00	
SWIMMING 100.0	30.0	0.00	
BOATING 100.0	30.0	0.00	

As Low As Reasonably Achievable Maximum Individual Dose

CP&L
LADTAP

SEMI-ANNUAL RADIOLOGICAL EFFLUENT REPORTING
RADIATION DOSES FROM LIQUID EFFLUENTS

RUN DATE: 02/14/96
RUN TIME: 10:42:22

TOTAL INTEGRATED AND RECREATION POPULATION DOSES FROM LIQUID EFFLUENTS
(PERSON-REM)

PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
SPORT FISH	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
COM FISH	3.859E-05	6.538E-05	6.447E-05	1.919E-06	9.707E-06	1.341E-05	3.700E-04	0.000E+00
SPORT INVERT	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
COM INVERT	7.834E-07	1.419E-06	2.114E-06	1.559E-08	3.669E-08	2.878E-07	1.395E-05	0.000E+00
DRINKING WATER	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SHORELINE	4.963E-03	4.963E-03	4.963E-03	4.963E-03	4.963E-03	4.963E-03	4.963E-03	5.838E-03
SWIMMING	8.645E-06	8.645E-06	8.645E-06	8.645E-06	8.645E-06	8.645E-06	8.645E-06	0.000E+00
BOATING	4.095E-06	4.095E-06	4.095E-06	4.095E-06	4.095E-06	4.095E-06	4.095E-06	0.000E+00
IRRI VEG	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IRRI LEAFY VEG	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IRRI MILK	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IRRI MEAT	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ALL PATHWAYS	5.015E-03	5.043E-03	5.043E-03	4.978E-03	4.986E-03	4.990E-03	5.360E-03	5.838E-03

Summary - Total Integrated and Recreation Population Dose

ATTACHMENT 7 (cont)

ENCLOSURE 2

Annual Gaseous Dose Assessment

INCLUDED ARE:

Source term for the three release modes and the site aggregate.

Total 50 mile Integrated Population Dose by pathways and organs.

Hypothetical maximum individual organ dose due to Iodines, Particulates, and Tritium for a cow milk pathway at 4.75 miles Northeast.

Maximum site boundary dose by age group and organs for all pathways.

Estimated individual organ dose using the 1995 Land Use Census for the worst sector and existing pathways.

Maximum site boundary dose due to Iodines, Particulates, and Tritium for existing pathways.

Source term for incinerated waste oil.

Integrated Population Dose by pathways and organs due to incinerated waste oil.

Maximum site boundary dose due to incinerated waste oil.

1995 SOURCE TERM (ELEVATED MODE) BSEP UNITS 1&2

1 H - 3	1.010E+01
18 AR- 41	4.250E+00
24 CR- 51	3.030E-04
25 MN- 54	1.860E-05
27 CO- 58	1.980E-06
27 CO- 60	5.680E-05
36 KR- 85 M	3.910E+02
36 KR- 87	3.850E+02
36 KR- 88	6.910E+02
38 SR- 89	1.930E-04
38 SR- 90	1.430E-06
53 I -131	3.410E-03
53 I -132	8.130E-03
53 I -133	1.090E-02
53 I -135	1.100E-02
54 XE-133	1.430E+03
54 XE-135	1.110E+03
54 XE-135 M	7.670E+01
54 XE-137	5.360E+00
54 XE-138	1.860E+02
55 CS-137	2.200E-06
56 BA-140	1.600E-04
57 LA-140	1.940E-04
72 HF-181	1.820E-06

BRUNSWICK UNITS 1 AND 2, MIXED MODE CONTINUOUS GASEOUS RELEASES, 1995

1 H - 3	6.250E+00
24 CR- 51	1.270E-02
25 MN- 54	1.270E-03
26 FE- 59	3.150E-04
27 CO- 58	7.120E-04
27 CO- 60	4.960E-03
36 KR- 85 M	1.420E-01
38 SR- 89	6.400E-05
38 SR- 90	4.400E-06
41 NB- 95	6.100E-05
44 RU-103	5.010E-04
44 RU-106	3.180E-04
53 I -131	1.720E-03
53 I -132	1.060E-02
53 I -133	1.050E-02
53 I -135	1.140E-02
54 XE-133	8.520E-01
54 XE-135	1.140E+01
54 XE-135 M	4.320E+00
55 CS-134	2.810E-05
55 CS-137	5.810E-05
56 BA-140	1.050E-04
57 LA-140	1.670E-04
72 HF-181	9.300E-06
95 AM-241	1.120E-05

SOURCE TERM (GROUND LEVEL) 1995 BSEP UNITS 1 AND 2

1 H - 3	2.010E+01
24 CR- 51	9.580E-07
25 MN- 54	2.690E-09
27 CO- 60	1.040E-05
36 KR- 85 M	1.610E+00
36 KR- 87	1.470E-01
36 KR- 88	2.390E+00
38 SR- 89	6.910E-05
38 SR- 90	3.880E-07
53 I -131	1.780E-04
53 I -132	5.170E-04
53 I -133	3.840E-04
53 I -134	3.810E-04
53 I -135	4.090E-04
54 XE-133	3.970E+00
54 XE-135	8.920E+00
55 CS-137	2.360E-08
56 BA-140	4.350E-06
57 LA-140	6.470E-06

AGGREGATE SOURCE TERM

1 H - 3	3.6460E+01
18 AR- 41	4.2500E+00
24 CR- 51	1.3004E-02
25 MN- 54	1.2886E-03
26 FE- 59	3.1500E-04
27 CO- 58	7.1398E-04
27 CO- 60	5.0272E-03
36 KR- 85 M	3.9275E+02
36 KR- 87	3.8515E+02
36 KR- 88	6.9339E+02
38 SR- 89	3.2610E-04
38 SR- 90	6.2180E-06
41 NB- 95	6.1000E-05
44 RU-103	5.0100E-04
44 RU-106	3.1800E-04
53 I -131	5.3080E-03
53 I -132	1.9247E-02
53 I -133	2.1784E-02
53 I -134	3.8100E-04
53 I -135	2.2809E-02
54 XE-133	1.4348E+03
54 XE-135	1.1303E+03
54 XE-135 M	8.1020E+01
54 XE-137	5.3600E+00
54 XE-138	1.8600E+02
55 CS-134	2.8100E-05
55 CS-137	6.0324E-05
56 BA-140	2.6935E-04
57 LA-140	3.6747E-04
72 HF-181	1.1120E-05
95 AM-241	1.1200E-05

CP&L
GASRPT

SEMI-ANNUAL RADIOLOGICAL EFFLUENT REPORTING
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (MANREM)

RUN DATE: 02/14/96
RUN TIME: 08:18:42

1995 SOURCE TERM (ELEVATED MODE) BSEP UNITS 1&2
SOURCE TERM (GROUND LEVEL) 1995 BSEP UNITS 1 AND 2
BRUNSWICK UNITS 1 AND 2, MIXED MODE CONTINUOUS GASEOUS RELEASES, 1995

	TOTAL BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
** TOTAL **	1.629E-01	1.636E-01	1.590E-01	1.658E-01	1.640E-01	1.726E-01	1.662E-01	3.364E-01
PLUME	1.410E-01 86.57%	1.410E-01 86.18%	1.410E-01 88.66%	1.410E-01 85.06%	1.410E-01 85.96%	1.410E-01 81.68%	1.431E-01 86.12%	3.126E-01 92.91%
GROUND PLANE	1.301E-02 7.99%	1.301E-02 7.95%	1.301E-02 8.18%	1.301E-02 7.85%	1.301E-02 7.93%	1.301E-02 7.54%	1.301E-02 7.83%	1.530E-02 4.55%
INHALATION	6.664E-03 4.09%	6.541E-03 4.00%	4.688E-03 2.95%	5.576E-03 5.78%	7.864E-03 4.79%	1.078E-02 6.24%	7.971E-03 4.80%	6.461E-03 1.92%
VEGETATION	1.987E-03 1.22%	2.327E-03 1.42%	3.260E-04 0.21%	1.965E-03 1.19%	1.926E-03 1.17%	7.144E-03 4.14%	1.881E-03 1.13%	1.877E-03 0.56%
COW MILK	5.294E-05 0.03%	5.308E-05 0.03%	2.872E-06 0.00%	5.389E-05 0.03%	5.350E-05 0.03%	4.263E-04 0.25%	5.160E-05 0.03%	5.146E-05 0.02%
MEAT & POULTRY	1.649E-04 0.10%	6.747E-04 0.41%	1.229E-05 0.01%	1.607E-04 0.10%	1.718E-04 0.10%	2.652E-04 0.15%	1.550E-04 0.09%	1.545E-04 0.05%

Hypothetical maximum individual organ dose due to Iodines, Particulates, and Tritium for CP&L GASRPT

SEMI-ANNUAL RADIOLOGICAL EFFLUENT REPORTING
RADIATION DOSES AT SELECTED LOCATIONS

RUN DATE: 02/14/76
RUN TIME: 08:18:42

1995 SOURCE TERM (ELEVATED MODE) BSEP UNITS 1&2
SOURCE TERM (GROUND LEVEL) 1995 BSEP UNITS 1 AND 2
BRUNSWICK UNITS 1 AND 2, MIXED MODE CONTINUOUS GASEOUS RELEASES, 1995

SPECIAL LOCATION METERS DIR PL GR IN V CM GM M
#35 COW MILK 7644.0 NE 0 1 1 1 1 0 0

ANNUAL BETA AIR DOSE = 9.368E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.656E-05 MILLRADS

	TOTAL BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	1.364E-03	1.494E-03	1.038E-03	1.449E-03	1.389E-03	4.834E-03	1.361E-03	1.464E-03
GROUND PLANE	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	9.570E-04
INHALATION	1.543E-04	1.510E-04	1.383E-04	2.414E-04	1.907E-04	2.592E-04	1.876E-04	1.484E-04
VEGETATION	2.963E-04	4.261E-04	7.213E-05	2.896E-04	2.784E-04	1.063E-03	2.688E-04	2.679E-04
COW MILK	1.002E-04	1.031E-04	1.404E-05	1.043E-04	1.063E-04	2.698E-03	9.103E-05	9.044E-05
TEENAGER	1.445E-03	1.572E-03	1.082E-03	1.541E-03	1.473E-03	6.323E-03	1.449E-03	1.531E-03
GROUND PLANE	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	9.570E-04
INHALATION	1.557E-04	1.519E-04	1.459E-04	2.484E-04	1.944E-04	2.923E-04	2.088E-04	1.494E-04
VEGETATION	3.439E-04	4.735E-04	9.826E-05	3.365E-04	3.193E-04	9.675E-04	3.082E-04	3.068E-04
COW MILK	1.314E-04	1.332E-04	2.482E-05	1.423E-04	1.460E-04	4.250E-03	1.190E-04	1.178E-04
CHILD	1.700E-03	1.732E-03	1.184E-03	1.764E-03	1.701E-03	1.099E-02	1.660E-03	1.750E-03
GROUND PLANE	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	9.570E-04
INHALATION	1.374E-04	1.332E-04	1.138E-04	2.026E-04	1.624E-04	3.047E-04	1.814E-04	1.321E-04
VEGETATION	5.413E-04	5.879E-04	1.980E-04	5.197E-04	4.924E-04	1.485E-03	4.773E-04	4.751E-04
COW MILK	2.079E-04	1.970E-04	5.847E-05	2.281E-04	2.328E-04	8.392E-03	1.879E-04	1.861E-04
INFANT	1.211E-03	1.182E-03	9.681E-04	1.295E-03	1.265E-03	2.127E-02	1.209E-03	1.315E-03
GROUND PLANE	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	8.135E-04	9.570E-04
INHALATION	7.820E-05	7.636E-05	4.605E-05	1.047E-04	8.826E-05	2.338E-04	1.097E-04	7.596E-05
COW MILK	3.194E-04	2.924E-04	1.085E-04	3.764E-04	3.629E-04	2.022E-02	2.857E-04	2.824E-04

CP&L
GASRPT

SEMI-ANNUAL RADIOLOGICAL EFFLUENT REPORTING
RADIATION DOSES AT SELECTED LOCATIONS

RUN DATE: 02/13/96
RUN TIME: 13:27:55

1995 SOURCE TERM (ELEVATED MODE) BSEP UNITS 1&2
SOURCE TERM (GROUND LEVEL) 1995 BSEP UNITS 1 AND 2
BRUNSWICK UNITS 1 AND 2, MIXED MODE CONTINUOUS GASEOUS RELEASES, 1995

SPECIAL LOCATION METERS DIR PL GR IN V CM GM M
3 SITE BOUNDARY 1127.0 NE 1 1 1 1 1 1 1

ANNUAL BETA AIR DOSE = 2.348E-02 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.514E-02 MILLRADS

ADULT	TOTAL BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
	4.874E-02	5.390E-02	3.567E-02	4.888E-02	4.875E-02	1.418E-01	4.828E-02	7.139E-02
PLUME	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.379E-02	4.529E-02
GROUND PLANE	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	1.159E-02
INHALATION	2.963E-03	2.961E-03	2.262E-04	3.102E-03	3.023E-03	3.486E-03	3.031E-03	2.953E-03
VEGETATION	5.714E-03	7.295E-03	1.308E-03	5.595E-03	5.464E-03	1.656E-02	5.340E-03	5.330E-03
COW MILK	1.928E-03	1.963E-03	2.243E-04	1.983E-03	2.019E-03	3.869E-02	1.806E-03	1.799E-03
GOAT MILK	3.898E-03	3.757E-03	4.297E-04	3.992E-03	3.970E-03	4.794E-02	3.690E-03	3.670E-03
MEAT & POULTRY	8.304E-04	4.519E-03	7.873E-05	8.064E-04	8.726E-04	1.745E-03	7.695E-04	7.660E-04
TEENAGER	5.109E-02	5.475E-02	3.668E-02	5.150E-02	5.130E-02	1.894E-01	5.049E-02	7.353E-02
PLUME	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.379E-02	4.529E-02
GROUND PLANE	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	1.159E-02
INHALATION	2.983E-03	2.980E-03	2.400E-04	3.131E-03	3.047E-03	3.653E-03	3.093E-03	2.971E-03
VEGETATION	6.604E-03	8.177E-03	1.814E-03	6.465E-03	6.260E-03	1.544E-02	6.119E-03	6.102E-03
COW MILK	2.528E-03	2.545E-03	3.975E-04	2.668E-03	2.735E-03	6.080E-02	2.358E-03	2.343E-03
GOAT MILK	5.065E-03	4.896E-03	7.590E-04	5.346E-03	5.313E-03	7.492E-02	4.821E-03	4.780E-03
MEAT & POULTRY	5.065E-04	2.748E-03	6.467E-05	4.887E-04	5.455E-04	1.166E-03	4.601E-04	4.570E-04
CHILD	5.897E-02	6.030E-02	4.021E-02	5.951E-02	5.920E-02	3.287E-01	5.774E-02	8.076E-02
PLUME	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.379E-02	4.529E-02
GROUND PLANE	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	1.159E-02
INHALATION	2.637E-03	2.631E-03	1.905E-04	2.742E-03	2.680E-03	3.440E-03	2.729E-03	2.628E-03
VEGETATION	1.035E-02	1.086E-02	3.769E-03	9.993E-03	9.669E-03	2.370E-02	9.477E-03	9.451E-03
COW MILK	4.003E-03	3.846E-03	9.398E-04	4.260E-03	4.352E-03	1.197E-01	3.724E-03	3.702E-03
GOAT MILK	7.946E-03	7.644E-03	1.788E-03	8.522E-03	8.434E-03	1.468E-01	7.615E-03	7.553E-03
MEAT & POULTRY	6.284E-04	1.917E-03	1.185E-04	5.908E-04	6.681E-04	1.622E-03	5.555E-04	5.520E-04
INFANT	5.314E-02	5.221E-02	3.846E-02	5.538E-02	5.464E-02	6.731E-01	5.245E-02	7.546E-02
PLUME	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.355E-02	2.379E-02	4.529E-02
GROUND PLANE	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	9.853E-03	1.159E-02
INHALATION	1.516E-03	1.512E-03	7.894E-05	1.559E-03	1.533E-03	2.253E-03	1.584E-03	1.511E-03
COW MILK	6.133E-03	5.750E-03	1.752E-03	6.878E-03	6.738E-03	2.876E-01	5.657E-03	5.617E-03
GOAT MILK	1.209E-02	1.155E-02	3.223E-03	1.354E-02	1.297E-02	3.499E-01	1.157E-02	1.146E-02

CP&L
GASRPT

SEMI-ANNUAL RADIOLOGICAL EFFLUENT REPORTING
RADIATION DOSES AT SELECTED LOCATIONS

RUN DATE: 02/13/96
RUN TIME: 13:27:55

1995 SOURCE TERM (ELEVATED MODE) BSEP UNITS 1&2
SOURCE TERM (GROUND LEVEL) 1995 BSEP UNITS 1 AND 2
BRUNSWICK UNITS 1 AND 2, MIXED MODE CONTINUOUS GASEOUS RELEASES, 1995

SPECIAL LOCATION METERS DIR PL GR IN V CM GM M
#24 RESIDENCE 1609.0 SW 1 1 1 1 0 0 0

ANNUAL BETA AIR DOSE = 1.761E-02 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.627E-02 MILLRADS

	TOTAL BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	2.878E-02	2.970E-02	2.413E-02	2.879E-02	2.867E-02	3.466E-02	2.879E-02	4.585E-02
PLUME	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.778E-02	3.388E-02
GROUND PLANE	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	6.765E-03
INHALATION	1.862E-03	1.861E-03	1.171E-04	1.934E-03	1.893E-03	2.199E-03	1.899E-03	1.857E-03
VEGETATION	3.565E-03	4.486E-03	6.604E-04	3.504E-03	3.426E-03	9.114E-03	3.357E-03	3.351E-03
TEENAGER	2.934E-02	3.026E-02	2.439E-02	2.935E-02	2.918E-02	3.428E-02	2.931E-02	4.635E-02
PLUME	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.778E-02	3.388E-02
GROUND PLANE	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	6.765E-03
INHALATION	1.875E-03	1.873E-03	1.244E-04	1.951E-03	1.908E-03	2.306E-03	1.934E-03	1.869E-03
VEGETATION	4.117E-03	5.035E-03	9.117E-04	4.047E-03	3.926E-03	8.625E-03	3.847E-03	3.837E-03
CHILD	3.145E-02	3.176E-02	2.533E-02	3.132E-02	3.110E-02	3.878E-02	3.120E-02	4.824E-02
PLUME	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.778E-02	3.388E-02
GROUND PLANE	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	6.765E-03
INHALATION	1.658E-03	1.655E-03	9.918E-05	1.711E-03	1.680E-03	2.173E-03	1.707E-03	1.652E-03
VEGETATION	6.443E-03	6.755E-03	1.878E-03	6.257E-03	6.066E-03	1.326E-02	5.958E-03	5.943E-03
INFANT	2.430E-02	2.430E-02	2.339E-02	2.433E-02	2.431E-02	2.478E-02	2.452E-02	4.159E-02
PLUME	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02	1.778E-02	3.388E-02
GROUND PLANE	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	5.750E-03	6.765E-03
INHALATION	9.527E-04	9.510E-04	4.136E-05	9.752E-04	9.620E-04	1.426E-03	9.902E-04	9.501E-04

1995 SOURCE TERM (ELEVATED MODE) BSEP UNITS 1&2
SOURCE TERM (GROUND LEVEL) 1995 BSEP UNITS 1 AND 2
BRUNSWICK UNITS 1 AND 2, MIXED MODE CONTINUOUS GASEOUS RELEASES, 1995

SPECIAL LOCATION METERS DIR PL GR IN V CM GM M
3 SITE BOUNDARY 1127.0 NE 0 1 1 0 0 0 0

ANNUAL BETA AIR DOSE = 2.248E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 6.375E-05 MILLRADS

	ADULT	TOTAL BODY 1.282E-02	GI-TRACT 1.281E-02	BONE 1.008E-02	LIVER 1.296E-02	KIDNEY 1.288E-02	THYROID 1.334E-02	LUNG 1.288E-02	SKIN 1.454E-02
GROUND PLANE INHALATION		9.853E-03 2.963E-03	9.853E-03 2.961E-03	9.853E-03 2.262E-04	9.853E-03 3.102E-03	9.853E-03 3.023E-03	9.853E-03 3.486E-03	9.853E-03 3.031E-03	1.159E-02 2.953E-03
TEENAGER		1.284E-02	1.283E-02	1.009E-02	1.298E-02	1.290E-02	1.351E-02	1.295E-02	1.456E-02
GROUND PLANE INHALATION		9.853E-03 2.983E-03	9.853E-03 2.980E-03	9.853E-03 2.400E-04	9.853E-03 3.131E-03	9.853E-03 3.047E-03	9.853E-03 3.653E-03	9.853E-03 3.093E-03	1.159E-02 2.971E-03
CHILD		1.249E-02	1.248E-02	1.004E-02	1.259E-02	1.253E-02	1.329E-02	1.258E-02	1.422E-02
GROUND PLANE INHALATION		9.853E-03 2.637E-03	9.853E-03 2.631E-03	9.853E-03 1.905E-04	9.853E-03 2.742E-03	9.853E-03 2.680E-03	9.853E-03 3.440E-03	9.853E-03 2.729E-03	1.159E-02 2.628E-03
INFANT		1.137E-02	1.137E-02	9.932E-03	1.141E-02	1.139E-02	1.211E-02	1.144E-02	1.310E-02
GROUND PLANE INHALATION		9.853E-03 1.516E-03	9.853E-03 1.512E-03	9.853E-03 7.894E-05	9.853E-03 1.559E-03	9.853E-03 1.533E-03	9.853E-03 2.253E-03	9.853E-03 1.584E-03	1.159E-02 1.511E-03

Maximum site boundary dose due to Iodines, Particulates, and Tritium for existing pathways

CP&L
GASRPT

SEMI-ANNUAL RADIOLOGICAL EFFLUENT REPORTING
INPUT SOURCE TERMS

RUN DATE: 02/14/96
RUN TIME: 09:24:03

SOURCE TERM (INCINRAT OIL) 1995 BSEP UNITS 1 AND 2

27 CO- 60	2.050E-05
55 CS-137	3.740E-06

Source term for incinerated waste oil

CP&L
GASRPTSEMI-ANNUAL RADIOLOGICAL EFFLUENT REPORTING
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (MANREM)RUN DATE: 02/14/96
RUN TIME: 09:24:03

SOURCE TERM (INCINRAT OIL) 1995 BSEP UNITS 1 AND 2										
** TOTAL **	TOTAL BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN		
	1.723E-04	1.743E-04	1.728E-04	1.734E-04	1.715E-04	1.707E-04	1.941E-04	2.007E-04		
PLUME	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
GROUND PLANE	1.707E-04	1.707E-04	1.707E-04	1.707E-04	1.707E-04	1.707E-04	1.707E-04	2.007E-04		
	99.07%	97.94%	98.82%	98.48%	99.53%	100.00%	87.96%	100.00%		
INHALATION	2.951E-07	8.903E-07	3.755E-07	4.881E-07	1.577E-07	0.000E+00	2.314E-05	0.000E+00		
	0.17%	0.51%	0.22%	0.28%	0.09%	0.00%	11.92%	0.00%		
VEGETATION	1.166E-06	2.271E-06	1.516E-06	1.947E-06	5.952E-07	0.000E+00	2.083E-07	0.000E+00		
	0.68%	1.30%	0.86%	1.12%	0.35%	0.00%	0.11%	0.00%		
COW MILK	3.467E-08	9.718E-09	7.567E-08	8.719E-08	2.885E-08	0.000E+00	1.019E-08	0.000E+00		
	0.02%	0.01%	0.04%	0.05%	0.02%	0.00%	0.01%	0.00%		
MEAT & POULTRY	1.060E-07	4.253E-07	6.597E-08	1.096E-07	2.792E-08	0.000E+00	9.575E-09	0.000E+00		
	0.06%	0.24%	0.04%	0.06%	0.02%	0.00%	0.00%	0.00%		

CP&L
GASRPT

SEMI-ANNUAL RADIOLOGICAL EFFLUENT REPORTING
RADIATION DOSES AT SELECTED LOCATIONS

RUN DATE: 02/14/96
RUN TIME: 09:24:03

SOURCE TERM (INCINRAT OIL) 1995 BSEP UNITS 1 AND 2

SPECIAL LOCATION METERS DIR PL GR IN V CM GM M
3 SITE BOUNDARY 1127.0 NE 1 1 1 1 0 0 0

ANNUAL BETA AIR DOSE = 0.000E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.000E+00 MILLRADS

	ADULT	TOTAL BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
		3.612E-04	3.842E-04	3.580E-04	3.664E-04	3.490E-04	3.412E-04	3.564E-04	4.011E-04
GROUND PLANE		3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	4.011E-04
INHALATION		1.957E-07	6.034E-07	1.839E-07	2.629E-07	8.550E-08	0.000E+00	1.261E-05	0.000E+00
VEGETATION		1.978E-05	4.239E-05	1.658E-05	2.491E-05	7.699E-06	0.000E+00	2.559E-06	0.000E+00
TEENAGER		3.611E-04	3.855E-04	3.679E-04	3.801E-04	3.533E-04	3.412E-04	3.643E-04	4.011E-04
GROUND PLANE		3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	4.011E-04
INHALATION		1.615E-07	5.495E-07	2.577E-07	3.579E-07	1.169E-07	0.000E+00	1.842E-05	0.000E+00
VEGETATION		1.973E-05	4.376E-05	2.643E-05	3.848E-05	1.196E-05	0.000E+00	4.648E-06	0.000E+00
CHILD		3.650E-04	3.698E-04	4.040E-04	4.063E-04	3.608E-04	3.412E-04	3.632E-04	4.011E-04
GROUND PLANE		3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	4.011E-04
INHALATION		9.708E-08	2.041E-07	3.485E-07	3.449E-07	1.085E-07	0.000E+00	1.493E-05	0.000E+00
VEGETATION		2.372E-05	2.837E-05	6.240E-05	6.478E-05	1.946E-05	0.000E+00	7.003E-06	0.000E+00
INFANT		3.413E-04	3.413E-04	3.414E-04	3.415E-04	3.413E-04	3.412E-04	3.507E-04	4.011E-04
GROUND PLANE		3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	3.412E-04	4.011E-04
INHALATION		4.230E-08	6.778E-08	2.110E-07	2.521E-07	6.620E-08	0.000E+00	9.527E-06	0.000E+00

Maximum site boundary dose due to incinerated waste oil

ATTACHMENT 7 (cont)

ENCLOSURE 3

Dose Assessment Summary

I. Liquid Effluents:

<u>Maximum Dose to Individual:</u>	<u>(mrem)</u>	<u>Limit:</u>	<u>(mrem)</u>
Adult GI-LLI	7.39E-03	2.00E+01	
Child Total Body	5.75E-03	6.00E+00	
<u>Total Integrated and Recreation</u>			
<u>Population Dose:</u>			
	<u>(person-rem)</u>		
Total Body	5.04E-03		

II. Gaseous Effluents:

<u>Noble Gas Air Dose at Site</u>		<u>Limit:</u>	<u>(mrad)</u>
<u>Boundary:</u>	<u>(mrad)</u>		
Gamma	3.51E-02	2.00E+01	
Beta	2.35E-02	4.00E+01	
<u>Iodine-131, Iodine 133, Tritium</u>			
<u>and Particulates:</u>			
	<u>(mrem)</u>	<u>Limit:</u>	3.00E+01
Maximum hypothetical dose at site boundary:		6.73E-01	(infant thyroid)
Maximum hypothetical dose due to iodines, particulates, and tritium at 4.75 miles for the cow milk pathway per ODCM:		3.14E-02	(infant thyroid)
Estimated organ dose due to iodines, particulates, and tritium for existing pathways to maximum exposed individual.		2.11E-02	(child thyroid)
<u>Total 50 mile Annual Integrated</u>			
<u>Population Dose:</u>			
	<u>(person-rem)</u>		
Total Body:		1.63E-01	
Thyroid:		1.73E-01	

ATTACHMENT 8

Off-Site Dose Calculation Manual (ODCM) and

Process Control Program (PCP) Revisions

July 1, to December 31, 1995

Brunswick Steam Electric Plant

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

Revision 17 was made to the Off-Site Dose Calculation Manual during this time period to update Table 3.2-2 to concur with the latest Land Use Census Data. (page 3-30)

A copy of Revision 17 to the ODCM is included as a part of this attachment.

ATTACHMENT 1

Page 1 of 1

Request for Off Site Dose Calculation Manual Change

RECEIVED
NUC RECORDS MGT

9511060000

Originator: Grant Raker Date: Oct. 9, 1995 Rev. 17Pages and Sections Revised: pg 3-30Reason for Change: To update Table 3.2-2 to reflect
latest Land Use Census DataSafety Analysis Complete: Hunt Raker Date: 10/9/95

REVIEWS:

Hunt Raker Recommended/Not Recommended Date: 10/9/95
1st Safety ReviewerJenna Roeder Recommended/Not Recommended Date: 10-27-95
2nd Safety ReviewerHunt Raker Recommended/Not Recommended Date: 10/9/95
E&C SpecialistJ. P. Burrison Recommended/Not Recommended Date: 11-2-95
Operations SupportJ. P. Burrison Recommended/Not Recommended Date: 10/30/95
E&C Manager

APPROVALS:

J. P. Burrison Recommended/Not Recommended Date: 11/2/95
Manager - E&RC[Signature] Recommended/Not Recommended Date: 12/14/95
PNMC Chairman[Signature] Recommended/Not Recommended Date: 12/14/95
Plant General Manager

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE
SAFETY REVIEW COVER SHEET

Page 1 of 7

DOCUMENT NO. ODCM

REV. NO. 17

DESCRIPTION OR TITLE: Off-site Dose Calculation Manual

1. Assigned Responsibilities:

Safety Analysis Preparer: Grant Raker

Lead 1st Safety Reviewer: Grant Raker

2nd Safety Reviewer: Teena Roeder

2. Safety Analysis Preparer: Complete PART I, SAFETY ANALYSIS

Safety Analysis Preparer

SIGNATURE

DATE

3. Lead 1st Safety Reviewer: Complete Part II, Item Classification.

4. Lead 1st Safety Reviewer: Part III may be completed. If either question 1 or 2 is "yes," then Part IV is not required.

5. Lead 1st Safety Reviewer: Determine which DISCIPLINES are required for review of this item (including own) and mark the appropriate block(s) below.

DISCIPLINES Required:

(Print Name)

Signature/Date (Step 7)

☐ Nuclear Plant Operations

☐ Nuclear Engineering

☐ Mechanical

☐ Electrical

☐ Instrumentation & Control

☐ Structural

☐ Metallurgy

☒ Chemistry/Radiochemistry

☐ Health Physics

☐ Administrative Controls

6. A QUALIFIED SAFETY REVIEWER will be assigned for each DISCIPLINE marked in step 5 and his/her name printed in the space provided. Each person listed shall perform a SAFETY REVIEW and provide input into the Safety Review Package.

7. The Lead 1st Safety Reviewer will assure that a Part III or Part IV is completed (see step 4 above) and a Part VI if required (see 9.d of Part II). Each person listed in step 5 shall sign and date next to his/her name in step 5, indicating completion of a SAFETY REVIEW.

8. 2nd Safety Reviewer: Perform a SAFETY REVIEW in accordance with Section 8.0.

2nd Safety Reviewer

Date

DISCIPLINE:

9. PNSC review required? If "yes," attach Part V and mark reason below:

Yes ☒ No ☐

☐ Potential UNREVIEWED SAFETY QUESTION

☐ Question 9 of Part IV answered "Yes"

☒ Other (specify): To update table 3.2-2 to reflect latest land use Census data.

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ATTACHMENT A
CP&L SAFETY REVIEW PACKAGE

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PART I: SAFETY ANALYSIS
(See instructions in Section 8.4.1)
(Attach additional sheets as necessary.)

DOCUMENT NO. ODCM

REV. NO. 17

DESCRIPTION OF CHANGE: update Table 3.2-2 to reflect 1995 Land Use
Census data.

ANALYSIS: The Land Use Census information is included in the ODCM
for use in the annual dose assessment due to radiological effluent
from the site. The LUC is required to identify the nearest
resident location, nearest garden, nearest milk animal from the
site and is required to be conducted annually. The LUC performed
in July of 1995 identified changes in the nearest garden location
in 3 sectors. The ODCM is being revised to reflect these new
locations.

This revision has no impact on safety and will only be
used to calculate dose to public due to radiological effluents.
The consequences likelihood of any accident or malfunction
of safety equipment will not be increased.

REFERENCES:

Tech Spec 3.12; FSAR 2.1.3.1, Land Use Census

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CP&L SAFETY REVIEW PACKAGE

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PART II: ITEM CLASSIFICATION

DOCUMENT NO. 00cm

REV. NO. 17

- | | <u>Yes</u> | <u>No</u> |
|--|-------------------------------------|-------------------------------------|
| 1. Does this item represent: | | |
| a. A change to the facility as described in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. A change to the procedures as described in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. A test or experiment not described in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Does this item involve a change to the individual plant Operating License or to its Technical Specifications? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Does this item require a revision to the FSAR? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Does this item involve a change to the Off-Site Dose Calculation Manual? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. Does this item constitute a change to the Process Control Program? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Does this item involve a major change to a Radwaste Treatment System? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Does this item involve a change to the Technical Specification Equipment List (BSEP and SHNPP only)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Does this item impact the NPDES Permit (all 3 sites) or constitute an "unreviewed environmental question" (SHNPP Environmental Plan, Section 3.1) or a "significant environmental impact" (BSEP)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Does this item involve a change to a previously accepted: | | |
| a. Quality Assurance Program | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Security Plan (including Training, Qualification, and Contingency Plans)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Emergency Plan? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Independent Spent Fuel Storage Installation license? (If "yes," refer to Section 8.4.2, "Question 9," for special considerations. Complete Part VI in accordance with Section 8.4.6) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

SEE SECTION 8.4.2 FOR INSTRUCTIONS FOR EACH "YES" ANSWER.

REFERENCES. List FSAR and Technical Specification references used to answer questions 1-9 above. Identify specific reference sections used for any "Yes" answer.

00cm; Tech Spec 3.12; FSAR Index

OAI-109

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PART III: UNREVIEWED SAFETY QUESTION DETERMINATION SCREEN

DOCUMENT NO. 00cm

REV. NO. 17

1. Is this change fully addressed by another completed UNREVIEWED SAFETY QUESTION determination? (See Sections 7.2.1, 7.2.2.5, and 7.9.1.1)

<u>Yes</u>	<u>No</u>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

REFERENCE DOCUMENT: NA

REV. NO. _____

2. For procedures, is the change a non-intent change which only (check all that apply): (See Section 7.2.2.3)

<u>Yes</u>	<u>No</u>
<input type="checkbox"/>	<input type="checkbox"/>

- ☐ Corrects typographical errors which do not alter the meaning or intent of the procedure; or,
- ☐ Adds or revises steps for clarification (provided they are consistent with the original purpose or applicability of the procedure); or,
- ☐ Changes the title of an organizational position; or,
- ☐ Changes names, addresses, or telephone numbers of persons; or,
- ☐ Changes the designation of an item of equipment where the equipment is the same as the original equipment or is an authorized replacement; or,
- ☐ Changes a specified tool or instrument to an equivalent substitute; or,
- ☐ Changes the format of a procedure without altering the meaning, intent, or content; or
- ☐ Deletes a part or all of a procedure, the deleted portions of which are wholly covered by approved plant procedures?

If the answer to either Question 1 or Question 2 in PART III is "Yes," then PART IV need not be completed.

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PART IV: UNREVIEWED SAFETY QUESTION DETERMINATION

DOCUMENT NO. ODCM

REV. NO. 17

Using the SAFETY ANALYSIS developed for the change, test or experiment, as well as other required references (LICENSING BASIS DOCUMENTATION, Design Drawings, Design Basis Documents, codes, etc.), the preparer of the Unreviewed Safety Question Determination must directly answer each of the following seven questions and make a determination of whether an UNREVIEWED SAFETY QUESTION exists.

A WRITTEN BASIS IS REQUIRED FOR EACH ANSWER

- | | Yes | No |
|---|--------------------------|-------------------------------------|
| 1. May the proposed activity increase the probability of occurrence of an accident evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>The change incorporates new garden locations per the latest Land Use Census to be used in the annual population dose assessment. This is a change in data contained in ODCM that can have no impact on safety and will not increase the probability or consequences of any accident.</u> | | |
| 2. May the proposed activity increase the consequences of an accident evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>See # 1</u> | | |
| <hr/> | | |
| 3. May the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>This change involves updating latest land use census data to be used in annual population dose assessment and does not impact equipment important to safety.</u> | | |
| 4. May the proposed activity increase the consequence of a malfunction of equipment important to safety evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>See # 3</u> | | |
| <hr/> | | |
| 5. May the proposed activity create the possibility of an accident of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>changes made to enhance 'after the fact' dose assessment at the nearest resident and does not create the possibility of an accident of any type.</u> | | |

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PART IV: (Continued)

DOCUMENT NO. ODM

REV. NO. 17

Yes No

6. May the proposed activity create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the SAFETY ANALYSIS REPORT?

☐ ☒

See # 5

7. Does the proposed activity reduce the margin of safety as defined in the basis of any Technical Specification?

☐ ☒

Margin of safety is not effected by this change. The revision incorporates latest WCC data to enhance accuracy of annual population dose assessment.

8. Based on the answers to questions 1 - 7, does this item result in an UNREVIEWED SAFETY QUESTION? If the answer to any of the questions 1-7 is "Yes," then the item is considered to constitute an UNREVIEWED SAFETY QUESTION.

☐ ☒

9. Is PNSC review required for any of the following reasons?

☐ ☒

If, in answering question 1 or 3 "No," it was determined that the probability increase was small relative to the uncertainties; or, in answering question 2 or 4 "No," it was determined that the doses increased, but the dose was still less than the NRC ACCEPTANCE LIMIT; or, in answering question 7 "No," a parameter would be closer to the NRC ACCEPTANCE LIMIT, but the end result was still within the NRC ACCEPTANCE LIMIT; then PNSC review is required.

REFERENCES:

FSAR section 15.0

This Unreviewed Safety Question Determination is for the following DISCIPLINE(s): (Additional Part IV forms may be included as appropriate.)

☐ Nuclear Plant Operations
☐ Nuclear Engineering
☐ Mechanical
☐ Electrical
☐ Instrumentation & Control

☐ Structural
☐ Metallurgy
☐ Chemistry/Radiochemistry
☐ Health Physics
☐ Administrative Controls

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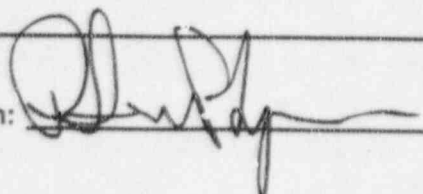
PART V: PNSC REVIEW

DOCUMENT NO. 50-324 50-325 REV. NO. 17

Determination/Evaluation: Update table 3.2-2 in ODCM following
latest Land Use Census

Action Taken: Revise table 3.2-2

Basis: The land use census is included in the ODCM
for use in the annual dose assessment due to
radiological influence from the site.

PNSC Chairman:  Date: 12/14/55

BRUNSWICK STEAM ELECTRIC PLANT
OFF-SITE DOSE CALCULATION MANUAL
(ODCM)

REVISION 17

RECEIVED BY NRP

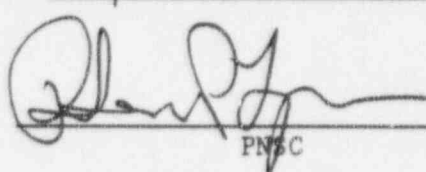
DEC 22 1995

DOCKET NOS. 50-324
50-325

NUCLEAR DOCUMENT CONTROL

CAROLINA POWER & LIGHT COMPANY

Effective Date 12/14/95

Approved By: 
PN&C

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TABLE 3.2-2

DISTANCE TO CONTROLLING LOCATIONS AS MEASURED FROM THE
BRUNSWICK PLANT CENTER (Mi)

Sector	Site Boundary	Milk Cow	Milk Goat	Meat Animal	Nearest Resident	Nearest Garden
NNE	0.7	-	-	-	0.9	-
NE	0.7	4.75*	-	-	-	-
ENE	0.7	-	-	-	-	-
E	0.7	-	-	-	-	-
ESE	0.7	-	-	-	1.5	-
SE	0.7	-	-	-	0.9	-
SSE	0.7	-	-	-	0.9	-
S	0.8	-	-	-	1.5	1.5
SSW	0.8	-	-	-	1.2	1.5
SW	0.7	-	-	-	1.0	1.0
WSW	0.7	-	-	-	1.0	1.0
W	0.7	-	-	-	0.8	0.8
WNW	0.6	-	-	-	0.8	0.9
NW	0.5	-	-	-	0.9	1.0
NNW	0.6	-	-	-	0.8	0.8
N	0.7	-	-	-	0.9	-

*A "hypothetical" cow milk pathway is located at this point in accordance with 5.3.1 of NUREG 0133.

ENCLOSURE 2
BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by Carolina Power & Light Company in this document. Any other actions discussed in the submittal represent intended or planned actions by Carolina Power & Light Company. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager-Regulatory Affairs at the Brunswick Nuclear Plant of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed date or outage
None	

ENCLOSURE 2
BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
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Commitment	Committed date or outage
None	