



Carolina Power & Light Company

Brunswick Steam Electric Plant  
P. O. Box 10429  
Southport, NC 28461

Company Correspondence

December 9, 1980

FILE: B09-13516.2  
SERIAL: BSEP/80-2029

Mr. James P. O'Reilly, Director  
U. S. Nuclear Regulatory Commission  
Region II, Suite 3100  
101 Marietta Street N.W.  
Atlanta, GA 30303

BRUNSWICK STEAM ELECTRIC PLANT UNIT NOS. 1 & 2  
LICENSE NOS. DPR-71 AND DPR-62  
DOCKET NOS. 50-325 AND 50-324  
30-DAY NONROUTINE RADIOLOGICAL ENVIRONMENTAL EVENT REPORT

Dear Mr. O'Reilly:

Results of radioiodine analysis of a weekly milk sample collected on November 10, 1980, as part of the Brunswick Steam Electric Plant's Environmental Radiological Monitoring Program, detected I-131 at a concentration of  $2.12 \pm 0.35$  pCi/liter at Milk Sample Station No. 35. This analysis was confirmed on November 16, 1980. At Control Station No. 37, the I-131 concentration was  $<0.0577$  pCi/liter. The I-131 concentration detected in this sample constitutes a 30-day reportable event in accordance with the Brunswick Technical Specifications, Appendix B, Section 5.4.2b, pertinent to environmental sampling.

The source of the I-131 is attributed predominantly to Brunswick Plant operations. Following a Unit No. 2 reactor scram on October 28, 1980, an increase in radioactivity at the Unit No. 2 Reactor Building roof vent was noted. Subsequent reactor scrams on November 13, 1980, and November 18, 1980, also produced increases. The source of this iodine activity can be attributed to apparent fuel element leaks in the Unit No. 2 reactor core. During this period, an increase in environmental radiation levels was noted. This phenomenon is attributed to Chinese nuclear weapons test. A nuclear detonation is known to have occurred on October 16, 1980. A summary of plant release rates, environmental sampling data and dose projections is enclosed as an attachment to this report.

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Mr. James P. O'Reilly

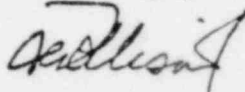
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Corrective Action.

1. Fuel sipping is planned for the next Unit No. 2 refueling outage. Defective fuel elements will be replaced as necessary.
2. A Unit No. 2 outage is planned for December 6-11, 1980, to repair steam leaks.
3. Environmental sampling is continuing in accordance with the Technical Specifications. Sampling will be increased on an "as needed" basis.

Very truly yours,



A. C. Tollison, Jr., General Manager  
Brunswick Steam Electric Plant

AHC/jro

Enclosure

cc: Mr. R. A. Hartfield ✓  
Mr. V. Stello

Effluent and Environmental Data

1. Unit No. 2 Reactor Building I-131 Release Rates

<u>Date</u>	<u>I-131 Release Rate Ci/Second</u>
10/10/80	6.66 E-11
10/13/80	1.11 E-11
10/28/80	4.28 E-11
10/30/80	1.71 E-8
11/2/80	1.07 E-8
11/3/80	4.62 E-9
11/7/80	1.52 E-9
11/8/80	8.44 E-10
11/9/80	3.45 E-9
11/10/80	2.40 E-9
11/14/80	6.64 E-9
11/15/80	1.51 E-8
11/16/80	2.75 E-9
11/17/80	6.80 E-9
11/18/80	3.40 E-9
11/20/80	1.20 E-8

2. Milk Sample Results (I-131 Concentrations in pCi/Liter)

<u>Sample Date</u>	<u>Station No. 35</u>	<u>Station No. 36</u>	<u>Station No. 37</u>
11/17/80	1.37 ± 0.45	0.929 ± 0.271	1.37 ± 0.11
11/10/80	2.12 ± 0.35*	0.437 ± 0.167	<0.0577
11/3/80	0.454 ± 0.259	<0.108	0.481 ± 0.200
10/27/80	<0.354	0.150 ± 0.141	0.345 ± 0.105

\*Constitutes Reportable Item

NOTE: The positive results at Sample Station No. 35 are the only results which can be attributed to Brunswick Plant operations. Positive results at Sample Station Nos. 36 and 37 are attributed to nuclear weapons fallout. Variations in these numbers are due in part to unequal distributions of the fallout activity and different composite sampling periods for the individual milk stations (this can be significant considering the relatively short (eight day) half-life of I-131).

3. Air Sample Data (AC)

<u>Date Sampled</u>	<u>Station</u>	<u>I-131 Concentration pCi/M<sup>3</sup></u>
10/31/80	24	1.10 ± 0.54 E-1

NOTE: Four additional air sample stations were sampled on this date; no detectable activity was found.

4. Food Crop Samples (FC)

On October 31, 1980, one food crop sample of leafy vegetables was obtained approximately 1.5 miles south of the plant. Only naturally occurring radionuclides were detected.

On November 24, 1980, two food crop samples of leafy vegetables were taken at locations on the north and east site exclusion boundary. Only naturally occurring radionuclides were detected.

5. Fodder and Feed Samples (FO)

On October 31, 1980, four fodder and feed samples were taken from locations around the plant site exclusion boundary. One sample, near the plant Visitors Center, showed an activity of  $2.10 \pm 0.37$  E-1 pCi/gm(wet). This level of radioactivity does not constitute a reportable event.

On November 24, 1980, samples were taken at seven locations near the plant.

<u>Sample No.</u>	<u>Location</u>
1	Site Exclusion Boundary, near CP&L Visitors Center
2	Highway 87, one-half mile south of Visitors Center
3	Near Emergency TLD Location No. 18
4	Site Exclusion Boundary, construction access road
5	Site Exclusion Boundary, near Stevens farm
6	Site Exclusion Boundary, near PMAC Sample Station
7	Site Exclusion Boundary, near Bethel Church Road

Sample Data      Results are in units of pCi/kg(wet)

Sample No.	1	2	3	4	5	6	7
K-40		2630 $\pm$ 310	681 $\pm$ 206	960 $\pm$ 256	1280 $\pm$ 360		
Mn-54			24.3 $\pm$ 14.4			81.8 $\pm$ 18.4	
Nb-95	1.29 $\pm$ 15						106 $\pm$ 18
Zr-95		542 $\pm$ 48	115 $\pm$ 24	77 $\pm$ 41.9		115 $\pm$ 41	
Ru-103	107 $\pm$ 26	87.5 $\pm$ 16.6	57.9 $\pm$ 21.2	121 $\pm$ 25	124 $\pm$ 22	103 $\pm$ 14	102 $\pm$ 16
I-131			76 $\pm$ 20.7	54.7 $\pm$ 25.4			
Cs-137			793 $\pm$ 27	38.3 $\pm$ 23			
Ba-140			123 $\pm$ 51	117 $\pm$ 36		98 $\pm$ 75.3	
La-140	147 $\pm$ 25	147 $\pm$ 24	172 $\pm$ 18	233 $\pm$ 22	287 $\pm$ 29	160 $\pm$ 31	175 $\pm$ 20
Ce-141	213 $\pm$ 37	217 $\pm$ 23	266 $\pm$ 23	307 $\pm$ 24	363 $\pm$ 32	308 $\pm$ 25	210 $\pm$ 25

5. (Cont'd)

On November 26, 1980, a sample was taken of the grass at the Harris Energy and Environmental Center, New Hill, North Carolina. The results are as follows:

Zr-95	76.7 ± 37.9
Ru-103	123 ± 21
Cs-137	453 ± 24.1
Ba-140	126 ± 51
La-140	233 ± 22
Ce-141	346 ± 39

NOTE: The radioactivity in these samples is attributed to nuclear weapons fallout.

6. Dose Projections

Assuming a 2.12 pCi/liter concentration of I-131 and the NRC Regulatory Guide 1.109 milk consumption ingestion dose factor for adults, the projected dose rate is 0.025 mrem/week. Utilizing actual consumption rates (determined by interviews with adults who would drink this milk) the projected dose rate is 0.0 mrem/week. (All milk from this cow has been sold to CP&L for milk analysis due to the cow going dry. The cow is dry at the present time.) These values are well within the design objectives of 10CFR50, Appendix I, and are considered insignificant.