

Carolina Power & Light Company

DEC 03 1986

SERIAL: NLS-86-441

Director of Nuclear Reactor Regulation
Attention: Mr. Dan Muller
BWR Project Directorate #2
Division of BWR Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
OFF-SITE DOSE CALCULATION MANUAL, REVISION 6

Dear Sir:

By letter dated June 3, 1986, the NRC noted three areas in Brunswick Steam Electric Plant's Off-site Dose Calculation Manual (ODCM), Revision 4 where minor discrepancies should be addressed. Carolina Power & Light Company (CP&L) hereby submits its response to those discrepancies and Revision 6 to the ODCM.

Estimating I-133 Concentration

Discrepancy: Since the licensee does not include Iodine-133 in the sampling and analysis program documented in Brunswick RETS Table 4.11.2-1, the licensee should document in the ODCM methods of estimating Iodine-133 in accordance with the NRC staff guidance. The licensee did not provide such information in the revisions submitted for the ODCM.

Response: I-133 concentrations are determined by analysis of effluent samples. The ODCM has been revised to state I-131, I-133, particulates, and tritium for Sections 3.2.2 and 3.3.2 and a footnote has been added to each section which states I-133 values used in ODCM calculations are determined by actual analysis.

Control Location Selection

Discrepancy: The newly revised Table 3.2-2 shows the location of the highest annual average of relative concentration (X/Q) at the site boundary to be 0.7 miles from the plant and in the SSE sector. The licensee, however, identifies different locations with lower (X/Q) values for the gaseous dose calculations.

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Response: a. Noble Gases (10 CFR 20 and 10 CFR 50)

The methodology utilized in the Brunswick ODCM for control location was approved by the NRC in December 1984. This methodology determines a control location based upon its meteorology, radionuclide mix, and direct radiation from the finite plume. The table below provides a comparison of dose and dose rates for three meteorological sectors, including ENE and SSE. This comparison re-confirms that ENE at 0.7 miles is the most conservative location; not the SSE at 0.7 mile location as suggested by the NRC's Technical Evaluation Report. The dominant factor in this determination is direct radiation from the finite plume. This is expressed in the dose calculations by the terms Bi and Vi. The ODCM has been revised to further clarify the control location selection.

<u>Control Location</u>	<u>Dose Rate (mR/yr)</u>	<u>Dose (mRad)</u>
ENE @ 0.7 miles	17.85	25.9
SSE @ 0.7 miles	15.91	21.8
NE @ 0.7 miles	16.95	24.9

NOTE: Calculations based upon Gale Source Code (NUREG 0017).

b. Iodines, Particulates, and Tritium

The Brunswick ODCM considers pathways for inhalation, food, and ground plane to show compliance with 10 CFR 20 for iodines, particulates, and tritium. This methodology is consistent with NUREG-0133. Factors involved in selecting a control location are meteorology and release locations. The table below provides a comparison of control point locations including NE and SSE. This comparison shows that NE at 0.7 miles is the most conservative point. The deciding factor for NE at 0.7 miles is the higher values of X/Q (for the Reactor Building and stack) and D/Q. The ODCM has been revised to further clarify the control location selection.

<u>Control Location</u>	<u>mRem/yr</u>
NE @ 0.7 miles	890
NNE @ 0.7 miles	442
SW @ 0.7 miles	424
SSE @ 0.7 miles	398
ENE @ 0.7 miles	243

NOTE: Calculations based upon I-131 values taken from the Gale Source Code (NUREG 0017).

Environmental Monitoring Section

Discrepancy: The sample location identification (ID) numbers differ completely from those provided in the licensee's 1984 (and also 1983) Annual Report; the milk locations (ID Nos. 600-603) were described as on the

"as available" basis rather than the actual location identified; the fish and invertebrates indicator locations (ID Nos. 700-702) were identified at locations (0.5 miles at south-southeast sector of the Atlantic Ocean) different from the locations (5.5 miles at south-southwest sector of Atlantic Ocean) presented in the licensee's 1984 Annual Report.

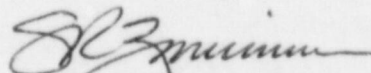
Response: The environmental sample location ID numbers listed in Brunswick's ODCM were revised in 1985. These ID numbers are consistent with the 1985 Annual Environmental Report. The ID numbers were revised to facilitate changes to the environmental program. Revisions to the ODCM for this item are not necessary.

Currently there are no milk cows in the area; therefore, no milk locations (ID Nos. 606-603) are available. These samples are listed in the ODCM as "to be identified as available" to indicate that when a milk location is identified it will be added to the environmental monitoring program. Revisions to the ODCM for this item are not necessary.

The locations for fish and invertebrates samples have been revised to indicate 5.5 miles SSW to agree with the Annual Environmental Report.

Revised pages of the ODCM, Revision 6 are enclosed. If you have any questions concerning this submittal, please call Mr. Stephen D. Floyd at (919) 836-6901.

Yours very truly,



S. R. Zimmerman
Manager

Nuclear Licensing Section

DJK/kts (5075RWS)

Enclosure

cc: Mr. W. H. Ruland (NRC-BNP)
Dr. J. Nelson Grace (NRC-RII)
Mr. E. Sylvester (NRC)