



John S. Keenan  
Vice President  
Brunswick Nuclear Plant

FEB 25 2002

SERIAL: BSEP 02-0049  
TSC-2001-09

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 AND 50-324/LICENSE NOS. DPR-71 AND DPR-62  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING  
REQUEST FOR LICENSE AMENDMENTS - EXTENDED POWER UPRATE  
(NRC TAC NOS. MB2700 AND MB2701)

Ladies and Gentlemen:

On August 9, 2001 (Serial: BSEP 01-0086), Carolina Power & Light (CP&L) Company requested a revision to the Operating Licenses (OLs) and the Technical Specifications for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The proposed license amendments increase the maximum power level authorized by Section 2.C.(1) of OLs DPR-71 and DPR-62 from 2558 megawatts thermal (MWt) to 2923 MWt. Subsequently, on February 14, 2002 (Serial: BSEP 02-0041), CP&L responded to a Request for Additional Information (RAI) concerning the offsite doses expected after extended power uprate. On February 15 and 19, 2002, the NRC requested additional information associated with the February 14, 2002, submittal. The response to this RAI is enclosed.

Please refer any questions regarding this submittal to Mr. Leonard R. Beller,  
Manager - Regulatory Affairs, at (910) 457-2073.

Sincerely,

John S. Keenan

MAT/mat

P.O. Box 10429  
Southport, NC 28461

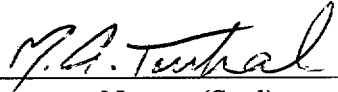
T > 910.457.2496  
F > 910.457.2803

A001

Enclosure:

Response to Request for Additional Information (RAI) 21

C. J. Gannon, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, and agents of Carolina Power & Light Company.

  
\_\_\_\_\_  
Notary (Seal)

My commission expires: 5/18/2003

cc: U. S. Nuclear Regulatory Commission, Region II  
ATTN: Mr. Luis A. Reyes, Regional Administrator  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, GA 30303-8931

U. S. Nuclear Regulatory Commission  
ATTN: Mr. Theodore A. Easlick, NRC Senior Resident Inspector  
8470 River Road  
Southport, NC 28461-8869

U. S. Nuclear Regulatory Commission (**Electronic Copy Only**)  
ATTN: Mr. Allen G. Hansen (Mail Stop OWFN 8G9)  
11555 Rockville Pike  
Rockville, MD 20852-2738

U. S. Nuclear Regulatory Commission  
ATTN: Mr. Mohammed Shuaibi (Mail Stop OWFN 8H4A)  
11555 Rockville Pike  
Rockville, MD 20852-2738

Ms. Jo A. Sanford  
Chair - North Carolina Utilities Commission  
P.O. Box 29510  
Raleigh, NC 27626-0510

Mr. Mel Fry  
Director - Division of Radiation Protection  
North Carolina Department of Environment and Natural Resources  
3825 Barrett Drive  
Raleigh, NC 27609-7221

ENCLOSURE

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 AND 50-324/LICENSE NOS. DPR-71 AND DPR-62  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING  
REQUEST FOR LICENSE AMENDMENTS - EXTENDED POWER UPRATE  
(NRC TAC NOS. MB2700 AND MB2701)

Response to Request for Additional Information (RAI) 21

**Background**

On August 9, 2001 (Serial: BSEP 01-0086), Carolina Power & Light (CP&L) Company requested a revision to the Operating Licenses (OLs) and the Technical Specifications for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The proposed license amendments increase the maximum power level authorized by Section 2.C.(1) of OLs DPR-71 and DPR-62 from 2558 megawatts thermal (MWt) to 2923 MWt. Subsequently, on February 14, 2002 (Serial: BSEP 02-0041), CP&L responded to a RAI concerning the offsite doses reported in: (1) the "Supplement to the Brunswick Steam Electric Plant Environmental Report," provided as Enclosure 5 of the August 9, 2001, submittal, and (2) CP&L's submittal dated December 17, 2001 (Serial: BSEP 01-0162). On February 15 and 19, 2002, the NRC requested additional information associated with the February 14, 2002, submittal. The response to this RAI follows.

**NRC Question 21-1**

With respect to CP&L's response to NRC Question 16-2, provide the following information: (1) what type of dosimeter is used, (2) what is its minimum sensitivity, (3) how are they configured in the field (concerned about potential shielding and underestimating the skyshine component), (4) has the licensee used these types of measurements to demonstrate compliance for years prior to 1998, and if so, what type of dosimetry was used, (5) what type of radiation measurements were used during the 1998 HWC mini-test and what were the results.

**Response to Question 21-1**

The following table provides the requested information.

<b>Request</b>	<b>Response</b>
Dosimeter Type	At BSEP, CP&L uses Panasonic UD-814 badge thermoluminescent dosimeters (TLDs) containing calcium sulfate phosphors.
Minimum Sensitivity	1 millirem

Request	Response
Field Configuration	The TLDs are contained in weather resistant, light tight bags.
Type of Dosimetry Used Prior to 1998	The Panasonic UD-814 TLDs have been used since 1983.
Type of Radiation Measurement Used for the 1998 Hydrogen Water Chemistry (HWC) Mini-test	CP&L conducted radiation measurements by direct surveys with ion chambers during the 1998 HWC mini-test. The surveys were performed from the protected area boundary, moving out, until radiation levels of 6 $\mu$ Rem (i.e., background level) were encountered.

**NRC Question 21-2**

Provide the extent and impact of permanent shielding (shielding reduction factors) installed for the moisture separator reheaters (relative to site boundary doses and beyond), and the new high density block for an administrative building.

**Response to Question 21-2**

The dose reduction factor from installed sheilding was approximately 18% for the site.

**NRC Question 21-3**

Discuss the existing ODCM methodology for determining offsite skyshine.

**Response to Question 21-2**

The Offsite Dose Calculation Manual (ODCM) does not contain a specific methology for determining offsite skyshine. Section 4.0, "Radiological Environmental Monitoring Program," contains the sample point descriptions, sampling and collection frequency analysis, and analysis frequency for various exposure pathways in the vicinity of BSEP. Offsite doses are determined as described in the response to NRC Question 16-2 of the February 14, 2002, submittal (Serial: BSEP 02-0041).