



**John S. Keenan**  
Vice President  
Brunswick Nuclear Plant

**MAR 14 2002**

SERIAL: BSEP 02-0065  
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 (i.e., 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. On March 4, 2002, the NRC provided an electronic version of a request for additional information (RAI) concerning transient analyses supporting the extended power uprate. The response to this RAI is enclosed.

Enclosure 1 contains information that General Electric (GE) considers to be proprietary. The portion of the text containing the proprietary information is identified with vertical sidebars in the right margin. GE requests that the proprietary information in this response be withheld from public disclosure in accordance with 10 CFR 9.17(a)(4), 2.970(a)(4), and 2.790(d)(1). An affidavit supporting this request is provided in Enclosure 2. A non-proprietary (i.e., redacted) version of the response is provided in Enclosure 3.

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APOI

Please refer any questions regarding this submittal to Mr. David C. DiCello,  
Manager - Regulatory Affairs, at (910) 457-2235.

Sincerely,

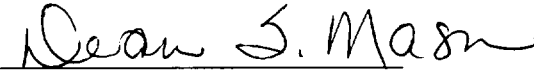
  
John S. Keenan

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Enclosure:

1. Response to Request for Additional Information (RAI) 25 - **Proprietary**
2. General Electric Affidavit of Proprietary Information
3. Non-Proprietary Version of Response to Request for Additional Information (RAI) 25

John S. Keenan, 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: 8-29-04

cc: **(with Enclosures except as noted)**

U. S. Nuclear Regulatory Commission, Region II  
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Ms. Jo A. Sanford **(w/o Enclosure 1)**  
Chair - North Carolina Utilities Commission  
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Mr. Mel Fry **(w/o Enclosure 1)**  
Director - Division of Radiation Protection  
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# General Electric Company

## AFFIDAVIT

**I, David J. Robare, state as follows:**

- (1) I am Technical Projects Manager, Technical Services, General Electric Company ("GE") and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.
- (2) The information sought to be withheld is contained in GE letter GE-KBO-AEP-351P, Carl Hinds (GE) to Bob Kitchen (Brunswick Unit 1 and Unit 2), *Response to NRC Request for Additional Information (RAI)-25-1, 25-1 and 25-3*, dated March 6, 2002. The proprietary information is delineated by a bar marked in the margin, and is contained in brackets.
- (3) In making this application for withholding of proprietary information of which it is the owner, GE relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), 2.790(a)(4), and 2.790(d)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).
- (4) Some examples of categories of information which fit into the definition of proprietary information are:
  - a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by General Electric's competitors without license from General Electric constitutes a competitive economic advantage over other companies;
  - b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;

- c. Information which reveals cost or price information, production capacities, budget levels, or commercial strategies of General Electric, its customers, or its suppliers;
- d. Information which reveals aspects of past, present, or future General Electric customer-funded development plans and programs, of potential commercial value to General Electric;
- e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in both paragraphs (4)a. and (4)b., above.

- (5) The information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GE, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GE, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.
- (6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within GE is limited on a "need to know" basis.
- (7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GE are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.
- 8) The information identified in paragraph (2), above, is classified as proprietary because it contains responses containing or based on detailed results of analytical models, methods and processes, including computer codes for BWRs.

The development of the evaluation process along with the interpretation and application of the analytical results is derived from the extensive experience database that constitutes a major GE asset.

- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GE's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GE's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GE.

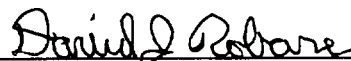
The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GE's competitive advantage will be lost if its competitors are able to use the results of the GE experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GE would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GE of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on this 7th day of March, 2002.



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David J. Robare  
General Electric Company

ENCLOSURE 2

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)

**General Electric Affidavit of Proprietary Information**

ENCLOSURE 3

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  
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Non-Proprietary Version of Response to Request for Additional Information (RAI) 25

**Background**

On August 9, 2001 (i.e., 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. On March 4, 2002, the NRC provided an electronic version of a RAI concerning transient analyses supporting the extended power uprate (EPU). The response to this RAI follows.

**NRC Question 25-1**

Explain peak vessel/dome pressure results versus tech spec limits and what is entailed in exceeding limits.

**Response to NRC Question 25-1**

BSEP Technical Specification Safety Limit (SL) 2.1.2 requires that the reactor steam dome pressure shall be less than or equal to 1325 psig. The SL of 1325 psig, as measured in the reactor steam dome, is equivalent to 1375 psig at the lowest elevation of the Reactor Coolant System. The reactor pressure vessels are designed to Section III of the American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code, 1965 Edition, including Addenda through the summer of 1967, which permits a maximum pressure transient of 110% (i.e., 1375 psig) of the design pressure of 1250 psig.

The Supplemental Reload Licensing Report (SRLR) reports a maximum calculated B1C14 steam line pressure of 1310 psig and maximum vessel pressure of 1343 psig. The corresponding calculated steam dome pressure is 1312 psig. This result assumes one Safety/Relief Valve (SRV) is inoperable. If two or more SRVs were inoperable, Technical Specification 3.4.3 "Safety/Relief Valves" would require plant shutdown such that the overpressure limit is unlikely to be approached by assumed operational transients or accidents.



**NRC Question 25-2**

Provide a table outlining transients analyzed for the BSEP EPU, including a comparison of those transients required to be analyzed by ELTR1 with those transient analyzed as part of the BSEP EPU and BSEP cycle specific evaluations. Also include a disposition of these events.

**Response to NRC Question 25-2**

The following table provides the requested information.

<b>Event Category</b>	<b>ELTR1 Events</b>	<b>Reload Events</b>	<b>Disposition</b>
1. Decrease in Core Coolant Temperature	LFWH FWCF	LFWH FWCF	The LFWH and FWCF were analyzed for B1C14.
2. Increase in Reactor Pressure	LRNBP LRWBP TTNBP TTWBP PRFD MSIVD 1 MSIV Closure MSIVF TTNBPF	LRNBP TTNBP MSIVF	The limiting events (e.g. LRNBP, TTNBP, MSIVF) were analyzed for B1C14. [Redacted]  The load rejection and turbine trip events with bypass available are less severe than analyses without bypass. [Redacted]
3. Decrease in Core Coolant Flow Rate	None	None	All events in this category are considered non-limiting for all BWRs, except for SLO pump seizure. This event was analyzed for the GE14 introduction and MCPR limits were developed.
4. Increase in Core Flow Rate	(1) Slow Recirculation. Flow Increase K(F), MCPR(F) (2) Fast Recirculation. Flow Increase	K(F), MCPR(F) Applicability confirmation	(1) [Redacted]  (2) [Redacted]

Event Category	ELTR1 Events	Reload Events	Disposition
5. Increase in Reactor Coolant Inventory	Inadvertent HPCI	Inadvertent HPCI	The B1C14 analysis confirmed this event is bounded by the LFWH analysis.
6. Decrease in Reactor Coolant Inventory	LOFW One FW pump Trip	None	The LOFW was analyzed for EPU. [Redacted]  The One FW pump trip is primarily an operational (i.e., non-safety) consideration for the desire to avoid scram if one FW pump is tripped.
7. Increase in Reactivity	RWE	RWE Mis-located Bundle Mis-oriented bundle	The RWE is considered a limiting event in this group and it was analyzed for B1C14. The misoriented (i.e., rotated) bundle was also analyzed for B1C14. [Redacted]  Therefore, a core specific mislocated bundle analysis was not required.  See Note 1.
8. Increase in Core Coolant Temp.	None	None	No BWR events are limiting for this category.

Note 1: As part of the EPU assessment for BSEP, it was concluded that the CRDA analysis is acceptable for EPU because sufficient margin exists to the CRDA limit under updated conditions. BSEP is a BPWS plant, so the generic RDA analysis is applicable and no re-load evaluation is required.

Definition of Acronyms

B1C14	Brunswick Unit 1, Cycle 14
BPWS	Banked Position Withdrawal Sequence
CRDA	Control Rod Drop Accident
ELTR1	NEDC-32424P-A, February 1999, "Generic Guidelines for General Electric Boiling Water Reactor Extended Power Uprate"
FW	Feedwater
FWCF	Feedwater Controller Failure
HPCI	High Pressure Coolant Injection system
K(F)	Multiplication Factor - Flow
LOFW	Loss of Feedwater
LOFWH	Loss of Feedwater Heating
LRNBP	Load Reject No Bypass
LRWBP	Load Reject With Bypass
MCPR	Minimum Critical Power Ratio
MCPR(F)	Minimum Critical Power Ratio - Flow
MCPR(P)	Minimum Critical Power Ratio - Power
MELLLA	Maximum Extended Load Line Limit Analysis
MSIV	Main Steam Isolation Valve
MSIVD	Main Steam Isolation Valve Closure - Direct Scram
MSIVF	Main Steam Isolation Valve Closure - High Flux (Failure of Direct Scram)
OLMCPR	Operating Limit Minimum Critical Power Ratio
PRFD	Pressure Regulator Failure Downscale
RWE	Rod Withdrawal Error
SLO	Single Loop Operation
TTNPB	Turbine Trip No Bypass
TTNBPF	Turbine Trip No Bypass - High Flux Scram
TTWBP	Turbine Trip With Bypass