



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET SW SUITE 23T85  
ATLANTA, GEORGIA 30303-8931**

March 13, 2003

Carolina Power and Light Company  
ATTN: Mr. J. S. Keenan  
Vice President  
Brunswick Steam Electric Plant  
P. O. Box 10429  
Southport, NC 28461

**SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC EXAMINATION REPORT  
50-325/2003-301 AND 50-324/2003-301**

Dear: Keenan:

During the period February 10-13, 2003, the Nuclear Regulatory Commission (NRC) administered operating examinations to employees of your company who had applied for licenses to operate the Brunswick Steam Electric Plant. At the conclusion of the examination, the examiners discussed the examination questions and preliminary findings with those members of your staff identified in the enclosed report. The written examination was administered by your staff on February 19, 2003.

All seven applicants passed the operating examination. There were two post examination written comments which are discussed in Enclosure 2. A Simulation Facility Report is included as Enclosure 3.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Michael E. Ernstes, Chief  
Operator Licensing and  
Human Performance Branch  
Division of Reactor Safety

Docket Nos. 50-325, 50-324  
License Nos. DPR-71, DPR-62

Enclosures: (See page 2)

- Enclosures: 1. Report Details  
2. Post Examination Comment Resolution  
3. Simulation Facility Report

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DATE	3/12/2003	3/12/2003	3/12/2003	3/13/2003	3/12/2003	3/12/2003
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NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-325, 50-324

License Nos.: DPR-71, DPR-62

Report Nos.: 50-325/03-301, 50-324/03-301

Licensee: Carolina Power and Light

Facility: Brunswick Steam Electric Plant

Location: 8470 River Road SE  
Southport, NC 28461

Dates: Operating Tests - February 10-13, 2003  
Written Examination - February 19, 2003

Examiners: R. Baldwin, Chief Examiner  
K. O'Donohue, Senior Operations Engineer  
L. Miller, Senior Operations Engineer  
J. Williams, Senior Operations Engineer, Region I  
G. Johnson, Operations Engineer, Trainee, Region I

Approved by: M. Ernstes, Chief  
Operator Licensing and Human Performance Branch  
Division of Reactor Safety

## **SUMMARY OF FINDINGS**

ER 05000325/2003-301, ER 05000324/2003-301; Carolina Power and Light; on 2/10-13/2003; Brunswick Steam Electric Plant, Units 1 and 2, Licensed Operator Examinations.

The NRC examiners conducted operator licensing initial examinations in accordance with the guidance of Examiner Standards, NUREG-1021, Revision 8, Supplement 1. This examination implemented the operator licensing requirements of 10 CFR §55.41, §55.43, and §55.45.

The NRC administered the operating tests during the period February 10-13, 2003. Members of the Brunswick Steam Electric Plant training staff administered the written examination on February 19, 2003. The written examinations were developed by the NRC. The operating tests were developed by the Brunswick Steam Electric Plant staff from outlines developed by the NRC. All applicants, three Reactor Operators (RO) and four Senior Reactor Operators (SRO) passed both the operating and written examinations. All applicants were issued operator licenses commensurate with the level of examination administered.

No significant issues were identified.

## Report Details

### 4. OTHER ACTIVITIES (OA)

#### **4OA5** Operator Licensing Initial Examinations

##### a. Inspection Scope

The examiners developed the written and operating examinations in accordance with the guidelines specified in NUREG-1021, Revision 8, Supplement 1.

The examiners reviewed the licensee's examination security measures while preparing and administering the examinations to ensure examination security and integrity complied with 10 CFR 55.49, Integrity of examinations and tests.

The examiners evaluated three Reactor Operator (RO) and four Senior Reactor Operator (SRO) applicants who were being assessed under the guidelines specified in NUREG-1021. They administered the operating tests during the period February 10-13, 2003. Members of the Brunswick Steam Electric Plant training staff administered the written examination on February 19, 2003. The evaluations of the applicants and review of documentation were performed to determine if the applicants, who applied for licenses to operate the Brunswick Steam Electric Plant, met requirements specified in 10 CFR Part 55.

##### b. Findings

No findings of significance were identified.

The licensee submitted two post examination comments concerning the written examination (ADAMS Accession Number ML030650592). The RO and SRO written examinations and answer keys, combined RO/SRO examination and examination references may be accessed in the ADAMS system (ADAMS Accession Numbers ML030650589, ML030650584, ML030650572 and ML030650560).

#### **4OA6** Meetings

##### Exit Meeting Summary

On February 14, 2003, the Chief Examiner discussed generic applicant performance and examination development issues with members of licensee management.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

L. Beller, Supervisor, Licensing/Regulatory Programs  
C. Elberfeld, Senior Engineering Technical Support Specialist  
C. Gannon, Director Site Operations  
J. Gawron, Manager, Training  
J. Keenan, Vice President Brunswick Nuclear Plant  
J. Leviner, Supervisor, Operator Training  
W. Noll, Plant General Manager  
E. O'Neil, Manager, Support Services  
A. Pope, Superintendent, Operator Training  
M. Williams, Manager, Operations

NRC

T. Easlick, Senior Resident Inspector

## NRC RESOLUTION OF FACILITY COMMENTS

### RO QUESTION #36/ SRO QUESTION #25:

Facility Comment: The question asked for the expected ERFIS tail pipe temperature indication for an SRV opened with RPV pressure at 1005 psig. The answer key indicated that "B" was the correct answer (300 degrees). Answer "B" (300 degrees) corresponded to an isenthalpic throttling process from 1000 psig to atmospheric pressure on the Mollier diagram. At the Brunswick Plant, a temperature element is installed in each tail pipe just downstream of the SRV which feeds a recorder, ERFIS, and a common control room annunciator. At the temperature probe location, atmospheric conditions would not exist with an open SRV due to the backpressures created from underwater discharge through a "T" quencher in the torus.

The facility recommended that the correct answer be changed to "C" (350 degrees). Per the System Description Procedure (SD-20) which discusses temperature indications, the theoretical temperature (indication) is 350 degrees F for steam being throttled through a leaking SRV. This is supported by the annunciator procedure for SRV leaking (or open) which includes SRV temperature alarm setpoints as high as 340 degrees F to indicate an open SRV.

NRC Resolution: Recommendation accepted. Review of additional reference material SD-20 page 14, indicated that 350 degrees F is the theoretical temperature for steam being throttled through a leaking SRV. The answer key was changed to reflect "C" as being the correct answer.

### RO QUESTION #82/ SRO QUESTION #77:

Facility Comment: The question asked for the plant impact from high radiation conditions in the reactor building with a failure of ventilation isolation dampers to close and both Standby Gas Treatment (SBGT) trains running. The answer key indicated that "D" (a ground level release of radioactivity could occur) was the correct answer.

The facility recommended that "A" (an elevated release of radioactivity from the main stack could occur) be accepted as an additional correct answer. This recommendation was based on both SBGT trains running (discharging to the stack) with high radiation conditions in the reactor building. Per the Brunswick Plant Updated FSAR, the SBGT (i.e., SGTS) system provides a means for minimizing the release of radioactive material from containment to the environs by filtering and exhausting the atmosphere from the reactor building during containment isolation conditions. Per the UFSAR, an "elevated release is assured by exhausting to the plant stack." With the SBGT system not 100% efficient in removal of radioactivity, with both systems in operation under high radiation conditions in the reactor building, an elevated release from the stack would result. Therefore, both answers "A" (an elevated release of radioactivity from the main stack could occur) and answer "D" (a ground level release of radioactivity could occur) are both correct.

NRC Resolution: Recommendation accepted. The expected answer, "D", was based on the assumption that a ground level release could occur if the Reactor Building Dp was zero along with the other conditions given in the question. Implied in these conditions is that a higher level

of activity exists in the reactor building. If this were true then choice "A" is a true statement also, since a higher level of activity passed through the SBGT system "Could result in an elevated release of radioactivity from the main stack." The answer key was changed to reflect "A" as an additional correct answer.

## SIMULATION FACILITY REPORT

Facility Licensee: Brunswick Steam Electric Plant

Facility Docket No.: 050-00325, 050-00324

Operating Tests Administered on: 02/10-13/2003

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and, without further verification and review, are not indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required in response to these observations.

While conducting the simulator portion of the operating tests, examiners observed the following items:

<u>ITEM</u>	<u>DESCRIPTION</u>
1.	Augmented Off-gas (AOG) Guard Bed Fire did not produce an increase in radioactive release from the plant stack as would have been expected. A fire in the guard bed would have been expected to have a substantial increase in plant stack radiation. During this event there was no increase in stack release.