

FEB 12 1976

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Docket No. 50-324

Carolina Power & Light Company  
ATTN: Mr. J. A. Jones  
Executive Vice President  
336 Fayetteville Street  
Raleigh, North Carolina 27602

Gentlemen:

The Commission has issued the enclosed Amendment No. 10 to Facility Operating License No. DPR-62 for the Brunswick Steam Electric Plant Unit 2 in accordance with your application dated February 4, 1976.

This amendment authorizes installation of plugs in the bypass flow holes of the core support plate.

Copies of the Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

Original signed by

R. A. Purple

Robert A. Purple, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Enclosures:

1. Amendment No. 10
2. Safety Evaluation
3. Federal Register Notice

cc w/encls:

See next page

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SURNAME >	SSheppard:	CTrammell:ep	ALM	RAPurple		
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CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 10  
License No. DPR-62

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Carolina Power & Light Company (the licensee) dated February 4, 1976, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. An environmental statement or negative declaration need not be prepared in connection with the issuance of this amendment.
2. Accordingly, Facility License No. DPR-62, as amended, is hereby further amended by adding Paragraph 2.C.(6):

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"(6) Facility Modification

The licensee is authorized to install plugs in the bypass flow holes of the core support plate in conformance with CP&L's submittal dated February 4, 1976. The reactor shall not be operated with plugs installed in the core support plate bypass holes without further authorization by the NRC."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**Original signed by**  
R. A. Purple

Robert A. Purple, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Date of Issuance: FEB 12 1976

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 16 TO FACILITY OPERATING LICENSE NO. DPR-62

BRUNSWICK STEAM ELECTRIC PLANT UNIT 2

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-324

Introduction

By letter dated February 4, 1976, Carolina Power & Light Company (the licensee) requested an amendment to Facility Operating License No. DPR-62 for operation of the Brunswick Steam Electric Plant Unit 2. The proposed amendment would authorize the licensee to place plugging devices in the lower core support plate bypass flow holes of the reactor and resume operation in this configuration.

Discussion

In a previous letter dated January 23, 1976, the licensee submitted General Electric Report NEDO-21118, December 1975, titled "Brunswick Steam Electric Plant Unit 2 Safety Analysis Report for Plant Modifications to Eliminate Significant In-Core Vibrations". The modifications described in this document include plugging of the bypass flow holes in the core support plate and, in addition, providing an alternate bypass flow path by drilling holes in the fuel assembly lower tie plates. However, due to a delay in the availability of the required drilling equipment and other factors, full implementation of the proposed modifications described in NEDO-21118 has also been delayed. Consequently, the licensee has requested authorization for plugging only at this time, and to resume operation in this configuration.

The installation of the core bypass flow plugs in the lower core plate is designed to reduce flow-induced instrument tube vibrations which causes them to impact on the adjacent fuel channel boxes, resulting in unacceptable channel box wear.

As described in the licensee's letter of February 4, 1976, additional information (plant transient analysis, ECCS analysis, and any Technical Specification changes required) pertinent to operation with the lower core plate holes plugged will be furnished on or about March 1, 1976, and therefore this safety evaluation addresses the acceptability of

the installation of the plugs only. Operation of the reactor with the plugs in place will be addressed after receipt of this additional information.

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Evaluation

The plug consists of five basic parts, as shown in Figure 1. Identical plugs have previously been installed at Vermont Yankee, Pilgrim, Cooper, Hatch and Duane Arnold. The body provides a means of guiding the device into the bypass flow holes as well as a shoulder to support the plug and form a seal against water flow. The shaft extends through the body. A knob is provided at the top of the shaft to provide a means of grabbing the plug during installation and extraction. At the bottom, the latch is attached to the shaft by a pin. The latch is free to rotate during installation. The spring acts against the body and shaft during normal operation to provide the force necessary to offset the pressure differential acting on the body.

During installation, the plug has its latch rotated 90 degrees from its installed position and is withdrawn and locked in the body. The shaft is gripped by the installation tool, and the plug is inserted into the bypass flow holes. The body engages the rim of the hole. The shaft is pushed to its full extension, thus lowering and unlocking the latch below the underside of the core plate. The latch then rotates 90 degrees and bears on the bottom of the core plate. After insertion, the plug is pulled with about 30-pound force to test the placement.

The plug can be removed by gripping the top of the shaft with an extracting tool and applying a force of about 500 pounds. The latch's legs will be plastically deformed and the entire plug withdrawn. The plugs previously installed at Vermont Yankee were removed with no abnormalities or loose pieces reported. The force required for removal varied from 500 to 1300 pounds.

Based on a review of the design, the installation methods, and the previously successful operating experience at Vermont Yankee, Pilgrim, Hatch, and Duane Arnold, we conclude that the plugs can be installed without damage to core components, that they will not fail so as to result in loose parts in the core or result in unplugging of the bypass flow holes, and that they can be removed, if necessary, without damage to core components. Thus, the modification is reversible.

Accordingly, we conclude that the installation of the plugs is acceptable. Operation with plugged bypass holes is still under review and will be the subject of a separate licensing action.

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves

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an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental statement, negative declaration, or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the modification does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the modification does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by modification of the facility in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: FEB 12 1976

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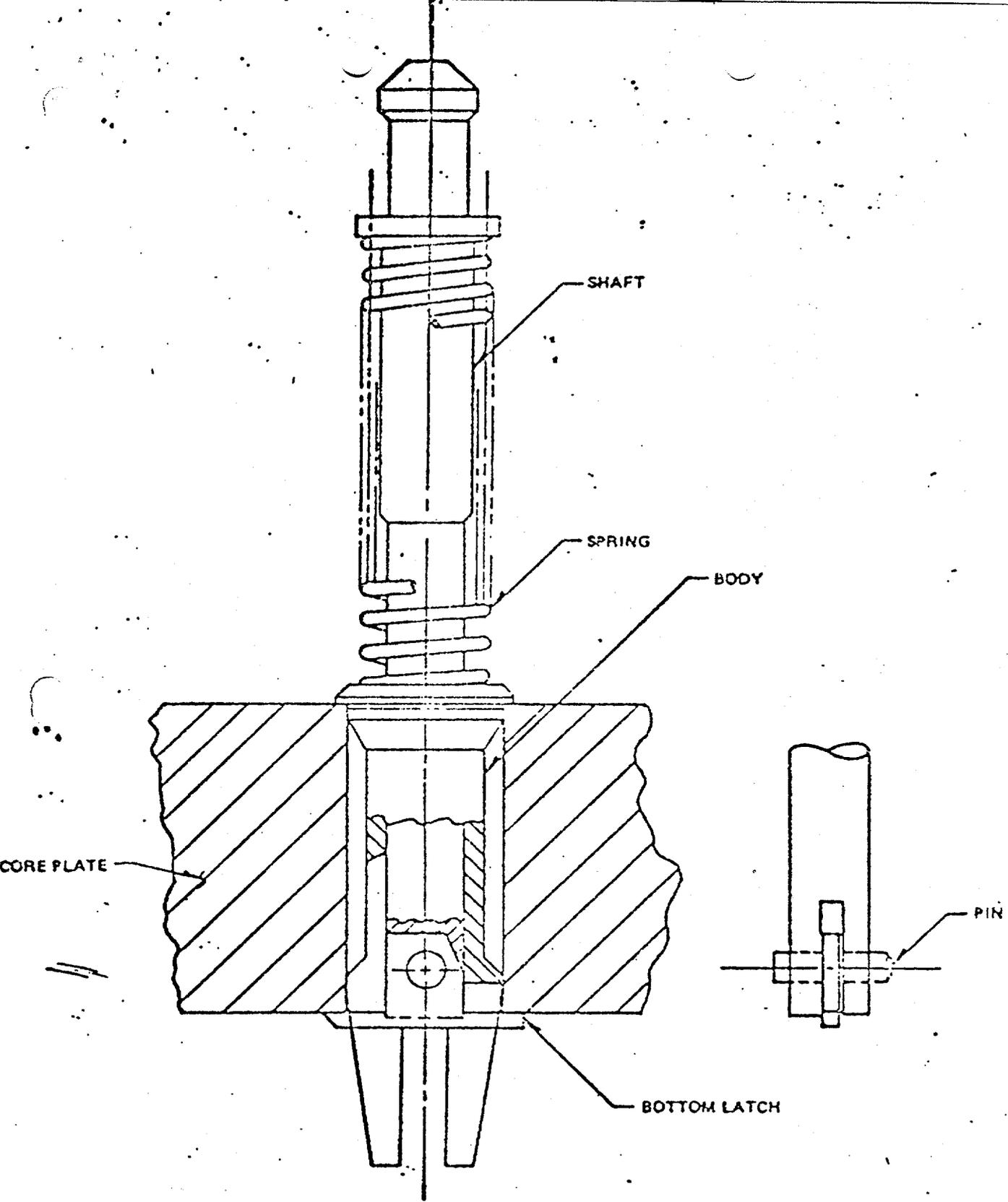


Figure 1. Plug Installed in Core Plate

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UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-324

CAROLINA POWER & LIGHT COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. /0 to Facility Operating License No. DPR-62 issued to Carolina Power & Light Company for operation of the Brunswick Steam Electric Plant Unit 2, located in Brunswick County, North Carolina. The amendment is effective as of its date of issuance.

The amendment authorizes installation of plugs in the bypass flow holes of the core support plate. Authorization of plant operation with the plugs installed will be the subject of another licensing action.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that, pursuant to 10 CFR §51.5(d)(4), an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of this amendment.

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. For further details with respect to this action, see (1) the application for amendment dated February 4, 1976, and report number NEDO-21118, (2) Amendment No. 10 to License No. DPR-62, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., and at the Southport-Brunswick County Library, 109 W. Moore Street, Southport, North Carolina 28461.

A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 12 day of FEB 3 1976

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by  
R. A. Purple

Robert A. Purple, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

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SURNAME ➤	SMSheppard	CTHammell	ALM	RAPurple		
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PRELIMINARY DETERMINATION

NOTICING OF PROPOSED LICENSING AMENDMENT

LICENSEE: Carolina Power & Light Company - Brunswick Unit 2  
REQUEST FOR: Authorization to plug the lower core plate and resume operation.

REQUEST DATE: February 4, 1976

PROPOSED ACTION: ( ) Pre-notice Recommended  
(X) Post-notice Recommended  
( ) Determination delayed pending completion of Safety Evaluation

BASIS FOR DECISION: The licensee proposes to plug the lower core plate flow holes to prevent channel box damage caused by vibration of the incore instrument tubes. The ECCS analysis (to be submitted about March 1, 1976) for this proposed change will be conducted using the previously approved ECCS evaluation model conforming to Appendix K of 10 CFR Part 50, and the plant operating limits will be modified, if necessary, to assure that 10 CFR 50.46 (ECCS criteria) will continue to be met. The ECCS analysis previously submitted and approved for Brunswick (Amendment 5, August 28, 1975) resulted in a peak clad temperature of 2200°F, the upper limit allowed by §50.46. Therefore, the calculated peak clad temperature associated with this amendment will be no higher than that previously calculated. Based on this and the fact that (1) the analysis will be conducted using a previously approved model conforming to §50.46 and Appendix K to Part 50, and (2) the plant will continue to meet the acceptance criteria of §50.46, the issuance of this amendment does not involve a significant hazards consideration.

*Don't follow?*

*Basic? How do we know at this time?*

*X what has this got to do with anything?*

The analysis may result in more restrictive operating limits but in no case will they be relaxed.

OVER

CONCURRENCES: DATE:  
1. C. M. Trammell 2/5/76  
2. R. A. Purple 2/5/76  
3. K. R. Goller 2/5/76  
4. ØELD

In a similar action, Hatch was recently authorized to resume operation with a plugged core. This action was post noticed. In addition, FitzPatrick and Browns Ferry have been authorized to plug the bypass holes in the core. No specific pre-notice has been or is planned to be issued for resuming operation in this configuration for these plants.

- PROPOSED NEPA ACTION:
- EIS Required
  - Negative Declaration (ND) and Environmental Impact Appraisal (EIA) Required
  - No EIS, ND, or EIA Required
  - Determination delayed pending completion of EIA

BASIS FOR DECISION: No EIS is required since approval of the proposed modification is not a major action significantly affecting the quality of the human environment. No EIA (and ND) is required because the change will not involve a change in the type of effluents previously considered, nor will there be an increase in quantity of effluents from the facility. The operating limits may result in a reduction in authorized power level, which will result in a reduction in the quantity of effluents released, thereby lessening environmental effects.