



**Carolina Power & Light Company**

P.O. Box 1551 • Raleigh, N.C. 27802

FEB 21 1992

SERIAL: NLS-91-328  
10 CFR 50.90  
1 SC 91TSB09

G. E. VAUGHN  
Vice President  
Nuclear Services Department

United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62  
REQUEST FOR LICENSE AMENDMENT  
REFUELING PLATFORM MAST REPLACEMENT

Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90 and 2.101, Carolina Power & Light Company hereby requests a revision to the Technical Specifications for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2.

The purpose of this request is to revise Technical Specification 3/4.9.6 to allow use of a new General Electric Model NF500 main hoist grapple mast, which directly replaces the existing NF400 mast. The NF500 is more rigid than the previous mast design and, therefore, is less prone to mast bowing. The weight of the existing NF400 refueling platform mast is approximately 550 pounds, compared to an approximate weight of 1,015 pounds for the NF500 mast. Because the NF500 mast weighs approximately 465 pounds more than the existing NF400 mast, the setpoints for detecting loaded and overloaded conditions on the fuel grapple hoist specified in Technical Specification 3/4.9.6 also must be revised.

Enclosure 1 provides a detailed description of the proposed changes and the basis for the changes.

In accordance with 10 CFR 50.91(a), Enclosure 2 details the basis for the Company's determination that the proposed changes do not involve a significant hazards consideration.

Enclosure 3 provides an environmental evaluation which demonstrates that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental assessment needs to be prepared in connection with issuance of the amendment.

Enclosure 4 provides marked-up Technical Specification pages for Unit 1.

Enclosure 5 provides marked-up Technical Specification pages for Unit 2.

In accordance with 10 CFR 50.91(b), CP&L is providing the State of North Carolina with a copy of the proposed license amendment.

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In order to support planned fuel movements, CP&L is requesting simultaneous NRC review of this proposed license amendment request for both BSEP Unit No. 1 and Unit No. 2. CP&L will coordinate with the NRC Project Manager to establish a requested approval date for the proposed license amendment for both BSEP Unit No.1 and Unit No. 2, based upon the mast installation schedule for each unit.

In order to allow time for procedure revision and orderly incorporation into copies of the Technical Specifications, CP&L requests that the proposed amendment for each unit, once approved by the NRC, be issued with an effective date to be no later than 60 days from the issuance of the amendment.

Please refer any questions regarding this submittal to Mr. J. C. Presley at (919) 546-6132.

Yours very truly,



G. E. Vaughn

JCP/jcp (mast-tsc.wpf)

Enclosures:

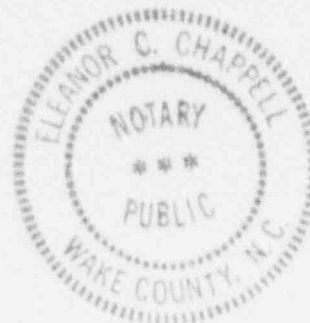
1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Environmental Considerations
4. Technical Specification Pages - Unit 1
5. Technical Specification Pages - Unit 2

cc: Mr. Dayne H. Brown  
Mr. S. D. Ebnetter  
Mr. N. B. Le  
Mr. R. L. Prevatte

G. E. Vaughn, 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, contractors, and agents of Carolina Power & Light Company.

Eleanor C. Chappell  
Notary (Seal)

My commission expires: 2/6/94



## ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
NRC DOCKET NOS. 50-325 & 50-324  
OPERATING LICENSE NOS. DPR-71 & DPR-62  
REQUEST FOR LICENSE AMENDMENT  
REFUELING PLATFORM MAST REPLACEMENT

### BASIS FOR CHANGE REQUEST

#### Proposed Change:

Revise the refueling platform overload cutoff setpoint for the fuel grapple hoist specified in Technical Specification 4.9.6.a from "less than or equal to 1250 pounds" to "1600 pounds." Also revise the refueling platform loaded interlock setpoint for the fuel grapple hoist specified in Technical Specification 4.9.6.b from "less than or equal to 435 pounds" to "750 pounds."

#### Basis:

The purpose of this request is to revise Technical Specification 3/4.9.6 to allow use of a new General Electric Model NF500 main hoist grapple mast, which directly replaces the existing NF400 mast.

The new NF500 mast consists of four telescoping stainless steel tubular sections. Rotational control is obtained by a special grooved wheel assembly. Mast operation is identical to the existing mast including maximum lift.

The weight of the existing NF400 refueling platform mast is approximately 550 pounds, compared to an approximate weight of 1,015 pounds for the NF500 mast. Because the NF500 mast weighs approximately 465 pounds more than the existing NF400 mast, the setpoints for detecting loaded and overloaded conditions on the fuel grapple hoist specified in Technical Specification 3/4.9.6 also must be revised. The revised setpoint values were chosen to provide the appropriate interlocks consistent with the change in mast weight and yet prevent the possibilities of unwanted interlocking with different grapple loading conditions. The existing setpoint values have correlation with the weight of the NF400 mast only to the extent of providing correct control interlocking. The load on the hoist cables varies as the grapple is raised and lowered due to two main factors: (1) the number of mast sections that are actually being suspended by the cables, and (2) the buoyancy of the submerged portion of the mast. In addition, the total load depends on whether or not the grapple is carrying a fuel bundle.

The main hoist grapple mast is mounted on the refueling platform trolley, and is raised and lowered by a hoist cable. The main hoist cable does not support the full weight of the mast and the weight supported will depend upon the mast used.

Mast	Approximate Mast Dry Weight (pounds)	Highest Approximate Cable-Supported Weight (pounds)
NF400	550	370
NF500	1015	660

Because the NF500 mast exerts approximately 290 pounds more on the main hoist than the NF400 mast, the setpoints for detecting loaded and overloaded conditions on the fuel grapple hoist specified in Technical Specification 3/4.9.6 also must be revised.

The fuel grapple hoist overload cutoff demonstration load of 1600 pounds is based on the submerged fuel bundle loads of 650 pounds, the highest unloaded hoist cable-supported load of approximately 660 pounds, and a tolerance for fuel bundle friction and load spikes of 290 pounds.

The fuel grapple hoist loaded interlock demonstration load of 750 pounds is based on the highest unloaded hoist cable-supported load of approximately 660 pounds plus a tolerance for load spikes of 90 pounds as sections are raised and lowered.

The only accident previously evaluated that could be impacted by the proposed change is the fuel handling accident. A fuel handling accident can be postulated to occur as a result of the fuel bundle lifting mechanism failing, thereby resulting in the dropping of a raised fuel bundle onto fuel bundles either loaded in the reactor core or stored in the spent fuel storage racks.

The drop of a spent fuel assembly onto other spent fuel assemblies in either the reactor vessel or the spent fuel pool storage racks is no more likely with the new design. The NF500 mast functions identically to the NF400 in grappling, lifting, moving, and lowering fuel assemblies. Design features of the NF500 refueling mast, which serve to protect against the drop of a fuel assembly during movement are not degraded from those inherent to the NF400 design. Specifically, it does not degrade platform design features such as grapple fail-safe on loss of air, two independent fail safe brakes, and the grapple interlocks, all of which serve to protect against a fuel drop or fuel damage event. The platform structural integrity will not be degraded by the weight increase, as the original design for the platform was to accept an equipment mast weighing approximately 1165 pounds total (615 pounds more than the NF400 mast or 150 pounds more than the NF500 mast). The NF500 is more rigid than the previous mast design and, therefore, is less prone to mast bowing. No margins or assumptions related to the fuel bundle drop analyses are changed, and the NF500 mast has the same single failure protections as the old mast.

## ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
NRC DOCKET NOS. 50-325 & 50-324  
OPERATING LICENSE NOS. DPR-71 & DPR-62  
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### 10 CFR 50.92 EVALUATION

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. Pursuant to 10 CFR 50.91(a)(1), Carolina Power & Light Company has reviewed this proposed license amendment request and determined that its adoption would not involve a significant hazards consideration. The bases for this determination are as follows:

#### Proposed Change:

Revise the refueling platform overload cutoff setpoint for the fuel grapple hoist specified in Technical Specification 4.9.6.a from "less than or equal to 1250 pounds" to "1600 pounds." Also revise the refueling platform loaded interlock setpoint for the fuel grapple hoist specified in Technical Specification 4.9.6.b from "less than or equal to 435 pounds" to "750 pounds."

#### Basis:

The change does not involve a significant hazards consideration for the following reasons:

1. The proposed amendment does not involve an increase in the probability or consequences of an accident previously evaluated. The only accident previously evaluated that is potentially affected by the proposed change is the fuel handling accident (see Section 15.7 of the Updated Final Safety Analysis Report (UFSAR) for the Brunswick Steam Electric Plant, Units 1 & 2). The drop of a spent fuel assembly onto other spent fuel assemblies in either the reactor vessel or the spent fuel pool storage racks is no more likely with the new design of the NF500. Design features of the NF500 refueling mast, which serve to protect against the drop of a fuel assembly during movement are not degraded from those inherent to the NF400 design. Specifically, it does not degrade platform design features such as grapple fail-safe on loss of air, two independent fail safe brakes, and the grapple interlocks, all of which serve to protect against a fuel drop or fuel damage event. Therefore, the probability of an accident remains unchanged.

The new NF500 mast is designed to match or exceed all aspects of the NF400 mast now in use. Comparison of the NF400 and NF500 masts and grapples shows that both the operational functioning of the mast and grapple and the geometry of the grapple are identical. The NF500 mast functions identical to the NF400 in grappling, lifting, moving, and lowering fuel assemblies. The platform structural integrity will not be degraded by the

weight increase, as the original design for the platform was to accept an equipment mast weighing approximately 1165 pounds total (615 pounds more than the NF400 mast or 150 pounds more than the NF500 mast). The NF500 is more rigid than the previous mast design and, therefore, is less prone to mast bowing.

The consequences of a fuel handling accident, using the assumptions contained in the BSEP UFSAR are not changed and are independent of the mast design in current use. The previously evaluated maximum fuel assembly drop height (32 feet) has not changed by installing the NF500 mast. Thus, the consequences of dropping a spent fuel assembly onto other spent fuel assemblies in either the reactor vessel or the spent fuel pool storage racks are not significantly increased by the proposed change.

2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated. No new failure modes are introduced as a result of the proposed change. The new NF500 mast is designed to match or exceed all aspects of the NF400 mast now in use and is intended as an exact replacement for the NF400 mast. Comparison of the NF400 and NF500 masts and grapples shows that both the operational functioning of the mast and grapple and the geometry of the grapple are identical. The NF500 mast functions identically to the NF400 in grappling, lifting, moving, and lowering fuel assemblies. It does not degrade platform design features such as grapple fail-safe on loss of air, two independent fail safe brakes, and the grapple interlocks, all of which serve to protect against a fuel drop or fuel damage event. Refueling platform stresses will continue to be below allowables. The platform structural integrity will not be degraded by the weight increase, as the original design for the platform was to accept an equipment mast weighing approximately 1165 pounds total (615 pounds more than the NF400 mast or 150 pounds more than the NF500 mast). Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.
3. The proposed amendment does not involve a significant reduction in the margin of safety. Safety margin is established through the CP&L safety analyses as reflected in the Technical Specifications and Bases. Design features of the NF500 refueling mast, which serve to protect against the drop of a fuel assembly during movement are not degraded from those inherent to the NF400 design. The NF500 mast functions identically to the NF400 in grappling, lifting, moving, and lowering fuel assemblies. It does not degrade platform design features such as grapple fail-safe on loss of air, two independent fail safe brakes, and the grapple loaded interlock, all of which serve to protect against a fuel drop event.

The platform structural integrity will not be degraded by the weight increase, as the original design for the platform was to accept an equipment mast weighing approximately 1165 pounds total (615 pounds more than the NF400 mast or 150 pounds more than the NF500 mast). The fuel grapple hoist setpoints exist to prevent damage to reactor internals (such as the fuel support piece) caused by a stuck bundle or similar anomaly. These fuel grapple hoist setpoints are not required for a safe shutdown of the reactor. The proposed setpoint changes allow for the increased weight of the new mast plus a slight increase in the margins associated with establishing the setpoints. No margins or assumptions related to the fuel bundle drop analyses are changed, and the NF500 mast has the same single failure protections as the old mast. Thus the proposed changes do not involve a significant reduction in the margin of safety.



## ENCLOSURE 3

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
NRC DOCKET NOS. 50-325 & 50-324  
OPERATING LICENSE NOS. DPR-71 & DPR-62  
REQUEST FOR LICENSE AMENDMENT  
REFUELING PLATFORM  
MAST REPLACEMENT

### ENVIRONMENTAL CONSIDERATIONS

10 CFR 51.22(c)(9) provides criterion for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (3) result in an increase in individual or cumulative occupational radiation exposure. Carolina Power & Light Company has reviewed this request and determined that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the amendment. The basis for this determination follows:

#### Proposed Change:

Revise the refueling platform overload cutoff setpoint for the fuel grapple hoist specified in Technical Specification 4.9.6.a from "less than or equal to 1250 pounds" to "1600 pounds." Also revise the refueling platform loaded interlock setpoint for the fuel grapple hoist specified in Technical Specification 4.9.6.b from "less than or equal to 435 pounds" to "750 pounds."

#### Basis:

The change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in Enclosure 2, the proposed amendment does not involve a significant hazards consideration.
2. The proposed amendment does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite. The fuel grapple hoist setpoints exist to prevent damage to reactor internals (such as the fuel support piece) caused by a stuck bundle or similar anomaly. As such, these setpoints do not affect the types or amounts of any effluents that may be released offsite.
3. The proposed amendment does not result in an increase in individual or cumulative occupational radiation exposure. The functional operation of the refueling platform will remain unchanged by the replacement of the refueling platform mast and the corresponding change to the overload cutoff and loaded interlock setpoints. Therefore, the amendment has no effect on either individual or cumulative occupational radiation exposure.