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AUTH.NAME AUTHOR AFFILIATION
CUTTER,A.B. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
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SUBJECT: Application for amend to License DPR-23,allowing for steam generator tube insp to be performed.

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JUN 26 1990

A. B CUTTER
Vice President
Nuclear Services Department

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

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
REQUEST FOR LICENSE AMENDMENT
STEAM GENERATOR TUBE INSPECTION

Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90 and 2.101, Carolina Power & Light Company (CP&L) hereby requests a revision to the Technical Specifications (TS) for the H. B. Robinson Steam Electric Plant, Unit No. 2.

This amendment will allow for steam generator tube inspection to be performed from either the hot-leg or cold-leg side of the channel head.

Steam Generator tubes are periodically inspected to detect damage that might result in breaching the reactor coolant boundary. This inspection is typically performed by passing an Eddy Current Testing (ECT) probe through the inside of a tube and analyzing the resulting electronic signal. This Technical Specification change will allow this inspection to take place in the same regions of the steam generator, with the probe entering the tube from either the hot-leg or cold-leg end. This change is necessary for primarily two reasons. An incident of a loose part (split pin nut) on April 2, 1989 resulted in damage to the tube sheet and tube ends of the C Steam Generator hot-leg: (1) This damage obliterated some of the tube sheet face markings used to identify specific tubes on the hot-leg. Similar markings on the cold-leg remain intact. (2) Damage to the hot-leg tube ends resulted in limitations on the ability to insert the ECT probe through the hot-leg tube end. These limitations do not exist on the cold-leg side. The above loose part event was discussed in Inspection Report 50-261/89-08, dated May 18, 1989. A supporting analysis/safety analysis is attached.

SIGNIFICANT HAZARDS ANALYSIS

Carolina Power & Light Company has reviewed the subject TS change request in accordance with the standards set forth in 10CFR50.92 and determined that this change does not constitute a significant hazard based upon the following considerations:



A001

1. Operation of the facility, in accordance with the proposed amendment, would not involve a significant increase in the probability or consequences of an accident previously analyzed. Chapter 15 of the UFSAR was reviewed, in particular 15.6.3, detailing the steam generator tube rupture accident. This is the most probable accident if a tube defect is not located and plugged. This Technical Specification change in no way increases the probability of an accident previously evaluated in that tube defects will continue to be located, because the tube is still being inspected using the same methodology (eddy current) and acceptance criteria. All actions associated with tube inspection are performed at cold shutdown. In addition, no changes in system configurations previously analyzed have been made; therefore, no increased probability of accidents previously evaluated can occur. Detection of defects and subsequent plugging will continue to minimize the consequences of accidents previously analyzed. No pertinent accidents have been postulated to occur at cold/refueling shutdowns when these inspections occur. Tube inspections will continue to identify potential defects in the areas of concern, independent of the point of entry. The entry of a probe into a tube during an inspection outage will have no effect on the consequences of an accident as described in Chapter 15 of the UFSAR.

2. Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated. Entry of an inspection device into a tube from the cold-leg side does not introduce a new kind of accident. Eddy current testing is presently performed during cold shutdown or refueling outages; and in some cases, the inspection device extends into the cold-leg region. These devices are accounted for, with QA inspection of steam generator channel head cleanliness, prior to placing the steam generator back in service. Again, no modification has been made to the steam generator; therefore, no new accident, different from any accident previously evaluated, can occur.

   Eddy current testing has been performed in previous outages; this change will still allow this testing to take place. Because this testing does not affect the integrity of the reactor coolant boundary, but is to assure that corrosion has not affected this integrity, a different kind of accident, other than previously evaluated, will not take place.

3. Operation of the facility, in accordance with the proposed amendment, would not involve a significant reduction in a margin of safety. Entry of an inspection device into a tube and the subsequent inspection do not affect the integrity of the reactor coolant system or affect how the plant would respond to a tube leak or tube rupture; therefore, the margin of safety is not reduced.

ADMINISTRATIVE

The TS page reflecting the change is provided for your use; the change is indicated by a single bar in the right margin.

If you have any questions concerning this request, please contact Mr. L. I. Loflin at (919) 546-6242.

Yours very truly,

A. B Cutter

JSK/ecc (741ECC)

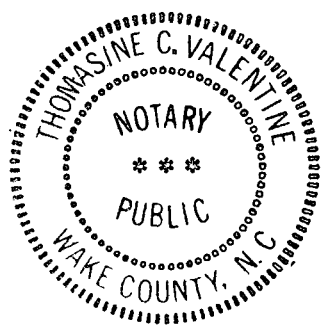
Enclosure

cc: Mr. S. D. Ebneter
Mr. L. Garner (NRC-HBR)
Mr. R. Lo
Mr. Heyward G. Shealy (SC)
Attorney General (SC)

A. B Cutter, 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.

Thomasine C. Valentine
Notary (Seal)

My commission expires: 1-31-95



## SUPPORTING ANALYSES/SAFETY ANALYSES

This change simply allows entry into the steam generator tube from either the hot-leg or cold-leg side of the steam generator channel head in order to perform an inspection. The purpose of a tube inspection is to determine the structural integrity of the tube. Corrosion damage is the typical cause of deterioration of this structural integrity. Because the known corrosion damage mechanisms are temperature related to some extent, steam generator tube inspection has focused on the regions within the generator with the hottest temperature (hot-leg side of the U-tube). Corrosion damage is expected to occur in this hot-leg region first, before spreading to other locations. This early detection would allow some corrective measures, before the entire steam generator became affected by the corrosion damage.

The entry point into the steam generator tube is not important, as long as the tube can be inspected in the region where corrosion damage is expected to occur. Eddy current testing is the principal means of inspecting the integrity of a steam generator tube. The device (probe) used to gather this eddy current data is passed through the tube to the point where inspection is to take place.

This Technical Specification change will allow the probe to be passed through the tube from the cold-leg side to the hot-leg side, where the inspection will take place. This inspection will include the entire hot-leg portion of the tube, the U-bend portion, and continue through the top support plate on the cold-leg side which, as stated in footnote 3 of Regulatory Guide 1.83, "Inservice Inspection of PWR Steam Generator Tubes," inspection of this area is sufficient to constitute a tube inspection.

Tubes have typically been entered from the hot-leg side to keep inspection times to a minimum. This change is necessary for primarily two reasons. An incident of a loose part (split pin nut) on April 2, 1989 resulted in damage to the tube sheet and tube ends of the C Steam Generator hot-leg: (1) This damage obliterated some of the tube sheet face markings used to identify specific tubes on the hot-leg. Similar markings on the cold-leg remain intact. (2) Damage to the hot-leg tube ends resulted in limitations on the ability to insert the ECT probe through the hot-leg tube end. These limitations do not exist on the cold-leg side. The above loose part event was discussed in Inspection Report 50-261/89-08, dated May 18, 1989. Entry from the cold-leg side will increase inspection times slightly, but will provide more flexibility in how the inspection data are obtained and would preclude potential damage to the Eddy Current probe resulting from tube end damage.

The Code of Federal Regulations 10CFR50.55a(a)(1) states that "structures, systems, and components shall be . . . inspected to quality standards commensurate with the importance of the safety function to be performed." 10CFR50.55a(b)(2)(iii) for steam generator tubing modifies Article IWB-2000 of Section XI of ASME B&PV Code, which provides the inspection requirements for these tubes and establishes the plant's Technical Specifications as taking precedence, should its requirements differ from those in IWB-2000. These sections of 10CFR and Section XI of the ASME Code make no mention of the entry point for tube inspection. This Technical Specification change will continue to provide the assurance that the steam generator tubes have the integrity to

perform their safety function.

The UFSAR was reviewed to assure that this Technical Specification change would not affect the safety of the plant. Section 3.9.3.3, "Steam Generators," is not affected because no change is being made to the tube corrosion allowance or to how corrosion is detected. Section 5.1, and in particular 5.2.4 and 5.4.2, which are concerned with reactor coolant system boundaries, will not be affected because this change is not changing how the boundary is assured and maintained. This same argument holds true for Sections 3.1 and 3.1.2.9.

Additionally, Chapter 10, "Steam and Power Conversion," was reviewed; but this Technical Specification change does not affect steam generator operation.

Also, Chapter 15, and in particular Section 15.6.3, "Steam Generator Tube Rupture," was reviewed. This Technical Specification change will not affect the accident analysis or increase the likelihood that a tube rupture will occur, since the steam generator tubes will continue to be inspected.

In summary, this change to the Technical Specifications will allow the flexibility to inspect a steam generator tube by entering it from either the hot-leg or cold-leg end. The inspection data will still be gathered from the hot-leg, U-bend and through to the top support plate on the cold-leg side, as has been performed during previous outages.