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 FACIL:50-261 H. B. Robinson Plant, Unit 2, Carolina Power and Ligh 05000261
 AUTH.NAME AUTHOR AFFILIATION
 UTLEY,E.E. Carolina Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION
 VARGA,S.A. Operating Reactors Branch 1

SUBJECT: Notities that lower steam generator will be replaced to
 reduce effect of tube degradation.Detailed preliminary
 repair rept will be submitted 820901 w/final rept on 830103.

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Carolina Power & Light Company

JUL 01 1982

Office of Nuclear Reactor Regulation
ATTN: Mr. S. A. Varga, Chief
Operating Reactors Branch #1
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
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STEAM GENERATOR REPLACEMENT

Dear Mr. Varga:

During the past several years, Carolina Power & Light Company's (CP&L) H. B. Robinson Unit No. 2 (HBR 2) steam generators (SGs) have experienced corrosion of the SG tubes, requiring periodic inspection and plugging of some tubes to assure continued safe operation. Near the end of cycle 8 operation at HBR 2, CP&L chose to reduce the plant's operating temperature in an attempt to reduce or arrest the corrosion rate to extend the life of the SGs. This change resulted in the plant's maximum power output being reduced to less than 85 percent.

Carolina Power & Light Company has evaluated various means of reducing the effects of this SG tube degradation problem and of repairing the SGs. As a result of these evaluations, CP&L has chosen to repair the SGs by replacement of the lower SG assemblies.

The purpose of the letter is to summarize the activities and considerations being taken to repair the HBR 2 SGs, to outline the modifications necessary to effect this repair, and to provide the schedule with which we expect to achieve this repair. It is CP&L's intent to file a report similar in format and content to that submitted by Florida Power & Light Company (FP&L) for their SG repair effort. The experiences of Virginia Electric and Power Company (VEPCO) and Florida Power & Light Company are being utilized in development of our own repair effort.

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411 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

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Schedule

At the present time the new SGs are scheduled for delivery in November 1983 with replacement to take place contingent on the existing steam generator performance. Engineering design and procurement activities were begun in October 1981. A detailed preliminary SG repair report is scheduled to be submitted September 1, 1982 with a final repair report to follow on January 3, 1983.

Organizations Involved in the Replacement

Carolina Power & Light Company will have full responsibility for the replacement effort. The work and studies necessary for the replacement effort will be accomplished either by CP&L or, on a task-by-task basis, with engineering consultants and specialty contractors under CP&L direction.

The lower steam generator assemblies are being manufactured by Westinghouse Electric Corporation.

Quality Assurance

The steam generator repair/replacement effort will be performed under the guidance of the CP&L Corporate Quality Assurance Program and the Operational Quality Assurance Program which was submitted to the NRC on March 19, 1981 and approved by letter dated September 24, 1981. Manufacture of the lower steam generator assemblies will be conducted under the Westinghouse QA program that is in compliance with the ASME B&PV Code, Section III, Subsections NCA 3800 and 4000, Appendix B of 10CFR50, WCAP 8370, Rev. 9A Amendment 1, and QPS-120-1.

Method of Replacement

The lower steam generator assemblies will be replaced by using a channel head cut method similar to that used by FP&L. The upper steam dome will first be removed and a channel head cut will be made to separate the lower assembly from the reactor coolant system. Various methods are being evaluated to make the channel head cut. The channel head cut method has been determined to be superior to the reactor coolant pipe cut method from both a personnel exposure and replacement time standpoint for the HBR 2 arrangement and plant configuration.

Lower Assembly Design

The lower assemblies, being fabricated by Westinghouse, will be equivalent to the lower assemblies they replace from a performance and hydraulic standpoint. Safety related parameters will remain consistent with those utilized in the FSAR analyses. The replacement steam generator lower assemblies will be an improved design with features which mitigate the effects of the corrosion which occurred in the original steam generators.

Additional Modifications

Additional modifications will be made to the plant to mitigate the effect of corrosion observed in the original steam generator's lower assemblies. These include completing the removal of the major contributors of copper to the secondary system. These contributors are those feedwater heaters and moisture separator reheater (MSR) tube bundles containing copper that have not been replaced previously. The main condenser was retubed during the 1982 refueling outage with stainless steel tubes and integral grooved stainless steel tube sheets designed to limit in-leakage of circulating water to the secondary system.

The blowdown system will also be modified to allow for increased blowdown capacity during startup and other periods of high potential solids concentration. The increased SG blowdown will be accommodated by a modification to increase the capacity of the Makeup Water Treatment System. This new system will produce high quality water which will meet all of the secondary water chemistry requirements. Other modifications are being made to limit or reduce the secondary system oxygen concentration. Condensate polishers will also be added to remove potential corrosion causing substances from the secondary system.

As is currently recommended by Westinghouse, HBR2 will be switching from phosphate chemistry to all volatile treatment (AVT) as the primary means to control steam generator chemistry.

The steam generator feed rings will be replaced with the "J" tube design.

Disposition of Removed Steam Generators

Evaluations will be conducted to determine the best means of disposing of the existing lower steam generator assemblies. The lower assemblies will be either shipped to a burial site or stored on site in an interim special storage facility. The evaluation will consider the feasibility of each disposal method including the potential exposure resulting from and cost of each disposal method.

Safety Related Considerations

The FSAR accident and transient analyses for HBR2 are being reviewed for the impact of the repaired steam generators. Because of the essential duplication of parameters between the old steam generators and the repaired generators it is not anticipated that any unreviewed safety question will arise to impact these analyses.

Methods for handling of the replacement lower assemblies and of other heavy loads on site are being evaluated to assure that damage to safety related portions of existing plant structures and systems both inside and outside containment will be avoided.

ALARA Considerations

Task by task estimates of man rem exposure are being developed for this replacement effort such that radiation exposures can be maintained as low as reasonably achievable (ALARA). Data from previous steam generator replacement efforts are being evaluated in an effort to further reduce potential exposures. Decontamination and temporary shielding will be employed as practicable to limit exposure. When exposures are determined to be critical, each work activity will be practiced on equipment mockups. Employee and contractor health physics (HP) training programs will be tailored to emphasize good HP practices related to SG replacement activities to further reduce potential exposures.

Conclusions

This steam generator repair program at HBR 2 is being conducted to enhance the reliability of the steam generators. The resultant benefits from this enhanced reliability will be reduced unavailability of the plant due to steam generator tube leakage, reduced personnel exposure due to fewer and more infrequent steam generator tube inspections and repair, and improved margins against accidents involving a rupture of the steam generator tubes.

By performing detailed studies and investigations related to the replacement effort, utilizing the recent experience obtained by other utilities as well as using proven manufacturing and construction techniques, CP&L will be able to repair the steam generators in a manner which will result in no adverse impact to the public health and safety.

Carolina Power & Light Company will be putting forth every effort possible to achieve the above schedule. To the extent that NRC review and evaluation of previous SG replacements have shown the absence of unreviewed safety issues, CP&L anticipates that this repair will be an allowable activity under 10CFR50.59, not requiring NRC issue of a Safety Evaluation Report. Any guidance or recommendations that the NRC could give to expedite the review and approval of this effort would be greatly appreciated. Should you require additional information with regard to these activities, or desire a meeting to further discuss or expand upon the information above prior to our preliminary report, please contact a member of our licensing staff.

Yours very truly,



E. E. Utley
Executive Vice President
Power Supply and
Engineering & Construction

DCS/cr (047C1T4)

cc: Mr. James P. O'Reilly (NRC - Region II)
Mr. G. Requa (NRR)