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UNITED STATES NUCLEAR REGULATORY COMMISSION

HOUSTON LIGHTING AND POWER COMPANY

CITY PUBLIC SERVICE BOARD OF SAN ANTONIO

CENTRAL POWER AND LIGHTING COMPANY

CITY OF AUSTIN, TEXAS

DOCKET NO. 50-498

NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE, PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR A HEARING

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-76 issued to Houston Lighting and Power Company, et. al., (the licensee) for operation of the South Texas Project (STP), Unit 1, located in Matagorda County, Texas. The original application dated January 22, 1996, was previously published in the FEDERAL REGISTER on February 28, 1996, (61 FR 7552). That application was supplemented by letter dated April 4, 1996.

The proposed amendment would modify the steam generator tube plugging criteria in Technical Specification 3/4.4.5, Steam Generators, and the allowable leakage in Technical Specification 3/4.4.6.2, Operational Leakage, and the associated Bases. The amendment would allow the implementation of steam generator voltage-based repair criteria for the tube support plate (TSP)/tube intersections for Unit 1.

Before issuance of the proposed license amendment, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

The Commission has made a proposed determination that the amendment request involves no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that 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; or (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. As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Structural Considerations

   Industry testing of model boiler and operating plant tube specimens for free span tubing at room temperature conditions show typical burst pressures in excess of 5000 psi for indications of outer diameter stress corrosion cracking with voltage measurements at or below the current structural limit of 4.7 volts. One model boiler specimen with a voltage amplitude of 19 volts also exhibited a burst pressure greater than 5000 psi. Burst testing performed on one intersection pulled from STP Unit 1 in 1993 with a 0.51 volt indication yielded a measured burst pressure of 8900 psi at room temperature. Burst testing performed on another intersection pulled from STP Unit 1 in 1995 with a 0.48 volt indication yielded a measured burst pressure of 9950 psi at room temperature.

   The next projected end-of-cycle (EOC) voltage compares favorably with the current structural limit considering the EPRI voltage growth rate for indications at STP. Using the methodology of Generic Letter 95-05, the structural limit is reduced by allowances for uncertainty and growth to develop a beginning-of-cycle (BOC) repair limit which should preclude EOC indications from growing in excess of the structural limit. The non-destructive examination (NDE) uncertainty to be applied per Generic Letter 95-05 is approximately 20 percent. The growth allowance will be 30 percent/EPFY [effective full power year] or a STP Unit 1 plant specific growth value, to be calculated in accordance with Generic Letter 95-05, which ever is greater. The use of 30%/EPFY growth is conservative when compared to the actual STP growth experience. Each succeeding cycle upper voltage repair limit will also be conservatively established based on Generic Letter 95-05 methodology. By adding NDE uncertainty allowances and a growth allowance to the repair limit, the structural limit can be validated.

The upper voltage repair limit could be applied to bobbin coil voltages between the lower and upper repair limits to leave such indications in service independent of RPC [rotating pancake coil-probe] confirmation. However, RPC confirmed indications will be conservatively removed from service consistent with Generic Letter 95.05.

Leakage Considerations

As part of the implementation of voltage-based repair criteria, the distribution of EOC degradation indications at the TSP intersections has been used to calculate the primary-to-secondary leakage which is bounded by the maximum leakage required to remain within the applicable dose limits of 10 CFR 100 and GDC [General Design Criterion] 19. This limit was calculated using the Technical Specification RCS [reactor coolant system] Iodine-131 transient spiking values consistent with NUREG-0800. Application of the voltage-based repair criteria requires the projection of postulated MSLB [main steamline break] leakage based on the projected EOC voltage distribution from the beginning of cycle voltage distribution. Projected EOC voltage distribution is developed using the most recent EOC eddy current results and a voltage measurement uncertainty. Draft NUREG-1477 and Generic Letter 95-05 require that all indications, to which voltage-based repair criteria is applied, must be included in the leakage projection.

The projected MSLB leakage rate calculation methodology prescribed in Westinghouse WCAP-14277 or Generic Letter 95-05 will be used to calculate the EOC leakage. A Monte Carlo approach will be used to determine the EOC leakage, accounting for all of the bobbin coil eddy current test uncertainties, voltage growth, and an assumed probability of detection (POD) of 0.6. The fitted log-logistic probability of leakage correlation will be used to establish the STP MSLB leak rate for each cycle. This leak rate will be used for comparison with a bounding allowable leak rate in the faulted loop which would result in radiological consequences which are within the dose limits of 10 CFR 100 for offsite doses and GDC 19 for control room doses. Due to the relatively low voltage levels of indications at STP to date and low voltage growth rates, it is expected that the actual calculated leakage values will be far less than this limit for each successive cycle.

Therefore, implementation of voltage-based repair criteria does not adversely affect steam generator tube integrity and the radiological consequences will remain below the limits of 10 CFR 100 and GDC 19. The proposed amendment does not result in any increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

Implementation of the proposed steam generator tube voltage-based repair criteria for ODSCC [outer diameter stress corrosion cracking] at the TSP intersections does not introduce any significant changes to the plant design basis. Use of the criteria does not provide a mechanism which could result in an accident outside of the region of the TSP elevations since no ODSCC has been identified outside the thickness of the TSPs. It is therefore expected that for all plant conditions, neither a single nor multiple tube rupture event would likely occur in a steam generator where voltage-based repair criteria has been applied.

Specifically, STP will implement, for Unit 1, a maximum leakage rate of 150 gpd per steam generator (SG) to help preclude the potential for excessive leakage during all plant conditions. The current technical specification limits on primary-to-secondary leakage at operating conditions are 1 gpm for all steam generators or 500 gpd for any one SG. The RG [Regulatory Guide) 1.121 criterion for establishing operational leakage rate limits governing plant shutdown is based upon leak-before-break (LBB) considerations to detect a free span crack before potential tube rupture as a result of faulted plant conditions. The 150 gpd limit is intended to provide for leakage detection and plant shutdown in the event of an unexpected crack propagation resulting in excessive leakage. RG 1.121 acceptance criteria for establishing operating leakage limits are based on LBB considerations such that plant shutdown is initiated if permissible degradation is exceeded.

The predicted EOC leakage for STP is based on calculated growth rate and does not take credit for the TSP proximity during normal operation. Thus, the 150 gpd limit provides for plant shutdown prior to reaching critical degradation lengths. Additionally, this leak-before-break evaluation assumes that the entire crevice area is uncovered during the secondary side blowdown of a MSLB. Typically, it is expected for the vast majority of intersections, that only partial uncovery will occur. Thus, the proximity of the TSP will enhance the burst capacity of the tube.

Steam generator tube integrity is continually maintained through inservice inspection and primary-to-secondary leakage monitoring. Any tubes falling outside the voltage-based repair criteria limits are removed from service. Therefore, the possibility of a new or different kind of accident from any accident previously developed is not created.

3. Does the change involve a significant reduction in a margin of safety?

The use of the voltage based bobbin probe for dispositioning ODSCC degraded tubes within TSP intersections by voltage-based repair criteria is demonstrated to maintain steam generator tube interity in accordance with the requirements of RG 1.121. RG 1.121 describes a method acceptable to the NRC staff for meeting GDCs 14, 15, 31, and 32 by reducing the probability or the consequences of steam generator tube rupture. This is accomplished by determining the limiting conditions of degradation of steam generator tubing, as established by inservice inspection, for which tubes with unacceptable degradation are removed from service. Upon implementation of the criteria, even under the worst case conditions, the occurrence of ODSCC at the TSP elevation is not expected to lead to a steam generator tube rupture event during normal or faulted plant conditions. The EOC distribution of indications at the TSP elevations for each successive cycle will be confirmed to result in acceptable primary-to-secondary leakage during all plant conditions.

In addressing the combined effects of loss of coolant accident (LOCA) and safe shutdown earthquake (SSE) on the steam generators, as required by GDC 2, it has been determined that tube collapse may occur in the steam generators at some plants. This is the case at STP as the TSP may become deformed as a result of lateral loads at the wedge supports at the periphery of the plate due to the combined effects of the LOCA rarefaction wave and SSE loadings. The resulting secondary-to-primary pressure differential on the deformed tubes may cause some of the tubes to collapse.

There are two concerns associated with steam generator tube collapse. First, the collapse of steam generator tubing reduces the RCS flow area through the tubes. The reduction in flow area increases the resistance to flow of steam from the core during a LOCA which, in turn, may potentially increase peak clad temperature (PCT). Second, there is a potential that through wall degradation in tubes could sufficiently enlarge during tube deformation or collapse, causing sufficient in-leakage of secondary water back to the core which dilutes the poisoning effect of boron injection from the emergency cooling system. Again, an increase in core PCT may result.

The analysis results in Framatome Technologies, Inc. Topical Report, BAW 10204P, identified tubes located adjacent to wedge regions that are subject to potential collapse during combined LOCA and SSE. These tubes will be excluded from application of voltage-based repair criteria. Thus, existing tube integrity requirements apply to these tubes and the margin of safety is not reduced. since the LBB methodology is applicable to the STP reactor coolant loop piping, the probability of breaks in the primary loop piping is sufficiently low that they need not be considered in the structural design of the plant. Implementation practices using the bobbin probe voltage based tube plugging criteria bounds RG 1.83 considerations by:

1) Using enhanced eddy current inspection guidelines consistent with those used by EPRI in developing the correlations. This provides consistency in voltage normalization.

2) Performing a 100 percent bobbin coil inspection for all hot leg tube support plate intersections and all cold leg intersections down to the lowest cold leg tube support plate with known outer diameter stress corrosion cracking (ODSCC) indications at each cycle. The determination of the tube support plate intersections having ODSCC indications shall be based on the performance of at least a 20% random sampling of tubes inspected over their full length, and

3) Incorporating RPC inspection for all tubes with bobbin voltages greater than 1.0 volt. This further establishes the principal degradation morphology as ODSCC.

Implementation of voltage-based repair criteria at TSP intersections will decrease the number of tubes which must be repaired at each subsequent inspection. Since the installation of tube plugs, to remove ODSCC degraded tubes from service, reduces the RCS flow margin, voltage-based repair criteria implementation will help preserve the margin of flow.

For each cycle the projected EOC primary-to-secondary leak rate allowed is bounded by a leak rate which limits the radiological consequences of a EOC MSLB to within the dose limits of 10 CFR 100 for offsite doses and GDC 19 for control room doses. Therefore, this change does not involve a significant reduction in the margin to safety.

It is therefore concluded that the proposed license amendment request does not result in a significant reduction in the margin of safety as defined in the plant Final Safety Analysis Report or Technical Specifications.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

The Commission is seeking public comments on this proposed determination. Any comments received within 30 days after the date of publication of this notice will be considered in making any final determination.

Normally, the Commission will not issue the amendment until the expiration of the 30-day notice period. However, should circumstances change during the notice period such that failure to act in a timely way would result, for example, in derating or shutdown of the facility, the Commission may issue the license amendment before the expiration of the 30-day notice period, provided that its final determination is that the amendment involves no significant hazards consideration. The final determination will consider all public and State comments received. Should the Commission take this action, it will publish in the FEDERAL REGISTER a notice of issuance and provide for opportunity for a hearing after issuance. The Commission expects that the need to take this action will occur very infrequently.

Written comments may be submitted by mail to the Rules Review and Directives Branch, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and should cite the publication date and page number of this FEDERAL REGISTER notice. Written comments may also be delivered to Room 6D22, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, from

7:30 a.m. to 4:15 p.m. Federal workdays. Copies of written comments received may be examined at the NRC Public Document Room, the Gelman Building, 2120 L Street, N.W., Washington, D.C.

The filing of requests for hearing and petitions for leave to intervene is discussed below.

By May 16, 1996, the licensee may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for a hearing and a petition for leave to intervene. Requests for a hearing and a petition for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. Interested persons should consult a current copy of 10 CFR 2.714 which is available at the Commission's Public Document Room, the Gelman Building, 2120 L Street, N.W., Washington, D.C., and at the local public document room located at the Wharton County Junior College, J. M. Hodges Learning Center, 911 Boling Highway, Wharton, Texas 77488. If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition; and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR 2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) the nature of the petitioner's right under the Act to be made party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave of the Board up to 15 days prior to the first prehearing conference scheduled in the proceeding, but such an amended petition must satisfy the specificity requirements described above.

Not later than 15 days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter. Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner shall provide a brief explanation of the bases of the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner intends to rely to establish those facts or expert opinion. Petitioner must provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions shall be limited to matters within the scope of the amendment under consideration. The contention must be one which, if proven, would entitle the petitioner to relief. A petitioner who fails to file such a supplement which satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

If a hearing is requested, the Commission will make a final determination on the issue of no significant hazards consideration. The final determination will serve to decide when the hearing is held.

If the final determination is that the amendment request involves no significant hazards consideration, the Commission may issue the amendment and make it immediately effective, notwithstanding the request for a hearing. Any hearing held would take place after issuance of the amendment.

If the final determination is that the amendment request involves a significant hazards consideration, any hearing held would take place before the issuance of any amendment.

A request for a hearing or a petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Services Branch, or may be delivered to the Commission's Public Document Room, the Gelman Building, 2120 L Street, N.W., Washington, D.C., by the above date. Where petitions are filed during the last 10 days of the notice period, it is requested that the petitioner promptly so inform the Commission by a toll-free telephone call to Western Union at 1-(800) 248-5100 (in Missouri 1-(800) 342-6700). The Western Union operator should be given Datagram Identification Number N1023 and the following message addressed to William D. Beckner, Director, Project Directorate IV-1: petitioner's name and telephone number, date petition was mailed, plant name, and publication date and page number of this FEDERAL REGISTER notice. A copy of the petition should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to Jack R. Newman, Esq., Newman & Holtzinger, P.C., 1615 L Street, N.W., Washington, D.C. 20036, attorney for the licensee.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the presiding Atomic Safety and Licensing Board that the petition and/or request should be granted based upon a balancing of the factors specified in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d).

For further details with respect to this action, see the application for amendment dated January 22, 1996, as supplemented by letter dated April 4, 1996, which are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, N.W., Washington, D.C., and at the local public document room located at the Wharton County Junior College, J.M. Hodges Learning Center, 911 Boling Highway, Wharton, TX 77488.

Dated at Rockville, Maryland, this 9th day of April, 1996.

FOR THE NUCLEAR REGULATORY COMMISSION

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