UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 100 TO FACILITY OPERATING LICENSE NO. NPF-11 AND

AMENDMENT NO. 84 TO FACILITY OPERATING LICENSE NO. NPF-18

COMMONWEALTH EDISON COMPANY

LASALLE COUNTY STATION, UNITS 1 AND 2

DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

By letter dated August 20, 1993, Commonwealth Edison Company (CECo, the licensee) requested that the Nuclear Regulatory Commission (NRC) approve a change to the LaSalle County Station (LSCS) Units 1 and 2 Technical Specification (TS) 3/4.6.1.5, "Primary Containment Structural Integrity." The amendment request (a) deletes TS 3/4.6.1.5 and relocates the containment surveillance requirement by adding TS Administrative Control 6.2.F.6, "Plant Operating Procedures and Programs," to require a containment tendon program titled, "Inservice Inspection Program for Post Tensioning Tendons," be established, implemented, and maintained; (b) modifies the TS Bases to include a brief description of the Inservice Inspection Program for Post Tensioning Tendons; (c) adds a requirement in TS 6.1.G.2.b, "Organization, Review, Investigation, and Audit," for onsite review of changes to the Inservice Inspection Program for Post Tensioning Tendons; (d) requires the licensee to maintain records of pre-stressed concrete containment tendon surveillance data in TS 6.5.B, "Plant Operating Records"; and (e) considers the two units as twin units by taking exception to certain provisions of Regulatory Guide (RG) 1.35, Revision (Rev.) 3.

Following the initial review of the licensee's submittal, on December 2, 1993, the staff issued a request for information concerning (a) data to support the technical justification for the exception to RG 1.35, Rev. 3 concerning Inservice Inspection (ISI) interval, and (b) the characterization of the need for amending the TSs. The licensee responded by letter dated December 27, 1993.

As the staff's review continued, additional questions concerning the original submittal and the supplemental letter were identified and raised to the licensee in a public meeting on February 15, 1994. These questions involved (a) a plot of all the tendon lift-off data in graphical form similar to that described in RG 1.35, Rev. 3; (b) a clarification of predicted lift-off force differences between the two units since part of the amendment involved justification of containment similarity; (c) a clarification of how the Limiting Condition for Operation for TS 3.6.1.1 will be applied to new TS Surveillance Requirement 4.6.1.1.e; (d) clarification of the applicability of

Appendix B of the original submittal; (e) a request to see the planned updated Final Safety Analysis Report section concerning the Inservice Inspection Program for Post Tensioning Tendons which includes appropriate acceptance criteria; (f) a request to include the requirement for primary containment structural integrity in the TS definition of PRIMARY CONTAINMENT INTEGRITY, and (g) a discussion of the prestress loss considered in the design of the containment structure, particularly the time-dependent prestress loss due relaxation, creep, and shrinkage. Most of these questions were resolved directly in the public meeting, however, several were deferred for further review by the licensee. By letter dated March 22, 1994, the licensee provided answers to the deferred questions from the February 15, 1994 public meeting.

In a phone conversation on May 16, 1994, the licensee indicated that they would include in their UFSAR update, a description of how they would trend the tendon forces for each group of tendons as obtained through tendon lift-off surveillance. The licensee indicated that they would, utilizing linear regression analysis after each lift-off surveillance, plot on one graph, all existing and new lift-off force data for each group for the LaSalle twin containments. The date of completion for each unit will be the common starting point and the data plotted will be based on the number of years and months from this same starting point. During this phone conversation and another on May 19, 1994, the staff had questions concerning the design bases reflected in the licensee's March 22, 1994 submittal for measured tendon forces (575 kips hoop and 600 kips vertical) which were different from those described in the February 15, 1994 public meeting (620 kips hoop and 626 kips vertical). Item "c" of Attachment A to the licensee's March 22, 1994 submittal (Item C) indicates that "effective tendon end anchor forces at the end of 40 years are 620 kips... in the hoop tendons and 626 kips... in the vertical tendons", and that "[t]hese values are above the minimum required 40-year tendon end anchor forces of 575 kips in the hoop tendons and 600 kips in the vertical tendons." Item C indicates that the 40-year design bases for hoop and vertical tendon forces differ from "effective" tendon forces. However, more importantly, the staff recognized during phone conversations on May 16, and May 19, 1994 that these new design bases were a result of a new design calculation dated March 14, 1994. The staff was concerned that Item C does not indicate that these "40-year tendon end anchor force" design bases were developed in a LaSalle Station design calculation dated March 14, 1994 and the "effective tendon end anchor forces at the end of 40 years" were actually the old design bases. Further, the licensee's submittal did not address the impact of these new design bases on the original no significant hazards consideration or indicate whether this design change had, or was planned to be implemented in accordance with the provisions of 10 CFR § 50.59.

On May 31, 1994, the licensee provided a written response to the above mentioned concerns which were identified in the staff's review of the licensees March 22, 1994 letter. The May 31 letter clearly indicates that the new design bases information was not intended to be part of the license amendment request. The licensee indicated the proposed Inservice Inspection Program for Post Tensioning Tendons and any associated UFSAR change are not currently being used and will not be able to be used until the proposed

Technical Specification amendment is approved by the NRC. Any changes to the program and/or the UFSAR will be made in accordance with 10 CFR § 50.59.

2.0 BACKGROUND

10 CFR § 50.36(c) requires that TS include items in five specific categories, including safety limits, limiting safety system settings, limiting control settings; limiting conditions for operation; surveillance requirements; design features; and administrative controls. However, the rule does not specify the particular requirements to be included in a plant's TS. The NRC has developed guidance criteria, as described in the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors," 58 FR 39132 (July 22, 1993), which can be used to determine which of the design conditions and associated surveillance provisions need to be located in the TS. As stated therein, the TS must include those conditions or limitations on reactor operation which are "necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety." Briefly stated, those criteria are (1) detection of abnormal degradation of the reactor coolant pressure boundary; (2) conditions for bounding design basis accident and transient analyses; (3) primary success paths to prevent or mitigate design basis accidents and transients; and (4) functions determined to be important to risk or operating experience. The policy statement recognized that items which are relocated from the TS to licensee-controlled documents such as the updated FSAR would in turn be controlled in accordance with the requirements of 10 CFR § 50.59, "Changes, tests, and experiments." 10 CFR § 50.59 provides criteria to determine when facility or operating changes planned by a licensee require prior Commission approval in the form of a license amendment in order to address any unreviewed safety questions. NRC inspection and enforcement programs also enable the staff to monitor facility changes and licensee adherence to FSAR commitments and to take any remedial action that may be appropriate.

3.0 EVALUATION

The licensee's proposed deletion of TS 3/4.6.1.5 and addition of the requirements of proposed TS 4.6.1.1.e, relocation of the containment tendon testing requirements to TS 4.6.1.1.e and removal of the containment tendon testing program from the TS and placement in licensee-controlled documents, in this case, the UFSAR and the Inservice Inspection Program for Post Tensioning Tendons. These licensee-controlled documents would, in turn, be controlled in accordance with the requirements of 10 CFR § 50.59. To assure that changes to the Inservice Inspection Program for Post Tensioning Tendons are appropriately reviewed, the licensee also proposed a requirement in TS 6.1.G.2.b for onsite review of changes to the Inservice Inspection Program for Post Tensioning Tendons. Record keeping requirements have been proposed in TS 6.5.B.

The proposed revision to the LSCS UFSAR includes (a) a description of the tendon surveillance testing history and conversion to the new test frequencies; (b) a description summary of the Inservice Inspection Program for Post Tensioning Tendons, and (c) acceptance criteria.

The licensee's summary of the Inservice Inspection Program for Post Tensioning Tendons indicates that the program specifies procedures, methodologies, and acceptance criteria for (a) visual inspection; (b) tendon anchorage areas inspection; (c) prestress monitoring tests; (d) tendon material test and inspection; and (e) filler grease inspection, to ensure that potential degradation of the primary containment is detected and appropriate corrective actions are taken.

The staff has reviewed the acceptance criteria contained within the UFSAR and concludes that they meet the provisions of RG 1.35, Rev. 3. Experience has shown that structural degradation of the primary containment is a predictable process that can be monitored by a comprehensive containment tendon monitoring program. On this basis, the staff concludes that the Inservice Inspection Program for Post Tensioning Tendons is not required to be in the TS by 10 CFR § 50.36 or to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety, and that changes to the design conditions and surveillance provisions can be made by the licensee consistent with the procedures and controls imposed by 10 CFR § 50.59.

In addition to requesting a license amendment that would relocate the containment tendon testing program from the TS to the UFSAR and Inservice Inspection Program for Post Tensioning Tendons, the licensee has requested that the following change concerning twin containments be made:

> Regulatory Guide 1.35, Rev. 3, has provisions for In-Service Inspection (ISI) frequency of 1, 3, 5 and every 5 years thereafter for twin unit containments. This provision allows the units to be tested alternately, so that tests are performed (except for visual inspections and grease samples) every 10 years for each unit with approximately 5 years between the tests for the units combined. One of the conditions listed in Regulatory Guide 1.35, kev. 3, for treating the dual unit primary containments as twin containments states:
>
> > "1.5.b. Their [the containments'] ISITs [Initial Structural Integrity Tests] were performed within two years of each other."
>
> The licensee seeks an exception to this provision in R.G. 1.35, Rev. 3.

The ISITs for the LaSalle Unit 1 and Unit 2 Primary Containments were approximately 4.5 years apart. The licensee indicated that complete ISIs of Unit 1 and Unit 2 performed to date demonstrate that this 2 year limit on ISITs is not a factor influencing LaSalle Unit 1 and Unit 2 tendon integrity.

The staff requested the licensee to provide information on the behavior of the containments during the SIT of each unit and on the lift-off forces of the tendons selected for the ISI tests, six in number for Unit 1 and four for Unit 2. The staff reviewed the data and concludes that there is reasonable agreement in the deflection values obtained during SITS at comparable locations of the containments. For the lift-off forces, if using the

completion of construction dates as starting points for comparison, the differences between two units are of little significance. This should be expected since the difference in the completion dates is only two years. On the basis of this observation, the staff concurs with the licensee that the two units can be considered as twin units and approves the licensee's application for the amendment to consider the two units as twin units, as an exception to R.G. 1.35, Rev. 3, 1.5.b.

The licensee stated that a limiting condition for operation (LCO) will be entered for each unit if primary containment is determined to be inoperable on the basis of the results of one unit's tendon surveillance.

The staff has concluded that the licensee's proposed TS changes to LSCS Units 1 and 2 will provide adequate control of the Inservice Inspection Program for Post Tensioning Tendons. Further, the staff concludes after reviewing the tendon test data provided by the licensee that all of the changes regarding the interval for performing testing and treating the LaSalle Station containments as "twin containments" is acceptable.

LSCS containment tendon testing will be controlled by the Inservice Inspection Program for Post Tensioning Tendons, which is described in the licensee's UFSAR. In its letter dated March 22, 1994, the licensee committed to include these changes in the next annual update of its UFSAR. Any changes to the UFSAR or Inservice Inspection Program for Post Tensioning Tendons will be evaluated by the Onsite Review and Investigative Function and, if the changes are determined to involve an unreviewed safety question, the licensee will be required to submit a license amendment application to obtain prior NRC review and approval in accordance with 10 CFR § 50.59. The staff has concluded, therefore, that control of these tests in the TS (a) is not specifically required by 10 CFR § 50.36 or other regulations; (b) is not required to avert an immediate threat to the public health and safety; and (c) is not necessary because changes that are deemed to involve an unreviewed safety question will still require prior NRC approval by license amendment as provided by 10 CFR 50.59(c).

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a

proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (58 FR 59746). Accordingly, the amendments meet 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 need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Anthony T. Gody, Jr., PDIII-2
Calvin Moon, OTSB
C. P. Tan, EGCB

Date: June 3, 1994