



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO RELIEF REQUEST FOR THE SECOND TEN YEAR INTERVAL

INSERVICE INSPECTION PROGRAM UPGRADE

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION, UNITS 1 AND 2

DOCKET NOS. 50-352 AND 50-353

1.0 INTRODUCTION

The Technical Specifications for Limerick Generating Station, Unit 1 state that the inservice inspection of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). It is stated in 10 CFR 50.55a(a)(3) that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. Similarly, 10 CFR 50.55a(f)(4) specifies the updating requirements for inservice testing. The regulations require that inservice examination of components and system pressure tests and inservice testing of pumps and valves conducted during subsequent ten-year intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the Limerick Generating Station, Unit 1 second 10-year inservice inspection (ISI) and inservice testing (IST) interval will be the 1989 Edition (the applicable edition of Section XI of the ASME Code for Limerick Generating Station, Units 1 and 2 first 10-year ISI interval is the 1986 Edition).

In a letter dated April 27, 1995, Philadelphia Electric Company submitted to the NRC a request related to its second 10-year interval ISI and IST program plans, specifically to delay updating the second ISI and IST programs to the 1989 Edition of the Code for Limerick Generating Station, Unit 1 and those components common to Units 1 and 2. In approximately 3 years, when LGS, Unit 2 completes its first 10-year interval ISI and IST testing program plans, both units will be simultaneously updated to the latest approved ASME code as required by 10 CFR 50.55a. Additional information was provided by the licensee in its letter dated September 25, 1995.

## 2.0 EVALUATION AND CONCLUSIONS

The staff, with technical assistance from its contractor, the Idaho National Engineering Laboratory (INEL), has evaluated the information provided by the licensee in support of its request to delay updating the second inservice inspection and inservice testing programs to the 1989 Edition of the Code for Limerick Generating Station, Unit 1 and those components common to Units 1 and 2. The INEL Technical Letter Report for ISI is attached. The staff's evaluation for the IST program is provided below.

Based on the information submitted, the staff adopts the contractor's conclusions and recommendations presented in the Technical Letter Report attached. The Staff concludes that requiring the licensee to perform an ISI and IST program upgrade prior to the start of Unit 1's second 10-year interval, rather than performing the Unit 1 and 2 upgrade concurrently, will cause a burden for the licensee without a compensating increase in the level of quality and safety.

The 1989 Edition of Section XI of the Code refers to the ASME/ANSI Operations and Maintenance Standards for inservice testing (IST) of pumps and valves, specifically Part 6 for IST of pumps and Part 10 for IST of valves. The differences between the 1986 Edition and the 1989 Edition of the Code for IST are fairly substantial in the formatting and in some of the monitoring parameters. For example, the requirements in the later edition for monitoring vibration of pumps includes velocity measurements in addition to displacement measurements. A number of differences are discussed in NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," and the licensee may refer to the NUREG for guidance on the differences, if necessary. The changes in set pressure testing and determining the scope of safety relief valves, however, are similar because the 1986 Edition of Section XI refers to the ASME/ANSI Operations and Maintenance Standards, specifically Part 1, for the requirements for set pressure testing these valves. Though the edition of Part 1 referenced in the 1986 Edition of Section XI is OM-1-1981, it contains essentially the same requirements as OM-1-1987 which would apply to the later edition through reference. All test intervals are maintained under the licensee's alternative request (e.g., any tests that are required on a quarterly, cold shutdown frequency, during refueling outages, or on a five or ten year interval will continue to be tested when the test becomes due during the extended period of time); therefore, the same tests that are currently required will continue on the current frequency.

While many of the changes are considered improvements in conducting the testing, or actually represent relaxations to the earlier editions of the Code, continuing to conduct testing in accord with the 1986 Edition for an additional three or four years will allow the licensee a means to assess the operational readiness of the pumps and valves. The NRC has recognized that for plants with two or more similar units, it can be advantageous to have ISI and IST programs based on the same Code edition. This allows the plant staff to be familiar with one edition of the Code and implement the same requirements for equipment for both units. Requiring the licensee to maintain two separate sets of requirements (i.e., one for each unit) can cause confusion and is a hardship in that updates for the units would have to be performed at different times. Because the current testing provides assurance of operational readiness, there would not be a compensating increase in the level of quality and safety if the update provisions of 10 CFR 50.55a(f)(4)(ii) were imposed.

The staff reviewed the 1986 and 1989 Editions of the Code and concludes that differences between these editions are either nonsubstantive or are being addressed by the licensee in its current ISI and IST programs, including all currently approved relief requests, and that the continued implementation of the present programs will provide reasonable assurance of operational readiness until the upgrade of the Unit 2 programs is implemented. Therefore, based on the hardship without a compensating increase in the level of quality and safety, the licensee's proposed alternative (i.e., to defer the Unit 1 and common component upgrade until the Unit 2 program upgrade is performed) is authorized, pursuant to 10 CFR 50.55a(3)(ii).

Attachment: INEL Technical Letter Report

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TECHNICAL LETTER REPORT  
ON THE SECOND 10-YEAR INSERVICE INSPECTION INTERVAL  
REQUEST FOR RELIEF FOR THE INSERVICE INSPECTION PROGRAM UPGRADE FOR  
LIMERICK GENERATING STATION, UNIT 1  
PHILADELPHIA ELECTRIC COMPANY  
DOCKET NUMBER: 50-352

1.0 INTRODUCTION

By letter dated April 27, 1995, Philadelphia Electric Company submitted a request for relief to the inservice inspection program upgrade for Limerick Generating Station, Unit 1's, second 10-year interval. By letter dated September 25, 1995, the licensee provided additional information to support the request for relief. The Idaho National Engineering Laboratory (INEL) staff has evaluated the subject request for relief in the following section.

2.0 EVALUATION

The Code of record for the Limerick Generating Station, Unit 1, second 10-year interval, which begins at the end of the Sixth Refueling Outage (March 1, 1996) will be the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1989 Edition. The information provided by the licensee in support of the request for relief for deferral of the program upgrade has been evaluated and the basis for disposition is documented below.

Request for Relief From the Inservice Inspection Program Upgrade For Limerick Generating Station, Unit 1, Second 10-year As Required By 10 CFR 50.55a(g)(4)(ii)

Requirement: Code of Federal Regulations, 10 CFR 50.55a(g)(4)(ii) states, "Inservice examination of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements of the latest Edition and Addenda of the Code incorporated by reference in paragraph (b) of this section 12 months prior to the start of the 120-month inspection interval, subject to the limitations and modifications listed in paragraph (b) of this section."

Licensee's Code Relief Request: The licensee requested relief from upgrading the Inservice Inspection, Inservice Testing, and Repair and Replacement Programs for Unit 1 prior to the start of the subsequent interval as required by Regulations.

Licensee's Basis for Requesting Relief (as stated):

"By letter dated January 24, 1992, PECO Energy Company notified the NRC that the LGS, Unit 1 and Common ISI, IST, and Repair and Replacement Programs had been voluntarily upgraded to meet the requirements of the latest NRC approved version of the ASME Section XI Code, (i.e., 1986 Edition, no Addenda). This voluntary upgrade was adopted following the completion of the LGS, Unit 1 Third Refueling Outage, and has been used for the remainder of the First Ten-Year Inspection Interval. The voluntary upgrade was initiated to allow LGS, Unit 1, to utilize the same Edition of the ASME Section XI Code as required

for LGS, Unit 2 (i.e. 1986 Edition). This alignment of applicable Code Edition was developed to provide a cost effective and uniform set of requirements for both units at LGS, and to preclude any confusion which could result from the use of different requirements for each unit.

"The First Ten-Year Inspection interval for LGS Unit 1, is scheduled to end on February 1, 1996. However, by letter dated April 6, 1995, PECO Energy notified the NRC that the interval would be extended until March 1, 1996, to accommodate the Sixth Refueling Outage schedule. As required by paragraph 10 CFR 50.55a(g)(4)(ii), the 1989 Edition of ASME Section XI Code must be used to develop the ASME Section XI Code Programs for LGS, Unit 1 and Common, for the Second Ten-Year Inspection Interval which is scheduled to begin at the end of the Sixth Refueling Outage (i.e., 1R06). Fulfilling this requirement will force a misalignment of the program requirements between the two units at LGS (i.e., 1986 Code for Unit 2, 1989 Code for Unit 1).

Satisfying the regulation will require the development of a parallel set of implementation documents (e.g., procedures, guidelines, etc.) which will be used at LGS, Unit 1 for approximately three to four years. At that time, the LGS Unit 2 Program will also require update to meet the requirements of the later code for its second inspection interval. This will likely realign the two unit's programs to the same code requirements."

Licensee's Proposed Alternative Examination (as stated):

"In accordance with 10CFR50.55a(3)(i), PECO Energy proposes an alternative to the rules contained in 10CFR50.55a(g)(4)(ii), which require that: "inservice examination of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements of the latest Edition and Addenda of the Code incorporated by reference in paragraph (b) of this section 12 months prior to the start of the 120-month inspection interval, subject to the limitations and modifications listed in paragraph (b) of this section." Instead, PECO Energy proposes to begin the Second Ten-Year Inspection interval of LGS, Unit 1 and Common, as normally scheduled, using the existing Code requirements (i.e., First Interval requirements), as described in the 1986 Edition of the Section XI Code. In approximately three (3) years following the start of the LGS, Unit 1, Second Ten-Year Interval, when LGS, Unit 2 completes its First Ten-Year Inspection Interval, both Unit 1 and Unit 2 will be simultaneously updated to the latest approved Edition and Addenda of the Section XI Code, which will be the Code requirements in effect 12 months prior to the start of LGS, Unit 2 Second Inspection Interval, as required by 10CFR50.55a(g)(4)(ii).

"The basis for this proposed alternative contains two (2) main points. First, the proposed alternative will provide an acceptable level of quality and safety. This conclusion is based on a comparison between the requirements of the 1989 Edition of the Section XI Code (i.e., for

the Second Ten-Year ISI Interval requirements). Except for the addition of the mandatory Appendix VII, few substantial changes have been made. Further the use of NRC approved Code Cases and ASME approved Code Cases (via approved relief requests) in conjunction with either version of the ASME Code tends to normalize each of the resulting programs. Therefore, there is even less significant difference between a program written to the 1986 Edition of Section XI versus one written to the 1989 Edition, when Code Cases are utilized.

"Additionally, the relationship of the inspection interval dates for the two LGS units creates a repeated economic burden for PECO Energy. This burden is caused by the need to develop and maintain two (2) somewhat different sets of program implementation documents for portions of each unit's Ten-Year ISI Interval. As a minimum, the implementation documents must be completely reviewed, twice during each inspection interval, to assure that they adequately support both unit's updated ISI Program requirements. Approximately 325 procedures would need to be reviewed and revised to at least reference the additional (new) Edition/Addenda of ASME Section XI Code applicable to the ISI Program. This economic burden is estimated to cost between \$285,000 and \$300,000 each time a review is required.

"Further, the use of two (2) different sets of requirements at the station could lead to confusion and inefficiencies, which could tend to divert resources and attention from the underlying theme of the ASME Section XI ISI Programs at LGS."

Evaluation: The licensee has requested authorization to defer the inservice inspection (ISI) program upgrade for Unit 1 until the scheduled upgrade for Unit 2 (in the year 2000). This will allow the licensee to upgrade both units concurrently to the Code in affect 12 months prior to the start of the Unit 2, second interval. The Code of record for both Units is currently the 1986 Edition of Section XI. Based on this review, it has been determined that there are no significant differences between the Code being implemented in the first interval (1986 Edition) and the Code that would be in effect for the second interval for Unit 1 (1989 Edition), with the following exception. The 1989 Edition of the Code requires the implementation of Appendix VII, Qualification of Nondestructive Examination Personnel For Ultrasonic Examination. The licensee is currently implementing requirements from the 1989 Edition of the Code for personnel qualification and performance of examinations. The licensee's ISI program also satisfies bolting examination requirements by meeting IWA-2300 and Appendix VI. In addition, the qualification, training, and certification for personnel and procedures are sufficient to demonstrate compliance with Regulatory Guide 1.150 and NUREG-0619. Austenitic piping weld examinations meet IWA-2300, Mandatory Appendix III, and Generic Letter 88-01.

Considering the licensee's current implementation of Code requirements, the INEL staff believes that deferral of the program upgrade will not have a significant impact on the quality of inservice examinations. Requiring the licensee to make procedural changes unique to different editions of the Code could result in errors and inefficiencies. Applying the same Code requirements for both Units 1 and 2, and updating their ISI programs concurrently, will continue to provide quality ISI programs.

The licensee will implement the Unit 1, first interval ISI program schedule for examinations performed in the second interval. Use of this schedule will ensure that the successive examination requirements of the Code will be satisfied.

The INEL staff believes that requiring the licensee to upgrade the Unit 1 ISI program at this time will cause a burden on the licensee without a compensating increase in the level of quality and safety. Requiring the licensee to revise the ISI program for Unit 1 to the 1989 Edition of the Code will cause a misalignment of procedures currently being used for both Units 1 and 2. Continuing to implement the 1986 Edition of the Code for both Units will provide reasonable assurance of operational readiness. In addition, upgrading the ISI programs for Units 1 and 2 simultaneously to the Code in effect at the time of the Unit 2 ISI upgrade will ensure that the latest Code Edition with the latest ISI philosophy is applied to Unit 1.

### 3.0 CONCLUSION

Requiring the licensee to perform an ISI program upgrade for Unit 1 prior to the start of Unit 1's second 10-year interval, rather than performing the Unit 1 and 2 upgrade concurrently, will cause a burden for the licensee without a compensating increase in the level of quality and safety. The INEL staff reviewed the 1986 and 1989 Editions of the Code and concluded that differences between these editions are being addressed by the licensee in its current ISI program. Based on this review, it has been determined that the continued implementation of the present ISI program, until the upgrade of the Unit 2 ISI program, will provide reasonable assurance of operational readiness. Therefore, it is recommended that the licensee's proposed alternative, to defer the Unit 1 upgrade until the Unit 2 program upgrade is performed, be authorized, pursuant to 10 CFR 50.55a(3)(ii).