



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

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO THE FIRST TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN,  
REVISION 1 AND RELATED RELIEF REQUESTS  
PHILADELPHIA ELECTRIC COMPANY  
LIMERICK GENERATING STATION, UNIT 1  
DOCKET NO. 50-352

1.0 INTRODUCTION

By letter of October 23, 1985, Philadelphia Electric Company (PECo) submitted the Limerick Generating Station (LGS), Unit 1 and Common, First Ten-Year Interval Inservice Inspection (ISI) Program and Augmented Inservice Inspection (AISI) Program. The first Ten-Year Interval ISI program for Unit 1 started February 1, 1986, the date of commercial operation and ends February 1, 1990. The proposed ISI program and various relief requests were approved by our letter to you of March 4, 1988.

By letter of January 24, 1992, PECo submitted upgraded ISI and AISI programs for the remaining portion of the first ten-year inspection interval. The programs were upgraded to satisfy the requirements specified in the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code Section XI to allow Unit 1 to utilize the same Edition of the ASME Section XI Code as that required for Unit 2. The Unit 2 First Ten-Year Interval ISI Program was submitted by your letter of February 26, 1990. The program for Unit 2 and various relief requests (RR) were approved by our letter of April 23, 1991. The January 24, 1992 submittal, included five proposed new requests and two revised relief requests for Unit 1 and common systems. Revision 1 to the Unit 1 ISI Program was submitted by your letter of May 18, 1993, and included a revision of RR-13. Your letter of July 2, 1993 provided supplemental information.

Technical Specification for Limerick Generating Station, Unit 1 states that inservice inspection and testing 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).

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. The regulations require that inservice examination of components and system pressure tests conducted during each ten-year interval 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) on the date 12 months prior to the start of the 120-month inspection interval, subject to the limitations and modifications listed therein. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

The licensee, had prepared the First Ten-Year Interval Inservice Inspection (ISI) Program Plan, Revision 1, for Limerick Generating Station, Unit 1, to meet the requirements of the 1980 Edition through Winter 1981 Addenda (80W81) of Section XI of the ASME Boiler and Pressure Vessel Code. The revised program submitted January 24, 1992, upgraded the Unit 1 ISI Program to the requirements in the 1986 Edition of the ASME Code to allow Unit 1 to utilize the same Edition of the ASME Code as required for Unit 2. The staff, with technical assistance from its Contractor, the Idaho National Engineering Laboratory (INEL), has evaluated the First Ten-Year Interval Inservice Inspection Program Plan, Revision 1, for Limerick Generating Station, Unit 1, additional information related to the Program Plan, and the requests for relief from certain ASME Code requirements determined to be impractical for Limerick Generating Station, Unit 1, during the first inspection interval.

## 2.0 EVALUATION

The ISI Program Plan has been evaluated for (a) application of the correct Section XI Code edition and addenda, (b) acceptability of the examination sample, (c) compliance with prior ISI commitments made by the licensee, (d) correctness of the application of system or component examination exclusion criteria, and (e) adequate information in support of requests for relief from certain Section XI Code requirements deemed impractical by the licensee. The information provided by the licensee in support of requests for

relief has been evaluated and documented in the attached INEL Technical Evaluation Report EGG-MS-10913. We concur with the findings and recommendations contained in the subject report. The information related to RR-4, related to the functional testing of the snubbers, was reviewed by the staff and found acceptable. Our evaluation is provided as Attachment 1 to this evaluation, and the relief is granted.

### 3.0 CONCLUSION

The staff has concluded pursuant to 10 CFR 50.55a(g)(6)(i), that relief from specific Section XI requirements should be granted for the following relief requests, which includes those relief requests previously approved by the NRC letter of March 4, 1988: Relief Nos. RR-01 (in part), RR-02, RR-03, RR-4, RR-05, RR-06, RR-07, RR-08, RR-14, RR-13-1.2, and RR-13-1.5. In addition, pursuant to 10 CFR 50.55a(a)(3)(i), the staff concluded in the case of RR-09 that the licensee's proposed alternative examination may be authorized and the alternative examination will provide an acceptable level of quality and safety. The granting of relief or authorization of alternatives is based upon the fulfillment of commitments made by the licensee in its basis for each relief request and in the proposed alternate testing. The staff has concluded that the granting of these relief requests will not endanger life, property, or the common defense and security and is otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

In addition, pursuant to 10 CFR 50.55a(a)(3)(i), the staff has concluded in the case of RR-09 that the licensee's proposed alternative examination may be authorized and the alternative examination will provide an acceptable level of quality and safety. For requests for Relief Nos. RR-13-1.1, RR-13-1.3, RR-13-1.4, RR-13-1.6, RR-13-1.7, RR-13-1.9, RR-13-1.10, RR-13-1.11, RR-13-1.12, and RR-13-1.13, the staff concluded that relief should be denied. For Request for Relief No. RR-12 the staff concluded relief was not required and RR-13-1.8 was withdrawn by the licensee.

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Date: March 1, 1994

#### Attachments:

1. Attachment 1 - Request for Relief RR-04
2. Attachment 2 - Technical Evaluation Report EGG-MS 10913

REQUEST FOR RELIEF RR-04

As noted on Page 39 of the TER, Request for Relief RR-04 on snubber functional testing was not in the scope of the contractor's review. This specific relief request is discussed below.

Request for Relief RR-04, Examination Category F-C, Item F3.50

Code Requirement: Section XI, 1986 Edition Examination Category F-C requires a VT-3 visual examination of mechanical type snubbers. In addition, Article IWF-5000 details inservice testing requirements for snubbers less than 50 kips. (Requirements for snubbers 50 kips or greater are in the course of preparation.)

Licensee's Code Relief Request: Relief is request from the examination requirements of Articles IWF-1000, IWF-2000, (excluding IWF-2520), and Table IWF-2500-1 and the inservice testing requirements of Article IWF-5000 due to the redundancy of these examinations/test requirements to LGS-2 Technical Specification (TS) requirements.

Licensee's Proposed Alternative Examination: The licensee proposes that the examination and testing of snubber assemblies shall be performed in accordance with Technical Specification 3/4.7.4 in lieu of the aforementioned Code examination and testing requirements.

Licensee's Basis for Requesting Relief: Implementation of both the aforementioned Code requirements and requirements contained in the LGS-2 Technical Specifications, results in redundancy and poses an unnecessary hardship, without compensating increase in plant safety. Both programs are designed to demonstrate continued operational readiness and structural integrity by visual examination and function testing of snubber assemblies. However, while the test requirements in the Code are incomplete (depending on the size of the snubber), the program described in Technical Specification 3/4.7.4 is comprehensive and meets the intent of ASME Section XI examination and testing.

Evaluation: The Section XI requirements for snubber testing were those of an early version of the NRC's Standard Technical Specifications (TSs) and consisted of only one sampling plan. The Standard TSs have been revised to provide several sampling plans, including a 10% plan. Licensee's are permitted to select any of the sampling plans to satisfy Inservice Testing (IST) Program requirements.

The purpose of the IST Program is to identify snubbers degraded by service conditions. The different sampling plans should yield similar results for the same population. The licensee should not be required to perform more than one test to verify the structural and functional adequacy of the same population during the period in which the snubbers are subject to testing.

The TS requirements are more comprehensive and cover everything that would be required by the ASME Code requirements. (The latest edition of Section XI has been revised to be in conformance with the Standard TS requirements). Requiring the licensee to satisfy both the TS and Section XI requirements would pose an unnecessary burden and hardship with no compensating increase in safety.


Conclusions: The requested relief is granted.



EGG-MS-10913  
September 1993

**TECHNICAL REPORT**

TECHNICAL EVALUATION REPORT ON THE FIRST  
10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN:  
PHILADELPHIA ELECTRIC COMPANY,  
LIMERICK GENERATING STATION, UNIT 1 AND COMMON,  
DOCKET NUMBER 50-352



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TECHNICAL EVALUATION REPORT ON THE  
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## ABSTRACT

This report presents the results of the evaluation of the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection (ISI) Program Plan* (Specification NE-42), Revision 1, submitted January 24, 1992, including the requests for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI requirements that the Licensee has determined to be impractical. The *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection Program Plan* is evaluated in Section 2 of this report. The ISI Program Plan is evaluated for (a) compliance with the appropriate edition/addenda of Section XI, (b) acceptability of examination sample, (c) correctness of the application of system or component examination exclusion criteria, and (d) compliance with ISI-related commitments identified during previous Nuclear Regulatory Commission (NRC) reviews. The requests for relief are evaluated in Section 3 of this report.

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NRC Inservice Inspection Program

## SUMMARY

The Licensee, Philadelphia Electric Company, has upgraded the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection (ISI) Program Plan* (Specification NE-42), Revision 1, to meet the requirements of the 1986 Edition (86E) of the ASME Code Section XI except that the extent of examination for Code Class 1 piping welds has been determined by the 1974 Edition through Summer 1975 Addenda (74S75) as permitted by 10 CFR 50.55a(b)(2)(ii). The *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection (ISI) Program Plan* (Specification 8031-P-500), through Revision 3, and *Augmented Inservice Inspection Program* (Specification 8031-P-501), written to the requirements of the 1980 Edition through Winter 1981 Addenda (80W81), were previously reviewed and subsequently approved. As a result of upgrading the Programs, Specification NE-42 supersedes Specifications 8031-P-500 and 8031-P-501.

The first 10-year interval began concurrent with the start of commercial operation on February 1, 1986, and ends February 1, 1996. The upgraded program becomes effective at the completion of the third refueling outage. The examination requirements for the first inspection period were satisfied during the first and second refueling outages in accordance with Specification 8031-P-500/501. Examinations completed during the third refueling outage, in accordance with Specification 8031-P-500/501, were credited toward the requirements of the second inspection period.

The information in the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection Program Plan* (Specification NE-42), Revision 1, submitted January 24, 1992, was reviewed. Included in the review were five new requests for relief and two revised requests for relief from the ASME Code Section XI requirements that the Licensee has determined to be impractical. As a result of this review, a request for additional information was prepared describing the information and/or clarification required from the Licensee in order to complete the review. The Licensee provided the requested information in the submittal dated July 2, 1993.

Based on review of the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection Program Plan* (Specification NE-42), Revision 1, the Licensee's response to the Nuclear Regulatory Commission's RAI, and the recommendations for granting relief from the ISI examinations that cannot be performed to the extent required by Section XI of the ASME Code, it is concluded that the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection Program Plan*, Revision 1, with the exception of Request for Relief Nos. RR-01 (in part), RR-13-1.1, RR-13-1.3, RR-13-1.4, RR-13-1.6, RR-13-1.7, RR-13-1.9, RR-13-1.10, RR-13-1.11, RR-13-1.12, and RR-13-1.13 is acceptable and in compliance with 10 CFR 50.55a(g)(4).



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1. INTRODUCTION

Throughout the service life of a water-cooled nuclear power facility, 10 CFR 50.55a(g)(4) (Reference 1) requires that components (including supports) that are classified as American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Class 1, Class 2, and Class 3 meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in ASME Code Section XI, *Rules for Inservice Inspection of Nuclear Power Plant Components* (Reference 2), to the extent practical within the limitations of design, geometry, and materials of construction of the components. This section of the regulations also requires that inservice examinations of components and system pressure tests conducted during the initial 120-month inspection interval shall comply with the requirements in the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 months prior to the date of issuance of the operating license, subject to the limitations and modifications listed therein. The components (including supports) may meet requirements set forth in subsequent editions and addenda of this Code that are incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein. The Licensee, Philadelphia Electric Company, has upgraded the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection (ISI) Program Plan* (Specification NE-42), Revision 1 (Reference 3), to meet the requirements of the 1986 Edition of the ASME Code Section XI except that the extent of examination for Class 1 piping welds has been determined by the 1974 Edition through Summer 1975 Addenda as permitted by 10 CFR 50.55a(b)(2)(ii). The *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection (ISI) Program Plan* (Specification 8031-P-500)(Reference 4), through Revision 3, and *Augmented Inservice Inspection Program* (Specification 8031-P-501) (Reference 5), written to the requirements of the 1980 Edition through Winter 1981 Addenda (80W81), were previously reviewed and subsequently approved. As



a result of upgrading the Programs, Specification NE-42 supersedes Specifications 8031-P-500 and 8031-P-501.

The first 10-year interval began concurrent with commercial operation on February 1, 1986 and ends on February 1, 1996. The upgraded program becomes effective at the completion of the third refueling outage. The examination requirements for the first inspection period were satisfied during the first and second refueling outages in accordance with Specification 8031-P-500/501. Examinations completed during the third refueling outage, in accordance with Specification 8031-P-500/501, were credited toward the requirements of the second inspection period.

As required by 10 CFR 50.55a(g)(5), if the licensee determines that certain Code examination requirements are impractical and requests relief from them, the licensee shall submit information and justification to the Nuclear Regulatory Commission (NRC) to support that determination.

Pursuant to 10 CFR 50.55a(g)(6), the NRC will evaluate the licensee's determination that Code requirements are impractical to implement. The NRC may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Alternatively, pursuant to 10 CFR 50.55a(a)(3), the NRC will evaluate the licensee's determination that either (i) the proposed alternatives provide an acceptable level of quality and safety, or (ii) Code compliance would result in hardship or unusual difficulty without a compensating increase in safety. Proposed alternatives may be used when authorized by the NRC.

The information in the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval ISI Program Plan* (Specification NE-42), Revision 1, submitted January 24, 1992, was reviewed, including the five (5) new requests for relief and two (2) revised requests for relief from the ASME Code Section XI requirements that the Licensee has determined to be impractical. Revision 1 to Request for Relief No. 13 (13 parts) was received in a submittal dated

May 18, 1993 (Reference 6). The review of the ISI Program Plan was performed using the Standard Review Plans of NUREG-0800 (Reference 7), Section 5.2.4, "Reactor Coolant Boundary Inservice Inspections and Testing," and Section 6.6, "Inservice Inspection of Class 2 and 3 Components."

In a letter dated May 20, 1993 (Reference 8), the NRC requested additional information that was required in order to complete the review of the ISI Program Plan. The requested information was provided by the Licensee in the "Response to Request for Information Regarding First Interval Inservice Inspection Program" dated July 2, 1993 (Reference 9). In this response, the Licensee, *Philadelphia Electric Company*, submitted the *Limerick Generating Station, Unit 1 Inservice Inspection Program, First Ten Year Interval*, Specification NE-42, Volume 2 of 2 (ISI and Augmented ISI Program Tables) and Book 2 of 2, "Reference Drawings" (ISI Isometric and Component Drawings).

The *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval ISI Program Plan* (Specification NE-42) is evaluated in Section 2 of this report. The ISI Program Plan is evaluated for (a) compliance with the appropriate edition/addenda of Section XI, (b) acceptability of examination sample, (c) correctness of the application of system or component examination exclusion criteria, and (d) compliance with ISI-related commitments identified during the NRC's previous reviews.

The requests for relief are evaluated in Section 3 of this report. Unless otherwise stated, references to the Code refer to the ASME Code, Section XI, 1986 Edition. Specific inservice test (IST) programs for pumps, valves, and snubbers are being evaluated in other reports. Therefore, the Augmented Inspection Program (AUG-13), *Snubber Examination and Test Program (Technical Specification Snubbers)* is not included in this evaluation.

## 2. EVALUATION OF INSERVICE INSPECTION PROGRAM PLAN

This evaluation consists of a review of the applicable program documents to determine whether or not they are in compliance with the Code requirements and any previous license conditions pertinent to ISI activities. This section describes the submittals reviewed and the results of the review.

### 2.1 Documents Evaluated

Review has been completed on the following information from the Licensee:

- (a) *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval ISI Program Plan* (Specification NE-42), Revision 1 (Reference 3);
- (b) Letter, dated July 2, 1993, containing the response to the NRC request for additional information (Reference 9);
- (c) *Limerick Generating Station, Unit 1 Inservice Inspection Program, First Ten Year Interval*, Specification NE-42, Volume 2 of 2, (ISI and Augmented ISI Program Tables)(Reference 9);
- (d) *Limerick Generating Station, Unit 1 Inservice Inspection Program, First Ten Year Interval*, Specification NE-42, Book 2 of 2, "Reference Drawings", (ISI Isometric and Component Drawings)(Reference 9) and;
- (e) Letter, dated May 18, 1993, containing the Licensee's Revision 1 to Relief Request No. 13 (13 parts) for Performance of System Pressure Tests (Reference 6).

### 2.2 Compliance with Code Requirements

#### 2.2.1 Compliance with Applicable Code Editions

The Inservice Inspection Program Plan shall be based on the Code editions defined in 10 CFR 50.55a(g)(4) and 10 CFR 50.55a(b). Based on the starting date of February 1, 1986, the Code applicable to the first interval ISI program is the 1980 Edition through Winter 1981 Addenda. As stated in Section 1 of this report, the Licensee has upgraded the *Limerick Generating Station, Unit 1 and Common, First 10-Year ISI Program Plan* (Specification NE-42), Revision 1, to meet the requirements of the 1986 Edition of the Code, except that the

extent of examination for Class 1, Examination Category B-J welds has been determined by the requirements of the 1974 Edition through Summer 1975 Addenda (74S75) as permitted by 10 CFR 50.55a(b)(2)(ii).

#### 2.2.2 Acceptability of the Examination Sample

Inservice volumetric, surface, and visual examinations shall be performed on ASME Code Class 1, 2, and 3 components and their supports using sampling schedules described in Section XI of the ASME Code and 10 CFR 50.55a(b). Sample size and weld selection have been implemented in accordance with the Code and 10 CFR 50.55a(b) and appear to be correct.

#### 2.2.3 Exemption Criteria

The criteria used to exempt components from examination shall be consistent with Paragraphs IWB-1220, IWC-1220, IWC-1230, IWD-1220, and 10 CFR 50.55a(b). The exemption criteria have been applied by the Licensee in accordance with the Code as discussed in the ISI Program Plan, and appear to be correct.

#### 2.2.4 Augmented Examination Commitments

In addition to the requirements specified in Section XI of the ASME Code, the Licensee has committed to perform the following augmented examinations:

- (AUG-1) NRC Generic Letter 88-01, *Intergranular Stress Corrosion Cracking* (Reference 10);
- (AUG-2) NUREG-0619, *BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking* (Reference 11);
- (AUG-3) IE Bulletin 80-13, *Cracking in Core Spray Spargers* (Reference 12)
- (AUG-4) NUREG/CR-3052 (Closeout of IE Bulletin 80-07), *BWR Jet Pump Assembly Failure* (Reference 13);
- (AUG-5) USNRC Branch Technical Position MEB 3-1, "Postulated Rupture Locations in Fluid System Piping Inside and Outside Containment" (Reference 14);

- (AUG-6) Outboard Feedwater Check Valves HV-41-2F074A and B;
- (AUG-7) SIL No. 455, *Recommendation for Additional ISI of Alloy 182 Nozzle Weldments* (Reference 15)
- (AUG-8) Extended Examination Volume for Code Category B-D (response to NUREG-0619);
- (AUG-9) Examination of the Reactor Pressure Vessel Closure Head Lifting Lugs;
- (AUG-10) "Non-Q Reactor Pressure Vessel Internal Components," FSAR Table 3.2-1 (Reference 16)
- (AUG-11) SIL No. 409, *Incore Dry Tube Cracks* (Reference 17);
- (AUG-12) SIL no. 420, *Inspection of Jet Pump Sensing Lines* (Reference 18);
- (AUG-13) Snubber Examination and Testing Program (Technical Specification Snubbers) (Reference 19);
- (AUG-14) Snubber Examination Program (Balance of Plant Snubbers);
- (AUG-15) SIL No. 433, *Shroud Head Bolt Cracks* (Reference 20);
- (AUG-16) SIL No. 462, *Shroud Support Access Hole Cover Cracks* (Reference 21);
- (AUG-17) SIL No. 474, *Steam Dryer Drain Channel Cracking* (Reference 22);
- (AUG-18) RHR Heat Exchanger Pressure Retaining Bolting (NUREG-0991) (Reference 23); and
- (AUG-19) Weld Centerline Marking (Reference 24).

In the Licensee's response to the NRC request for additional information, Regulatory Guide (RG) 1.150 [for inservice ultrasonic examinations of reactor pressure vessel (RPV) welds] was referred to as a procedural part of the ISI Program, rather than an augmented requirement. They cite the RG 1.150 reference under applicable Codes and Standards (Section 1.4.12) of the program document as evidence of implementation. The Licensee states that the extent of conformance to this RG is documented in the ISI Implementing Plan, Document #8031 246B-129, *Limerick Generating Station Units 1 & 2, Reactor Pressure Vessel, Inservice Inspection Examination Plan*, Volume 1, Section II. Details of the elements of conformance are documented in



NDE Procedure UT-PE-003, *Regulatory Guide 1.150 Method for Compliance.*

### 2.3 Conclusions

Based on the review of the documents listed above, it is concluded that the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval ISI Program Plan, Revision 1*, is acceptable and in compliance with 10 CFR 50.55a(g)(4).

### 3. EVALUATION OF RELIEF REQUESTS

The requests for relief from the ASME Code requirements that the Licensee has determined to be impractical for the first 10-year inspection interval are evaluated in the following sections.

#### 3.1 Class 1 Components

##### 3.1.1 Reactor Pressure Vessel

###### 3.1.1.1 Request for Relief No. RR-01, Examination Category B-A, Items B1.11, B1.12, B1.21 and B1.22, Reactor Pressure Vessel Welds

NOTE: Request for Relief No. RR-01 was previously submitted and approved as Relief Requests 2.4.1 and 2.4.2 in the NRC SER dated March 4, 1988. The scope of the new Relief Request has been expanded to include the RPV head welds, Code Item Nos. B1.21 and B1.22. Because the 1993 Code of Federal Regulations has revoked relief associated with RPV shell welds (Item B1.10), this relief request will be reevaluated in its entirety.

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-A, Items B1.11 and B1.12 for the first interval, require volumetric examination of essentially 100% of all circumferential and longitudinal shell welds as defined by Figures IWB-2500-1 and -2. Items B1.21 and B1.22 require volumetric examination of the accessible length of all circumferential and meridional bottom head welds as defined by Figure IWB-2500-3.

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume on the following shell welds:

<u>Component Identification</u>	<u>Description</u>	<u>Limiting Condition</u>	<u>Examination % Complete</u>
AA	Shell circumferential	N1A, B, N8A, B	89.4%
AC	Shell circumferential	N17A, B, C, D	89.2%
AE	Shell circumferential	N12A, B, C, D; vessel nameplate	88.3%
BA	Shell longitudinal	N2K	85.65%
BB	Shell longitudinal	N2C	85.65%
BC	Shell longitudinal	N1B, N2F nozzles	85.2%
BF	Shell longitudinal	N17B	76.0%
BG	Shell longitudinal	N11A	79.3%
BK	Shell longitudinal	Biological shield bracket	49.0%
BM	Shell longitudinal	Biological shield bracket	47.9%
BN	Shell longitudinal	Refueling bellows skirt	74.5%
BP	Shell longitudinal	Refueling bellows skirt	75.1%
DA	Bottom head meridional	Skirt attachment weld	84.3%
DB	Bottom head meridional	Skirt attachment weld	84.3%
DC	Bottom head meridional	Skirt attachment weld	84.3%
DD	Bottom head meridional	Skirt attachment weld	84.3%
DE	Bottom head meridional	Skirt attachment weld	84.3%

<u>Component Identification</u>	<u>Description</u>	<u>Limiting Condition</u>	<u>Examination % Complete</u>
DF	Bottom head meridional	Skirt attachment weld	84.3%

Licensee's Basis for Requesting Relief: The Licensee states that complete examination of the subject welds is not practical due to scanning limitations and access restrictions from various RPV appurtenances (such as adjacent RPV nozzles and attachments, the biological shield wall, and control rod drive housings).

The circumferential and longitudinal shell welds are examined using automated ultrasonic examination techniques to the maximum extent practical. Supplemental manual examinations may yield increases in examination coverage; however, these increases come at the cost of increased personnel radiation exposure. Therefore, due to ALARA considerations, supplemental manual ultrasonic examinations are not being considered to augment examination coverage.

Licensee's Proposed Alternative Examination: The Licensee states that no alternative provisions are practical for the subject weld examinations. The manual ultrasonic examination of the bottom head welds are performed to the maximum extent practical and all of the welds are subject to the VT-2 examination requirements of Examination Category B-P.

Evaluation: The Code requires that all RPV shell welds and the accessible length of RPV head welds receive essentially 100% volumetric examination. The examinations are limited by physical obstructions that impede access to the welds and are, therefore, impractical to perform to the extent required by the Code from the vessel OD. In order to perform the Code-required examinations from the OD, the reactor vessel would require significant design modifications.

The 1993 Code of Federal Regulations has revoked existing relief for RPV shell welds (Item B1.10, Examination Category B-A). The NRC is requiring that licensees attempt RPV examinations with the intention of attaining 100% coverage. With the obvious physical obstructions associated with the OD examinations, ID examinations prevail as a viable method of satisfying the new Regulations.

Conclusions: Based on the above discussion, it is concluded that access to the bottom head meridional welds is limited and that complete volumetric examination is impractical to perform. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief be granted for the Item B1.20 head welds. However, because the new Regulations are intended to necessitate complete coverage of the RPV shell welds, it is recommended that relief be denied for the Item B1.10 welds.

3.1.1.2 Request for Relief RR-08, Examination Category B-D, Item B3.90, Reactor Pressure Vessel Nozzle-to-Vessel Welds

NOTE: Request for Relief No. RR-08 was previously submitted and approved as Relief Request 2.4.4 in the NRC SER dated March 4, 1988. The original relief request included four nozzle-to-vessel welds; the new relief request includes 34 nozzle-to-vessel welds. Therefore, RR-08 will be reevaluated to document the changes.

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-D, Item B3.90 requires a 100% volumetric examination of all reactor pressure vessel nozzle-to-vessel welds during the first inspection interval as defined by Figure IWB-2500-7(b).

Licensee's Code Relief Request: Relief is requested from examining 100% of the Code-required volume (CRV) of the following RPV nozzle-to-vessel welds:



<u>Nozzle Identification</u>	<u>Transverse Scan CRV Examinable</u>	<u>Parallel Scan CRV Examinable</u>
N1A,B	79.29%	50%
N2A-H,J,K	77.55%	50%
N3A,B,C,D	73.26%	50%
N4A,B,C,E,F	77.55%	50%
N4D	77.55%	50%
N5A,B	77.55%	50%
N6A,B	72.36%	50%
N7	76.24%	50%
N8A,B	78.22%	50%
N9	78.22%	50%
N17A,B,C,D	77.55%	50%

Licensee's Basis for Requesting Relief: The Licensee states that the Limerick, Unit 1 RPV has thirty four (34) nozzles, the welds of which require volumetric (UT) examination per Examination Category B-D. Due to the nozzle forging configuration, portions of the Code-required examination volume cannot be completely examined. The curvature of the blend radius of the nozzle forging is such that ultrasonic scanning of the weld is interrupted due to loss of contact of the UT search unit. This limitation affects both the transverse and parallel scanning of the Code-required examination volume.

In support of ALARA, 28 of the 34 nozzle-to-vessel welds are examined using remote automatic ultrasonic techniques. These techniques, however, further limit the examination coverage due to scanning limitations inherent in the scanner design.

In addition to component configuration, certain nozzle-to-vessel weld examinations are further limited by RPV design obstructions (such as RPV appurtenances).

Licensee's Proposed Alternative Examination: None. The Licensee states that the Code-required volumetric examination will be performed to the maximum extent feasible.

Evaluation: The nozzle forging configuration is such that the volumetric examination of the subject RPV nozzle-to-vessel welds

is restricted. Therefore, the volumetric examinations are impractical to perform to the extent required by the Code. In order to examine the welds in accordance with the requirements, the nozzles, and thus the reactor vessel, would require redesign. Imposition of the requirement on Philadelphia Electric Company would cause a burden that would not be compensated significantly by an increase in safety above that provided by the limited examination.

The Licensee has stated that the volumetric examination of these welds will be performed to the maximum extent feasible. The percentages of the Code-required volume that can and will be completed (listed above) are consistent with those of other plants of similar design. The limited Section XI volumetric examination of these welds will provide reasonable assurance of the continued inservice structural integrity.

Conclusions: It is concluded that the volumetric examinations of the subject Limerick, Unit 1 RPV nozzle-to-vessel welds are impractical to perform to the extent required by the Code. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief be granted as requested.

3.1.2 Pressurizer (Does not apply to BWRs)

3.1.3 Heat Exchangers and Steam Generators (No relief requests)

3.1.4 Piping Pressure Boundary

3.1.4.1 Request for Relief No. RR-10, Examination Category B-F, Item B5.130, Class 1 Dissimilar Metal Piping Welds

Relief Request No. RR-10 was previously submitted and approved as Relief Request 2.7.1 in an NRC Safety Evaluation Report (SER) dated March 4, 1988. Therefore, pursuant to

10 CFR 50.55a(g)(6)(i), it is recommended that relief remain granted.

### 3.1.5 Pump Pressure Boundary

#### 3.1.5.1 Request for Relief No. RR-02, Examination Category B-L-2, Item B12.20, Examination of Reactor Recirculation Pump Internal Surfaces

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-L-2, Item B12.20 requires a VT-3 visual examination of the internal surfaces of at least one of the two reactor recirculation pump casings during the first inspection interval.

Licensee's Code Relief Request: Relief is requested from performing the Code-required VT-3 visual examination of the pump casing internal surfaces.

Licensee's Basis for Requesting Relief: The Licensee states that in the absence of any other required maintenance on either of the reactor recirculation pumps, the hardships associated with pump disassembly, solely for the purpose of visual inspection of the internal surfaces, far exceed any safety benefits resulting from such an inspection.

The disassembly of a reactor recirculation pump at Limerick, Unit 1 constitutes a maintenance task of major proportions measured both in terms of manhours and associated personnel exposure.

The Licensee further states that plant experience with the pump casing material in this application is favorable. The additional assurance of structural integrity afforded by visual examination is far outweighed by the cost and potential hazards of the inspection. In consideration of this situation, the 1989 Edition

of Section XI requires a VT-3 examination only if the pump is disassembled for maintenance, repair or volumetric examination.

Licensee's Proposed Alternative Examination: The Licensee proposes to perform VT-3 visual examinations on the accessible internal surfaces of one reactor recirculation pump should the required inspection area of either pump become accessible as a result of disassembly of the pump for other purposes.

Evaluation: The disassembly of a pump for the sole purpose of visual examination is impractical. In addition to the manhours associated with this maintenance task, the potential hazards associated with personnel radiation exposure are not compensated by an increase in the level of quality and safety.

The Code Committee recognized the impracticality of disassembling a pump solely for the purpose of performing the VT-3 visual examination and changed the Code requirement in the 1988 Addenda and subsequent editions. The NRC has reviewed and approved the use of the 1989 Edition in the Code of Federal Regulations. 10 CFR 50.55a(g)(4)(iv) allows for the use of subsequent editions and addenda that are incorporated by reference in the Regulations subject to Commission approval.

Conclusions: Based on the NRC approval of the 1989 Edition, and pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief be granted as requested.

### 3.1.6 Valve Pressure Boundary

#### 3.1.6.1 Request for Relief No. RR-03, Examination Category B-M-2, Item B12.50, Examination of Class 1 Valve Bodies Greater Than 4 Inch NPS

Relief Request No. RR-03 was previously submitted and approved as Relief Request 2.13.1 in an NRC Safety Evaluation Report (SER)

dated March 4, 1988. There were no changes other than the relief request identification number, therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief remain granted.

### 3.1.7 General

## 3.2 Class 2 Components

### 3.2.1 Pressure Vessels

#### 3.2.1.1 Request for Relief RR-06, Examination Category C-A, Item C1.10, RHR Heat Exchanger Shell Circumferential Weld

NOTE: Request for Relief No. RR-06 was previously submitted and approved as Relief Request 3.4.1 in the NRC SER dated March 4, 1988. There were no changes other than the relief request identification number, therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief remain granted.

### 3.2.2 Piping (No relief requests)

### 3.2.3 Pumps

#### 3.2.3.1 Request for Relief RR-07, Examination Category C-G, Item C1.10, RHR and Core Spray Pump Casing Welds

NOTE: Request for Relief No. RR-07 was previously submitted and approved as Relief Request 3.10.1 in the NRC SER dated March 4, 1988. There were no changes other than the relief request identification number, therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief remain granted.

3.2.4 Valves (No relief requests)

3.2.5 General

3.2.5.1 Request for Relief RR-05, Examination Category C-C, Items C3.10, C3.20, and C3.30, Integrally Welded Attachments for Vessels, Piping, and Pumps

NOTE: Request for Relief No. RR-05 incorporates Relief Requests 3.4.3, 3.7.1, and 3.10.2, which were submitted and approved by an NRC SER dated March 4, 1988. The only change noted is to the integrally welded attachments listed in Relief Request 3.7.1. The twenty-three attachments originally listed in RR 3.7.1 were removed due to incorporation of Code Case N-460 (90% examination and greater being essentially 100%) and have been succeeded by two new attachments: EBB-129-H005(IA) and GBB-119-H002(IA), each receiving 70% of the Code-required surface examination. The deletion of 23 and the addition of two new attachments do not significantly impact the previous evaluation, therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief remain granted.

3.3 Class 3 Components (No relief requests)

3.4 Pressure Tests

3.4.1 Class 1 System Pressure Tests (No relief requests)



### 3.4.2 Class 2 System Pressure Tests

#### 3.4.2.1 Request for Relief No. RR-13-1.1, Paragraph IWC-5220, Pressure Testing of Service Air Piping

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system functional and hydrostatic pressure tests and VT-2 visual examination of the Class 2 Service Air piping, HBB-166, between and including valves 15-1139 and 15-1140.

Licensee's Basis for Requesting Relief: The Licensee states that during normal plant operation, Service Air Header pressure is approximately 100-110 psig. HBB-166 is isolated from the Service Air Header by valves that are normally closed: 15-1138 and 15-1139 outside containment and 15-1140 and 15-1212 inside containment.

The Licensee further states that although 10 CFR 50 Appendix J local leak rate tests (LLRTs) use a lower pressure (44 psig) than normal Service Air pressure, they offer the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system functional tests and the ten-year hydrostatic tests.
- 2) LLRTs have the ability to quantify leakage, which is not feasible with VT-2 inspection on air systems.

- 3) LLRTs conservatively test some unclassified piping and include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J local leak rate testing in lieu of the Code-required pressure tests.

Evaluation: The Code requires that this section of Class 2 Service Air piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. 10 CFR 50 Appendix J LLRT, Type C, is intended to measure containment isolation valve leakage rates. Review of P&ID Drawing ISI-M-15, Sht 6 of 6, shows that the subject isolable piping has the necessary test connections to perform all of the required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.2.2 Request for Relief No. RR-13-1.3, Paragraph IWC-5220, Pressure Testing of RCIC Turbine Exhaust Vacuum Breaker and RCIC Vacuum Pump Exhaust to Suppression Pool Lines.

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components

within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system functional and hydrostatic pressure tests and the subsequent VT-2 visual examination of the Class 2, RCIC Turbine Exhaust Vacuum Breaker lines HBB-101 and HBB-145 between and including valves HV-49-1F084, HV-49-1F080, HV-49-1F060, and 49-1F001. Also, RCIC Vacuum Pump Exhaust to Suppression Pool line, HBB-150 between valves 49-1F028 and HV-49-1F002, 49-1038, and 49-1F055.

Licensee's Basis for Requesting Relief: The Licensee states that the 10 CFR 50 Appendix J local leak rate testing meets the intent of the ASME requirement.

The Licensee further states that during LLRTs, the subject piping is pressurized to 44 psig, a substantially higher pressure than that developed during a system functional test. As such, the LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system functional tests and the ten-year hydrostatic tests.
- 2) LLRTs have the ability to quantify leakage, which is not feasible with VT-2 inspection on this essentially gas-filled piping.
- 3) LLRTs conservatively include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J LLRT in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 2 piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. 10 CFR 50 Appendix J LLRT, Type C, is intended to measure containment isolation valve leakage rates. Review of P&ID Drawing ISI-M-49 shows that the subject isolable piping has the necessary test connections to perform all of the required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.2.3 Request for Relief No. RR-13-1.4, Paragraph IWC-5220, Pressure Testing of HPCI Turbine Exhaust Vacuum Breaker Lines

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system functional and hydrostatic pressure tests and the subsequent VT-2 visual examination of the Class 2, HPCI Turbine Exhaust Vacuum Breaker lines HBB-108 and HBB-144 between and including valves HV-55-1F095, HV-55-1F093, HV-55-1F072, and 55-1F021.

Licensee's Basis for Requesting Relief: The Licensee states that the 10 CFR 50 Appendix J local leak rate testing meets the intent of the ASME requirement.

The Licensee further states that during LLRTs the subject piping is pressurized to 44 psig, a substantially higher pressure than that developed during a system functional test. As such, the LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system functional tests or the ten-year hydrostatic tests.
- 2) LLRTs have the ability to quantify leakage, which is not feasible with VT-2 inspection on this essentially gas-filled piping.
- 3) LLRTs conservatively include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J LLRT in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 2 piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. 10 CFR 50 Appendix J LLRT, Type C, is intended to measure containment isolation valve leakage rates. Review of P&ID Drawing ISI-M-55 shows that the subject isolable piping has the necessary test connections to perform all of the required tests. Consequently,

no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.2.4 Request for Relief No. RR-13-1.6, Paragraph IWC-5220, Pressure Testing of Post-LOCA Recombiner Piping and Combustible Gas Analyzer, Hydrogen/Oxygen Sampling Lines

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system functional and hydrostatic pressure tests and the subsequent VT-2 visual examination of the Class 2 Post-LOCA Recombiner piping HBB-128 and HBB-127 between and including "A" Recombiner and valves HV-57-161, HV-57-162, and HBB-126 and HBB-124 between and including "B" Recombiner and valves HV-57-163, and HV-57-164.

Relief is also requested for the Class 2 hydrogen/oxygen sampling lines HBB-116 and HBB-117, between connections on the Combustible Gas Analyzer Package 10S205, and valves SV-57-159, SV-57-141, SV-57-142 & SV-57-147B, SV-57-143, SV-57-144 & SV-57-146B, and SV-57-145(HCB-117) and for HCB-116 and HCB-117, between connections on the Combustible Gas Analyzer Package 10S206, and valves SV-57-184 & SV-57-146A, SV-57-186 & SV-57-147A, SV-57-195, SV-57-190 & 57-1090, SV-57-185(HCB-117).



Licensee's Basis for Requesting Relief: The Licensee states that the system Contaminated Pipe Inspection (CPI) meets the intent of the ASME requirement.

The Licensee further states that during normal plant operation, this piping is either isolated or exposed to less than 1 psig (normal containment pressure). During CPI testing associated with the Leak Reduction Program (FSAR 6.2.8), this piping is pressurized to 44 psig. CPIs for this system are performed similarly to 10 CFR 50 Appendix J local leak rate testing and, as such, they offer the following advantages over system pressure tests:

- 1) CPIs are performed more frequently than periodic system functional tests and the ten-year hydrostatic tests.
- 2) CPIs have the ability to quantify leakage, which is not feasible with VT-2 inspection on this air filled piping.
- 3) CPIs conservatively include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the CPI fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the system CPI in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 2 piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. Review of P&ID Drawing ISI-M-57 (Sheets 1 and 2) shows that the subject isolable piping has the necessary test connections to perform all of the

required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.2.5 Request for Relief No. RR-13-1.7, Paragraph IWC-5220, Pressure Testing of Containment Atmospheric Control Piping

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system functional and hydrostatic pressure tests and the subsequent VT-2 visual examination of the Class 2 Containment Atmospheric Control piping (illustrated in Figures RR-13-1.7a & b in the Licensee's submittal).

Licensee's Basis for Requesting Relief: The Licensee states that the 10 CFR 50 Appendix J local leak rate testing meets the intent of the ASME requirement.

The Licensee further states that the LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system functional tests.

- 2) LLRTs have the ability to quantify leakage, which is not feasible with VT-2 inspection on this essentially gas-filled piping.
- 3) LLRTs conservatively include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J LLRT in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 2 piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. 10 CFR 50 Appendix J LLRT, Type C, is intended to measure containment isolation valve leakage rates. Review of Figures RR-13-1.7a & b (supplied with the Licensee's submittal) shows that the subject isolable piping has the necessary test connections to perform all of the required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.2.6 Request for Relief No. RR-13-1.8, Paragraph IWC-5220, Pressure Testing of Containment Electrical Penetration Tubing

NOTE: Relief Request RR-13-1.8 was deleted from the ISI Program in the submittal dated May 18, 1993.

3.4.2.7 Request for Relief No. RR-13-1.9, Paragraph IWC-5220, Pressure Testing of Primary Containment Leak Testing Lines

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system functional and hydrostatic pressure tests and the subsequent VT-2 visual examination of the Class 2, Primary Containment Leak Testing lines HCB-122 between and including valves 60-1050, 60-1057, and 60-1058; HCB-122 between and including valves 60-1051, 60-1070, and 60-1071; and HCB-122 between and including valves 60-1052, 60-1073, and 60-1074.

Licensee's Basis for Requesting Relief: The Licensee states that the 10 CFR 50 Appendix J local leak rate testing meets the intent of the ASME requirement.

The Licensee further states that during normal plant operation, this piping is not pressurized and is isolated by locked valves. During the Appendix J Integrated Leak Rate Testing (ILRT), the piping is pressurized to 44 psig. This piping is also pressurized during LLRTs. LLRTs offer the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system functional tests.
- 2) LLRTs have the ability to quantify leakage, which is not feasible with a VT-2 inspection on this air filled piping.
- 3) LLRTs conservatively include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J LLRT and the ILRT in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 2 piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. 10 CFR 50 Appendix J LLRT, Type C, is intended to measure containment isolation valve leakage rates. Review of P&ID Drawing ISI-M-60 shows that the subject isolable piping has the necessary test connections to perform all of the required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.2.8 Request for Relief No. RR-13-1.10, Paragraph IWC-5220, Pressure Testing of Plant Process Radiation Monitoring System Piping

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system functional and hydrostatic pressure tests and the subsequent VT-2 visual examination of the Class 2 Plant Process Radiation Monitoring System piping HCB-128, between and including valves 26-1009, 26-1011, SV-26-190A & B, and 26-1010, 26-1012, SV-26-190C & D.

Licensee's Basis for Requesting Relief: The Licensee states that the 10 CFR 50 Appendix J local leak rate testing meets the intent of the ASME requirement.

The Licensee further states that during LLRTs the subject piping is pressurized to 44 psig, a substantially higher pressure than that developed during a system functional test. As such, the LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system functional tests or the ten-year hydrostatic tests.
- 2) LLRTs have the ability to quantify leakage, which is not feasible with VT-2 inspections on air systems.
- 3) LLRTs conservatively include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the LLRT fails to meet its acceptance criteria, further testing would be performed to



determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J LLRT in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 2 piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. 10 CFR 50 Appendix J LLRT, Type C, is intended to measure containment isolation valve leakage rates. Review of P&ID Drawing ISI-M-26 shows that the subject isolable piping has the necessary test connections to perform all of the required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.2.9 Request for Relief No. RR-13-1.11, Paragraph IWC-5220, Pressure Testing of Primary Containment Instrument Gas System Piping

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system functional and hydrostatic pressure tests and the subsequent VT-2 visual examination of the Class 2 Primary Containment Instrument Gas System piping as follows:

- HCB-124 piping and components at penetration X-3D, between and including valves HV-59-151B and 59-1111.
- HCB-124 piping and components at penetration X-27A, between and including valves HV-59-151A and 59-1129.
- HCB-110 piping and components at penetration X-3B, between and including valves HV-59-129B and 59-1005B.
- HCB-110 piping and components at penetration X-40H, between and including valves HV-59-129A and 59-1005A.
- Tubing and components from and including valves XV-59-141A, B, C, D, & E, to penetrations X-35C, D, E, F, & G respectively.
- HCB-110 piping and components at penetration X-35B, between and including valves HV-59-131 and 59-1056.
- HCB-109 piping and components at penetration X-40F, between and including valves HV-59-102 and 59-101.
- HCB-110 piping and components at penetration X-218, between and including valves HV-59-135 and 59-1001.

Licensee's Basis for Requesting Relief: The Licensee states that the 10 CFR 50 Appendix J local leak rate testing meets the intent of the ASME requirement.

The Licensee further states that although local leak rate tests use a lower pressure (44 psig) than normal Containment Instrument Gas pressure, they offer the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system functional tests or the ten-year hydrostatic tests.
- 2) LLRTs have the ability to quantify leakage, which is not feasible with VT-2 inspections on air systems.
- 3) LLRTs conservatively include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the LLRT fails to meet its

acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J LLRT in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 2 piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. 10 CFR 50 Appendix J LLRT, Type C, is intended to measure containment isolation valve leakage rates. Review of P&ID Drawing ISI-M-59 shows that the subject isolable piping has the necessary test connections to perform all of the required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.2.10 Request for Relief No. RR-13-1.13, Paragraph IWC-5220, Pressure Testing of Liquid Radwaste Collection System Piping

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-H, requires that the pressure retaining components within each system boundary be subjected to a VT-2 visual examination during system functional/in-service tests (IWC-5221) and a system hydrostatic test (IWC-5222).

Licensee's Code Relief Request: Relief is requested from performing the Code-required system pressure tests and hydrostatic test, and the subsequent VT-2 visual examination of the Class 2 Drywell Floor Drain Sump piping and components

HCB-106 and HBB-164 at penetration X-231A, between and including valves 61-1025 and HV-61-111 and the Drywell Equipment Drain Tank piping and components HCB-107 and HBB-165, at penetration X-231B, between and including valves 61-1024 and HV-61-131.

Licensee's Basis for Requesting Relief: The Licensee states that the 10 CFR 50 Appendix J local leak rate testing meets the intent of the ASME requirement.

The Licensee further states that during LLRTs the subject piping is pressurized to 44 psig, a substantially higher pressure than that developed during a system pressure test. As such, the LLRT offers the following advantages over system pressure tests:

- 1) LLRTs are performed more frequently than periodic system pressure tests or the ten-year hydrostatic test.
- 2) LLRTs conservatively test some unclassified piping and include through-valve leakage, which would not be identified in a VT-2 inspection.

IWC-5210(b) allows for air tests that permit location and detection of through-wall leakage. If the LLRT fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J LLRT in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 2 piping receive a system pressure test once every inspection period and a system hydrostatic test once every interval. 10 CFR 50 Appendix J LLRT, Type C, is intended to measure containment isolation valve leakage rates. Review of P&ID Drawing ISI-M-61 shows that the subject isolable piping has the necessary test

connections to perform all of the required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

### 3.4.3 Class 3 System Pressure Tests

#### 3.4.3.1 Request for Relief No. 13-1.2, Paragraphs IWD-5221 and IWD-5223, System Pressure Tests of the Nuclear Boiler Vessel Instrumentation Tubing

Code Requirement: Section XI, Table IWD-2500-1, Examination Categories D-A and D-B, Items D1.10 and D2.10 respectively, require a VT-2 visual examination during the performance of the system inservice test (IWD-5221) and the system hydrostatic test (IWD-5223) for Class 3 pressure retaining components.

Licensee's Code Relief Request: Relief is requested from performing the Code-required pressure tests and VT-2 visual examinations of the Class 3 Nuclear Boiler Vessel instrumentation tubing to drywell pressure instrumentation outboard of valves HV-42-147A, B, C, and D.

Licensee's Basis for Requesting Relief: The Licensee states that normal drywell pressure is less than 1 psig. The pressurizing fluid is nitrogen gas. A VT-2 inspection looking for a nitrogen gas leak with less than 1 psig driving pressure would be inconclusive.

The Licensee further states that the LGS Technical Specifications require channel checks every 12 hours to verify drywell pressure instrumentation operability. This is performed by verifying

proper pressure readings. A significant tubing leak will cause an improper reading; the leak will be corrected and readings taken again. The tubing and components are also included in the integrated leak rate test (ILRT) boundary.

Licensee's Proposed Alternative Examination: None. The Licensee contends that the LGS Technical Specification operability checks and ILRT provide assurance of component integrity.

Evaluation: The Code requires that the subject Class 3 pressure retaining piping receive system inservice and system hydrostatic pressure tests. Review of P&ID Drawings ISI-M-42, ISI-M-57, and ISI-M-59 shows that the subject lines do not contain test connections, therefore, the Code-required pressure tests are impractical to perform. Imposition of this requirement would result in hardship without a compensating increase in the level of safety.

The Licensee has proposed the Technical Specification-required channel checks, performed every 12 hours, and the 10 CFR 50 Appendix J, ILRT, as an alternative examination. This proposal will provide a reasonable assurance of the continued inservice structural integrity of the instrumentation tubing. For the ILRT to be effective for these lines, valves HV-42-147A, B, C, and D should remain open during the test in order to pressurize the subject system.

Conclusions: It is concluded that the Code-required pressure tests are impractical to perform and that imposition of these requirements could create a burden on Philadelphia Electric Company without a compensating increase in quality and safety. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief be granted provided that valves HV-42-147A, B, C, and D remain open during performance of the Appendix J ILRT.



3.4.3.2 Request for Relief No. 13-1.5, Paragraphs IWD-5221 and IWD-5223, System Pressure Tests of the Containment Atmospheric Control Tubing

Code Requirement: Section XI, Table IWD-2500-1, Examination Categories D-A and D-B, Items D1.10 and D2.10 respectively, require a VT-2 visual examination during the performance of the system inservice test (IWD-5221) and the system hydrostatic test (IWD-5223) for Class 3 pressure retaining components.

Licensee's Code Relief Request: Relief is requested from performing the Code-required pressure tests and VT-2 visual examinations of the Class 3 Containment Atmospheric Control tubing to the suppression pool pressure and level instrumentation outboard of valves SV-57-101.

Licensee's Basis for Requesting Relief: The Licensee states that normal suppression pool pressure is less than 1 psig. The pressurizing fluid is nitrogen gas. A VT-2 inspection looking for a nitrogen gas leak with less than 1 psig driving pressure would be inconclusive.

The Licensee further states that the LGS Technical Specifications require monitoring suppression pool pressure every 12 hours to verify proper pressure. Additionally, Technical Specifications require channel checks every 24 hours to verify operability of the suppression pool level indicators. This is performed by verifying proper pressure readings. A significant tubing leak will cause an improper reading; the leak will be corrected and readings taken again. Also, the tubing and components are also included in the integrated leak rate test boundary.

Licensee's Proposed Alternative Examination: None. The Licensee contends that the LGS Technical Specification operability checks and ILRT provide assurance of component integrity.

Evaluation: The Code requires that the subject Class 3 pressure retaining piping receive system inservice and system hydrostatic pressure tests. Review of P&ID Drawing ISI-M-57 shows that the subject tubing does not contain a test connection, therefore, the Code-required pressure tests are impractical to perform in this case. Imposition of this requirement would result in hardship without a compensating increase in the level of safety.

The Licensee has proposed the Technical Specification-required suppression pool instrumentation operability checks, and the 10 CFR 50 Appendix J, ILRT, as an alternative examination. This examination will provide a reasonable assurance of the continued inservice structural integrity of the instrumentation tubing. For the ILRT to be effective for this instrument and line, valve SV-57-101 should remain open during the test in order to pressurize the subject system.

Conclusions: It is concluded that the Code-required pressure tests are impractical to perform and that imposition of these requirements could create a burden on Philadelphia Electric Company without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief be granted provided that valve SV-57-101 remains open during performance of the Appendix J ILRT.

3.4.3.3 Request for Relief No. 13-1.12, Paragraphs IWD-5221 and IWD-5223, Pressure Tests of the Primary Containment Instrument Gas System

Code Requirement: Section XI, Table IWD-2500-1, Examination Categories D-A and D-B, Items D1.10 and D2.10 respectively, require a VT-2 visual examination during the performance of the system inservice test (IWD-5221) and the system hydrostatic test (IWD-5223) for Class 3 pressure retaining components.

Licensee's Code Relief Request: Relief is requested from performing the Code-required pressure tests and VT-2 visual

examinations of the Class 3 Primary Containment Instrument Gas System, HCC-134 piping and components: between and including valves 59-1111, 59-1131E & 59-1131K, and PSV-41-1F013E, & -K; between and including valves 59-1129, 59-1131H, 59-1131M, 59-1131S, and PSV-41-1F013H, -M, -S.

Licensee's Basis for Requesting Relief: The Licensee states that testing similar to 10 CFR 50 Appendix J local leak rate testing meets the intent of the ASME requirement.

The Licensee further states that during each refueling outage, Containment Leakage Check examinations are performed on this piping at operating pressure. Additionally, during surveillance testing of the ADS accumulator system, conducted each refueling outage in accordance with UFSAR, para. 5.2.2.10, the portion of piping and components between and including valves 59-1023E, -H, -K, -M, & -S; 59-1131E, -H, -K, -M, and -S; PSV-41-1F013E, -H, -K, -M, & -S are tested in a manner similar to 10 CFR 50 Appendix J local leak rate testing. These tests offer the following advantages over system pressure tests:

- 1) Testing is performed more frequently than periodic system pressure tests or the ten-year hydrostatic tests.
- 2) The tests have the ability to quantify leakage, which is not feasible with a VT-2 inspection on this air system.
- 3) The tests conservatively include through-valve leakage, which would not be identified in a VT-2 inspection.

If the above testing fails to meet its acceptance criteria, further testing would be performed to determine the location of the leaks, followed by appropriate corrective maintenance and an appropriate retest.

Licensee's Proposed Alternative Examination: None. The Licensee proposes to use the 10 CFR 50 Appendix J LLRT and the Containment Leak Check in lieu of the Code-required pressure tests.

Evaluation: The Code requires that the subject Class 3 piping receive a system inservice pressure test once every inspection period and a system hydrostatic test once every interval. Review of P&ID Drawings ISI-M-59 and ISI-M-41 shows that the subject isolable piping has the necessary test connections to perform all of the required tests. Consequently, no impracticality or burden has been identified that is associated with performance of the Code-required pressure tests.

Conclusions: It is concluded that the Code-required pressure tests are not impractical to perform and that imposition of these requirements does not create a hardship or burden on the Licensee. Therefore, it is recommended that relief be denied.

3.4.4 General (No relief requests)

3.5 General

3.5.1 Ultrasonic Examination Techniques (No relief requests)

3.5.2 Exempted Components (No relief requests)

3.5.3 Other

3.5.3.1 Request for Relief RR-04, Examination Category F-C, Item F3.50, Examination and Testing of Component Standard Supports

NOTE: Request for Relief No. RR-04 was previously submitted and approved as Relief Request 6.4.1 in the NRC SER dated March 4, 1988. The Alternate Provisions section of the new Relief Request has been expanded to include a new snubber examination and test program (AUG-13).

Functional tests are not in the scope of this document and will be evaluated elsewhere; therefore AUG-13, is not included in this evaluation.

3.5.3.2 Request for Relief No. RR-09, Examination Categories F-A, F-B, and F-C, Selection and Additional Examination Requirements for Class 1, 2, and 3 Piping Supports

Code Requirement: Section XI, Paragraph IWF-2510 requires that component supports selected for examination be supports of those components that are required to be examined under IWB, IWC, and IWD during the first inspection interval. These component supports shall be examined in accordance with Table IWF-2500-1.

Section XI, Paragraph IWF-2430 details the steps to be taken should additional examinations be required as a result of component support examinations requiring corrective actions per IWF-3000.

Licensee's Code Relief Request: Relief is requested from the IWF-2510 rules for component support selection and the IWF-2430 rules for additional examination.

Licensee's Basis for Requesting Relief: The Code does not provide specific guidance for component support selection and, therefore, user interpretation of the rules, as written, may not meet the intent of the Code. In addition, the rules for additional examinations are general and cannot effectively complement the selection basis, nor target specific failure modes.

While IWF-2510 implies that component supports be selected for examination, specific criteria for this selection have not been provided. Interpretation of these requirements is inconsistent and may vary by Code Category.

Also, the current provisions in the Code for additional examinations are random and may or may not target a potential failure mode of a specific support population. Enhancement of the component support selection basis should also include a complementary plan for selection of additional examinations.

In addition, ASME has recognized the need for a more definitive selection basis for component supports and, has issued Code Case N-491.

Licensee's Proposed Alternative Examination: The Licensee proposes a sampling plan that parallels Code Case N-491. The sampling plan is based on selection of a specified percentage of the nonexempt population of component supports; the exact percentage is determined by the class of the component support.

Within the population, individual component supports are classified by support type, e.g., anchor, mechanical snubber, rigid, variable.

The component supports selected shall be proportionally distributed within each class by system and type according to the number of supports of each type within each system.

Evaluation: Review has been completed on Attachment 1 to Relief Request RR-09, "Class 1, 2, and 3 Piping Supports Sampling Plan." This document parallels Code Case N-491 and provides the specific details of the sampling plan to be applied to Limerick, Unit 1 for the component support examinations and the rules that apply when additional support examinations are required.

The NRC has reviewed Code Case N-491 and has determined it to be acceptable by reference in Revision 10 of Regulatory Guide 1.147, *Inservice Inspection Code Case Acceptability, ASME Section XI, Division I*. Thus, the Licensee's proposed alternative is considered acceptable.



Conclusions: It is concluded that the Licensee's proposed alternative for the selection of Class 1, 2, and 3 component supports to be examined provides an acceptable level of quality and safety because it meets or exceeds the intent of the Code requirements. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), it is recommended that relief be authorized as requested.

3.5.3.3 Request for Relief No. RR-12, Authorization Request for Use of ASME Code Cases N-479-1 and N-495

Code Requirement: Code Cases are periodically published by ASME to either clarifying the intent of the Code rules or to provide rules and regulations for circumstances that are not currently covered by existing Code rules and need to be addressed in a timely manner. Use of these nonmandatory Code Cases for ISI is subject to general acceptance by the NRC staff and incorporation into Regulatory Guide 1.147. Pursuant to 10 CFR 50.55a, other Code Cases may be used provided specific authorization is granted.

Licensee's Code Relief Request: This relief request is for authorization to use ASME Code Cases N-479-1, *Boiling Water Reactor (BWR) Main Steam Hydrostatic Test*, and N-495, *Hydrostatic Testing of Relief Valves* in the Limerick Generating Station, Unit 1, ISI Program.

Licensee's Basis for Requesting Relief: The subject Code Cases represent technically acceptable alternative rules to ASME Section XI Code rules. The fact that the Code Cases have not been endorsed in the Regulatory Guide is not a reflection of their technical adequacy given the timing of their publication with respect to the most recent revision of the Regulatory Guide. It is expected that these Code Cases will be accepted in a subsequent revision of the Regulatory Guide.

NOTE: Since the Licensee's submittal, both of these Code Cases have been reviewed by the NRC staff and approved for

general use by reference in Revision 10 of Regulatory Guide 1.147.

Licensee's Proposed Alternative Examination: The alternative rules of the subject Code Cases shall be implemented in the Limerick, Unit 1 ISI Program for the first 10-year ISI interval.

Evaluation: ASME Code Case N-479-1 provides alternative rules for the hydrostatic testing of Class 2 Main Steam piping that is incapable of being isolated from the Class 1 portion of the system. Use of this Code Case allows testing to the alternative rules of IWB-5222 (Class 1).

ASME Code Case N-495 allows removal of relief valves, during Class 2 and 3 hydrostatic pressure tests, when gagging may not be practical or possible. Use of this Code Case provides a consistent set of rules while still accomplishing all Code-intended pressure tests.

Conclusions: At the time of the Licensee's submittal, these Code Cases were not incorporated into Regulatory Guide 1.147. In July 1993, they were approved for general use in Revision 10, therefore, relief is not required.

3.5.3.4 Request for Relief No. RR-14, Augmented USNRC MEB 3-1 Examinations

Code Requirement: NRC Mechanical Engineering Branch Technical Position MEB 3-1 (NUREG-0800) prescribes that cracks or breaks need not be postulated for containment isolation piping provided that certain stress criteria are met and all pipe welds are volumetrically examined during each inservice inspection interval.

Licensee's Code Relief Request: Relief is requested from performing a 100% volumetric examination of the flued head-to-valve weld RC-131.

Licensee's Basis for Requesting Relief: The Licensee contends that the flued head-to-valve component configuration precludes complete examination.

Licensee's Proposed Alternative Examination: None. The Licensee states that 85% of the required augmented volumetric examination is being completed and that a complete 100% surface examination will be performed.

Evaluation: As the Licensee has stated, the flued head-to-valve configuration makes complete volumetric examination impractical to perform. The Licensee is completing 85% of the required augmented volumetric examination of flued head-to-valve weld RC-131. In addition, a complete surface examination is being performed for ISI. Imposition of 100% volumetric examination would necessitate redesign and replacement of the subject containment isolation piping weld.

Conclusions: Based on the impracticality of complying with the augmented examination requirement for weld RC-131, the burden on the Licensee if the requirement were imposed, and considering the significant portion of the examination that is being completed, it is recommended that, pursuant to 10 CFR 50.55a(g)(6)(i), relief be granted as requested.

#### 4. CONCLUSION

Pursuant to 10 CFR 50.55a(g)(6)(i), it has been determined that certain inservice examinations cannot be performed to the extent required by Section XI of the ASME Code. In those cases where the Licensee has demonstrated that specific Section XI requirements are impractical, it is recommended that relief be granted. The granting of relief will not endanger life, property, or the common defense and security and is otherwise in the public interest, giving due consideration to the burden upon the Licensee that could result if the requirements were imposed on the facility.

In certain cases, pursuant to 10 CFR 50.55a(a)(3), it is concluded that in certain cases, the Licensee's proposed alternative provides an acceptable level of quality and safety in lieu of the Code-required examination. In those cases, it is recommended that the proposed alternative be authorized.

For Request for Relief Nos. RR-01 (in part), RR-13-1.1, RR-13-1.3, RR-13-1.4, RR-13-1.6, RR-13-1.7, RR-13-1.9, RR-13-1.10, RR-13-1.11, RR-13-1.12, and RR-13-1.13, it is concluded that the Licensee has not provided sufficient information to support the determination that the Code requirement is impractical, and that requiring the Licensee to comply with the Code requirement would not result in hardship. Therefore, relief is denied.

For Request for Relief No. RR-12 it is determined that relief is not required. Request for Relief No. RR-13-1.8 was withdrawn by the Licensee and deleted from the ISI Program Plan.

This technical evaluation has not identified any practical method by which the Licensee can meet all the specific inservice inspection requirements of Section XI of the ASME Code for the existing Limerick Generating Station, Unit 1, facility. Compliance with all the applicable Section XI-required inspections would necessitate redesign of a significant number of plant systems, procurement of replacement components, installation of the new components, and baseline examination of these components. Even after the redesign efforts, complete compliance with the Section XI examination requirements probably could not be achieved. Therefore, it is concluded that the public interest is not served by imposing certain provisions of Section XI

of the ASME Code that have been determined to be impractical. Pursuant to 10 CFR 50.55a(g)(6), relief is allowed from the requirements that are impractical to implement, or alternatively, pursuant to 10 CFR 50.55a(a)(3), alternatives to the Code-required examinations may be authorized provided that either (i) the proposed alternatives provide an acceptable level of quality and safety or that (ii) Code compliance would result in hardship or unusual difficulty without a compensating increase in safety.

The Licensee should continue to monitor the development of new or improved examination techniques. As improvements in these areas are achieved, the Licensee should incorporate these techniques in the ISI program plan examination requirements.

Based on the review of the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection Program Plan*, Revision 1, the Licensee's response to the NRC's request for additional information, and the recommendations for granting relief from the ISI examination requirements that have been determined to be impractical, it is concluded that the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection Program Plan*, Revision 1, with the exception of Request for Relief Nos. RR-01 (in part), RR-13-1.1, RR-13-1.3, RR-13-1.4, RR-13-1.6, RR-13-1.7, RR-13-1.9, RR-13-1.10, RR-13-1.11, RR-13-1.12, and RR-13-1.13, is acceptable and in compliance with 10 CFR 50.55a(g)(4).

## 5. REFERENCES

1. Code of Federal Regulations, Title 10, Part 50.
2. American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, Division 1:
  - 1974 Edition through Summer 1975 Addenda
  - 1980 Edition through Winter 1981 Addenda
  - 1986 Edition
3. *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection Program Plan* (Specification NE-42), Revision 1, dated October 4, 1991.
4. *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection (ISI) Program Plan* (Specification 8031-P-500).
5. *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Augmented Inservice Inspection Program* (Specification 8031-P-501).
6. Letter, dated May 18, 1993, G. A. Hunger, Jr. [Philadelphia Electric Company (PECo)] to Document Control Desk (NRC), containing Revision 1 to Relief Request No. 13 regarding performance of system pressure tests.
7. NUREG-0800, *Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants*, Section 5.2.4, "Reactor Coolant Boundary Inservice Inspection and Testing," and Section 6.6, "Inservice Inspection of Class 2 and 3 Components," July 1981.
8. Letter, dated May 20, 1993, F. Rinaldi (NRC) to G. A. Hunger (PECo), containing request for additional information on the first 10-year interval ISI program plan.
9. Letter, dated July 2, 1993, G. A. Hunger, Jr. (PECo) to Document Control Desk (NRC), containing the response to NRC request for additional information forwarding the *Limerick Generating Station, Unit 1 Inservice Inspection Program, First Ten Year Interval*, Specification NE-42, Volume 2 of 2, (ISI and Augmented ISI Program Tables) and Book 2 of 2, "Reference Drawings" (ISI Isometric and Component Drawings).
10. NRC Generic Letter 88-01, *Intergranular Stress Corrosion Cracking in Austenitic Stainless Steel Piping*, January 25, 1988.
11. NUREG-0619, *BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking*, November 1980.
12. IE Bulletin 80-13, *Cracking in Core Spray Spargers*, April 4, 1980.
13. NUREG/CR-3052 (Closeout of IE Bulletin 80-07), *BWR Jet Pump Assembly Failure*, November 1984.



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11. ABSTRACT (200 words or less)

This report presents the results of the evaluation of the *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection (ISI) Program Plan* (Specification NE-42), Revision 1, submitted January 24, 1992, including the requests for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI requirements that the Licensee has determined to be impractical. The *Limerick Generating Station, Unit 1 and Common, First 10-Year Interval Inservice Inspection Program Plan* is evaluated in Section 2 of this report. The ISI Program Plan is evaluated for (a) compliance with the appropriate edition/addenda of Section XI, (b) acceptability of examination sample, (c) correctness of the application of system or component examination exclusion criteria, and (d) compliance with ISI-related commitments identified during previous Nuclear Regulatory Commission (NRC) reviews. The requests for relief are evaluated in Section 3 of this report.

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