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United States Nuclear Regulatory Commission  
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Perry Nuclear Power Plant  
Docket No. 50-440  
Response to Request for Additional Information - Inservice Examination Program, Perry Nuclear  
Power Plant, Unit No. 1 (TAC No. M97694)

Ladies and Gentlemen:

Requests for relief from requirements of the American Society of Mechanical Engineers (ASME) Code, Section XI were submitted to the Nuclear Regulatory Commission (NRC) for the Perry Nuclear Power Plant, Unit 1, Inservice Examination Program, in a letter dated January 7, 1997 (PY-CEI/NRR-2125L), and supplemented by a letter dated February 12, 1997 (PY-CEI/NRR-2136L). In a request for additional information dated May 15, 1997, the NRC staff indicated that an initial review of the submittal had been performed, and additional information was needed to complete the review. Specifically, the NRC found the request to implement Code Cases N-522 and N-546 acceptable provided the conditions stated in the initial review were followed, and requested that information reflecting incorporation of the conditions be submitted.

The two relief requests have been revised to incorporate the conditions. A description of the NRC requests and responses to the conditions are provided in Attachment 1, and the revised relief requests are provided in Attachments 2 and 3. In addition, Relief Request PT-005 (Attachment 2) has been revised to reflect the addition of three penetrations to the Identification of Components table. The revised sections are designated by revision bars in the right margin.

If you have questions or require additional information, please contact Mr. Henry L. Hegrat, Manager - Regulatory Affairs, at (216) 280-5606.

Very truly yours,

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Attachments

cc: NRC Project Manager  
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## **BACKGROUND**

Requests for relief from requirements of the American Society of Mechanical Engineers (ASME) Code, Section XI were submitted to the Nuclear Regulatory Commission (NRC) for the Perry Nuclear Power Plant (PNPP), Unit 1, Inservice Examination Program (ISEP), in a letter dated January 7, 1997 (PY-CEI/NRR-2125L), and supplemented by a letter dated February 12, 1997 (PY-CEI/NRR-2136L). In a request for additional information dated May 15, 1997, the NRC staff indicated that an initial review of the submittal had been performed, and additional information was needed to complete the review. Specifically, the NRC has requested commitments to several specific conditions associated with Code Cases N-522 and N-546. A description of the NRC requests and responses to the conditions are provided below.

## **RELIEF REQUEST PT-005**

### NRC Conditions for Relief Request PT-005

*"In Relief Request PT-005, CEI requested to implement the alternative to Code requirements contained in Code Case N-522, "Pressure Testing of Containment Penetration Piping." The NRC finds this alternative to Code requirements acceptable for use with the following conditions:*

- (1) the test is conducted at the peak calculated containment pressure; and*
- (2) the test procedure provides criteria for the detection and location of through-wall leakages in CIVs and pipe segments between the CIVs."*

### Response to NRC Conditions (1) and (2)

These conditions have been incorporated into Relief Request PT-005, as described below. Appropriate procedures will be revised to incorporate these conditions.

In accordance with 10 CFR 50, Appendix J, Local Leak Rate Tests (LLRTs) of the penetrations identified in Relief Request PT-005 are conducted at a pressure of  $P_a$ , where  $P_a$  is the peak calculated containment internal pressure.

For LLRT of the penetrations identified in Relief Request PT-005, whenever the testing results indicate leakage, the test procedure will provide criteria for identification of the source of the leakage, including provisions for detection and location of through-wall leakage in the containment isolation valves and pipe segments in between.

## **RELIEF REQUEST PT-006**

### NRC Conditions for Relief Request PT-006

*"In Relief Request PT-006, CEI proposed to implement the alternatives to Code requirements contained in Code Case N-546, "Alternative Requirements for Qualification of VT-2 Visual Examination Personnel." The NRC staff finds this Code case acceptable for use with the following conditions:*

- (1) develop procedural guidelines for obtaining consistent, quality VT-2 visual examinations;*
- (2) document and maintain records to verify the qualification of persons selected to perform VT-2 visual examinations; and*
- (3) implement independent review and evaluation of leakage by persons other than those that performed the VT-2 visual examinations."*

### PNPP Response to Conditions (1), (2), and (3)

These conditions have been incorporated into Relief Request PT-006, as described below. Appropriate procedures will be revised to incorporate these conditions.

VT-2 examination personnel qualified in accordance with Code Case N-546 will perform examinations using procedures that provide for consistent, quality VT-2 examinations.

Training and qualification of VT-2 personnel will be documented and the records will be maintained for the life of the plant.

Procedures for the performance of VT-2 visual examinations will require that an independent review and evaluation of the VT-2 visual examination results be performed and documented on the examination records.



## **COMMITMENTS**

The following table identifies those actions which are considered to be regulatory commitments. Any other actions discussed in this document represent intended or planned actions, are described for the NRC's information, and are not regulatory commitments. Please notify the Manager - Regulatory Affairs at the Perry Nuclear Power Plant of any questions regarding this document or any associated regulatory commitments.

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### Commitments

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These conditions have been incorporated into Relief Request PT-005, as described below. Appropriate procedures will be revised to incorporate these conditions.

In accordance with 10 CFR 50, Appendix J, Local Leak Rate Tests (LLRTs) of the penetrations identified in Relief Request PT-005 are conducted at a pressure of  $P_a$ , where  $P_a$  is the peak calculated containment internal pressure.

For LLRT of the penetrations identified in Relief Request PT-005, whenever the testing results indicate leakage, the test procedure will provide criteria for identification of the source of the leakage, including provisions for detection and location of through-wall leakage in the containment isolation valves and pipe segments in between.

These conditions have been incorporated into Relief Request PT-006, as described below. Appropriate procedures will be revised to incorporate these conditions.

VT-2 examination personnel qualified in accordance with Code Case N-546 will perform examinations using procedures that provide for consistent, quality VT-2 examinations.

Training and qualification of VT-2 personnel will be documented and the records will be maintained for the life of the plant.

Procedures for the performance of VT-2 visual examinations will require that an independent review and evaluation of the VT-2 visual examination results be performed and documented on the examination records.

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Perry Nuclear Power Plant Unit 1  
RELIEF REQUEST No. PT-005  
Code Case N-522

I. Identification of Components

Penetration No.	Drawing No.	Associated ISI Pressure Test Instruction
P204	D-302-871	ISI-C11-T1201-2
P201	D-806-004	ISI-D17-T1100-2
P317	D-806-007	ISI-D17-T1101-2
P109	D-302-811	ISI-E61-T1100-2
P119	D-302-811	ISI-E61-T1101-2
P120	D-302-811	ISI-E61-T1102-2
P317	D-302-811	ISI-E61-T1103-2
P319	D-302-811	ISI-E61-T1104-2
P424	D-302-672	ISI-G33-T1100-2
P420	D-302-737	ISI-G50-T1100-2
P417	D-302-739	ISI-G61-T1100-2
P418	D-302-740	ISI-G61-T1101-2
V313	D-912-604	ISI-M14-T1100-2
V314	D-912-604	ISI-M14-T1101-2
P114	D-912-606	ISI-M17-T1100-2
P208	D-912-606	ISI-M17-T1101-2
P428	D-912-606	ISI-M17-T1102-2
P436	D-912-606	ISI-M17-T1103-2
P108	D-302-102	ISI-P11-T1100-2
P111	D-302-102	ISI-P11-T1101-2
P309	D-302-713	ISI-P22-T1100-2
P310/P311	D-302-613	ISI-P43-T1200-2
P404/P405	D-913-008	ISI-P50-T1200-2
P308	D-302-242	ISI-P51-T1200-2
P305/P306	D-302-244	ISI-P52-T1200-2
P312	D-302-243	ISI-P52-T1200-2
P406	D-914-003	ISI-P54-T1100-2
P210	D-914-005	ISI-P54-T1101-2
P117	D-302-950	ISI-P86-T1100-2
P413	D-302-431	ISI-P87-T1100-2

II. ASME Boiler & Pressure Vessel Code Section XI Requirements

The following requirements of the 1983 Edition through Summer 1983 Addenda of Section XI apply:

1. IWA-5211, states "The pressure retaining components within each system boundary shall be subject to system pressure tests under which conditions visual examination VT-2 is performed in accordance with IWA-5240 to detect leakages."
2. IWC-5210(a) states, "The pressure retaining components within each system boundary shall be subjected to a system pressure test conducted during a system functional test, system inservice test, or a hydrostatic test, and visually examined by the method specified in Table IWC-2500-1, Examination Category C-H."
3. Table IWC-2500-1, Examination Category C-H, specifies a VT-2 examination once per inspection period for inservice or functional testing and once per inspection interval for hydrostatic testing.

### III. Relief Requested

Code Case N-522 accepts the test requirements of 10 CFR 50, Appendix J as an alternative to the testing requirements of ASME Section XI, Table IWC-2500-1, Category C-H, for pressure testing piping that penetrates a containment vessel when the piping and isolation valves that are part of the containment system are Class 2 but the balance of the piping system is outside the scope of Section XI.

### IV. Basis for Relief

Pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative provides an acceptable level of quality and safety.

The proposed alternative reduces the amount of redundant testing required on the same systems by the imposition of both ASME Section XI and 10 CFR 50, Appendix J. Currently, imposition of the IWC-2500-1 test requirements results in additional testing as follows:

1. Water systems are flooded and pressurized through the associated penetration test tap and a VT-2 visual examination performed during the pressurization period.
2. Air and gas systems are tested in an identical manner to the 10 CFR 50, Appendix J method and a VT-2 visual examination is performed during the pressurization period.

For the penetrations listed in Section I above, 10 CFR 50, Appendix J testing is performed by draining the test volume and pressurizing the test volume with air to a pressure of  $P_a$ , where  $P_a$  is the peak calculated containment internal pressure. The rate of makeup flow is determined and compared to acceptance criteria based on allowable containment leak rates.

Thus, by being able to take credit for the ASME Section XI testing by using the 10 CFR 50, Appendix J testing, elimination of the redundant testing reduces the number of tests required on the same system.



Leakage from water systems would be indicated during the 10 CFR 50, Appendix J test more readily than the IWC-2500-1 test due to the lower density of the air test medium. Based on this fact, use of the Appendix J test program for water systems is conservative when compared to the ASME Section XI program.

Leakage from air and other gas systems would be indicated by 10 CFR 50, Appendix J testing in a similar manner to an IWC-2500-1 test. Based on this fact, the two programs are essentially equivalent.

The frequency of testing will be in accordance with 10 CFR 50, Appendix J. The 10 CFR 50, Appendix J testing is performed by a staff of Perry employees supplemented by contract personnel. All personnel involved in local leak rate testing (LLRT) at Perry are qualified in accordance with the current Perry-specific LLRT training program. Therefore, Appendix J testing is performed by personnel trained to recognize unacceptable leakage from a pressure boundary.

V. Alternate Examination

In lieu of the requirements specified in IWA-5211 and IWC-5210, Perry will follow the guidance of Code Case N-522 for pressure testing of safety class 2 containment penetrations associated with non-safety class systems.

Testing required by 10 CFR 50, Appendix J may be used as an alternative to the rules in Table IWC-2500-1, Category C-H, for pressure testing piping that penetrates a containment vessel, when the piping and isolation valves that are part of the containment system are Class 2 but the balance of the piping system is outside the scope of Section XI.

The testing will be conducted at a pressure of  $P_a$ , where  $P_a$  is the peak calculated containment internal pressure. Whenever the testing results indicate leakage, the test procedure will provide criteria for identification of the source of the leakage, including provisions for detection and location of through-wall leakage in the containment isolation valves and pipe segments in between.

Perry Nuclear Power Plant Unit 1  
RELIEF REQUEST No. PT-006  
Code Case N-546

I. Identification of Components

Class 1, 2, and 3 systems subject to pressure testing.

II. ASME Boiler & Pressure Vessel Code Section XI Requirements

Tables IWB-2500-1, IWC-2500-1 and IWD-2500-1 of the 1983 Edition through Summer 1983 Addenda of Section XI require the VT-2 examination method for pressure testing. IWA-2300(c) requires that personnel performing the VT-2 visual examinations be qualified by the Owner or the Owner's agent in accordance with the comparable levels of competency as defined in ANSI N45.2.6-1973. Perry further utilizes Code Case N-448, "Qualification of VT-2 and VT-3 Visual Examination Personnel, Section XI, Division 1," which reflects later editions of IWA-2300 that require personnel performing visual examination to be qualified and certified to comparable levels of qualification as defined in SNT-TC-1A and the Employers written practice.

III. Relief Requested

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested from requiring that the personnel performing the VT-2 examinations be qualified and certified to comparable levels of qualification as defined in SNT-TC-1A.

IV. Basis for Relief

The use of Code Case N-546 will eliminate the need to treat VT-2 examination personnel as NDE personnel. The Abstract of SNT-TC-1A states, "This standard applies to personnel whose specific tasks or jobs require appropriate knowledge of the technical principals underlying nondestructive testing (NDT) methods for which they have responsibilities within the scope of VT-1 and VT-3 examination methods." VT-2 requires no special knowledge of technical principals underlying its performance. It is simply the straight forward examination for leakage. No special skills or technical training are required in order to observe water dripping from a component or bubbles forming on a joint wetted with leak detection solution. As such, qualification in accordance with the provisions of the Code Case does not present any reduction in quality or safety. In fact, it will facilitate the qualification of those personnel most familiar with the walkdown of plant systems.

Additionally, there is a cost benefit of approximately \$12,000 per operating cycle realized by eliminating the formal certification of Perry and contracted VT-2 examination personnel.



In summary, approval of this request would be in accordance with 10 CFR 50.55a(a)(3)(i), as compliance with Code Case N-546 will provide an essentially equivalent alternative to the IWA-2300 requirements. It would also provide relief from the administrative and financial burdens of certification, which do not provide any compensating increase in the level of quality or safety.

V. Alternate Examination

CEI proposes to perform VT-2 examinations utilizing personnel qualified in accordance with the provisions of Code Case N-546 in lieu of personnel who are qualified and certified to comparable levels of qualification as defined in SNT-TC-1A. The qualification provisions specified in Code Case N-546 are as follows:

- (1) Personnel must have at least 40 hours of plant walkdown experience, such as that gained by licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel.
- (2) Personnel must receive at least 4 hours of training on Section XI requirements and plant specific procedures for VT-2 examination.
- (3) Personnel must meet the vision test requirements of IWA-2321, 1995 Edition.

Training and qualification of VT-2 personnel will be documented and the records will be maintained.

Additionally, to provide for consistent, quality VT-2 visual examinations, the examinations will be performed using standard procedures. An independent review and evaluation of the VT-2 visual examination results will be performed and documented on the examination records.