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Michael R. Kansler  
President

December 4, 2003  
NL-03-183  
ENO 2.03.126

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Stop O-P1-17  
Washington, DC 20555-0001

SUBJECT: Indian Point Nuclear Generating Units No. 2 and No. 3  
Docket No. 50-247, and 50-286  
Pilgrim Nuclear Power Station  
Docket No. 50-293  
Relief Request to Use ASME Code Case N-663

References: 1. USNRC letter from Robert A. Gramm, dated August 26, 2003, regarding "Arkansas Nuclear One, Unit 1 (ANO-1); Grand Gulf Nuclear Station (GGNS); River Bend Station (RBS); and Waterford Steam Electric Station, Unit 3 (W3) – Request to Use American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (CODE) Case N-663 (TAC NOS. MB6880, MB6881, MB6879, MB6882)"

Dear Sir:

Pursuant to 10CFR50.55a(a)(3)(i), Entergy Nuclear Operations, Inc. (ENO) hereby requests the Nuclear Regulatory Commission (NRC) to approve the use of an alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI requirements regarding the inspection of Class 2, Examination Categories C-F-1 and C-F-2 welds.

Enclosed are three (3) requests for relief (RRs) to use ASME Code Case N-663 for Indian Point Nuclear Generating Unit No. 2 (IP2, Enclosure 1), Indian Point Nuclear Generating Unit No. 3 (IP3, Enclosure 2), and Pilgrim Nuclear Power Station (Pilgrim, Enclosure 3). The proposed alternative would allow the plants to avoid unnecessary inspections and to conserve radiological dose, while still maintaining an acceptable level of quality and safety for the examination of the affected welds, in accordance with 10 CFR 50.55a(a)(3)(i).

These requests for relief for IP2, IP3, and Pilgrim are for their 3<sup>rd</sup> ISI Interval, and the applicable code of record is the 1989 Edition, No Addenda of the ASME Section XI Code.

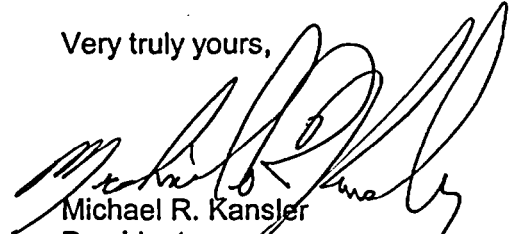
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Similar requests for relief have been granted to ANO-1, Grand Gulf, River Bend, and Waterford 3 plants (Reference 1).

Entergy requests approval of the IP2 relief request (Enclosure 1) by June 2004 to support its Fall 2004 refueling outage. Since these RRs are practically identical, Entergy requests that the IP3 and Pilgrim relief requests (Enclosures 2 and 3) be approved at the same time, although the next refueling outage for IP3 and Pilgrim are both scheduled for Spring 2005.

There are no new commitments made in this letter. If you have any questions, please contact Ms. Charlene Faison at 914-272-3378.

Very truly yours,



Michael R. Kansler  
President  
Entergy Nuclear Operations, Inc.

List of Enclosures:

1. Indian Point Generating Station Unit No. 2, RR-68
2. Indian Point Generating Station Unit No. 3, RR 3-37
3. Pilgrim Nuclear Power Station, PRR-34
4. ASME Code Case N-663 (for information)

cc:

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**INDIAN POINT NUCLEAR GENERATING UNIT NO. 2  
THIRD TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM  
RELIEF REQUEST RR-68**

Proposed Alternative  
In Accordance with 10CFR50.55a(a)(3)(i)

--Alternative Provides Acceptable Level of Quality and Safety--

1. **ASME Code Component(s) Affected**

Component Numbers: ASME Section XI Class 2 piping welds

Examination Category: C-F-1 and C-F-2

Item Number: C5.10 through C5.42, and C5.50 through C5.82

2. **Applicable Code Edition and Addenda**

The Code of Record for the third Inservice Inspection Interval is ASME Section XI Code, 1989 Edition, No Addenda.

3. **Applicable Code Requirements**

ASME Section XI IWC-2500 requires components be examined as specified in Table IWC-2500-1. These tables require a sampling of piping welds (as well as other components) be subjected to various types of non-destructive examinations (NDE, i.e. volumetric and/or surface examinations.) For the total population of non-exempt Category C-F-1 and C-F-2 piping welds, 7.5%, but not less than 28 welds, require surface examination.

4. **Reason for Request**

Code required surface examinations are applicable to the general population of C-F-1 and C-F-2 welds. The proposed alternatives as described in Code Case N-663 would require surface examination of areas identified as susceptible to outside surface attack, thus avoid unnecessary inspections and to conserve radiological dose, while still maintaining an adequate level of quality and safety for examination of the affected welds.

5. **Proposed Alternative**

Entergy proposes to use ASME Code Case N-663 in its entirety as an alternative to the surface examination requirements of Table IWC-2500-1 for examination categories C-F-1 and C-F-2. All areas of the subject welds identified as susceptible to outside surface attack shall be surface examined during the Indian Point Unit 2 (IP2) Third Ten-Year Interval in accordance with Code Case N-663.

### Basis for Use

The subject item numbers in ASME Section XI require a volumetric and/or surface exam on selected piping welds to ensure that generic degradation mechanisms are not active on either the inside diameter (I.D.) or the outside diameter (O.D.). However, these welds are selected using a deterministic set of requirements that are un-informed as to any possible degradation mechanisms. ASME Code Case N-663 provides an alternative to the current ASME Section XI requirements for defining the number and location of surface examinations for piping components.

The ASME Section XI Task Group on ISI Optimization, Report No. 92-01-01, *Evaluation of Inservice Inspection Requirements for Class 1, Category B-J Pressure Retaining Welds in Piping*, dated July 1995, concluded (with 50 units responding with a total of 9333 welds inspected) only 2 welds (0.02%) were found to have flaws detected by Section XI surface examinations. These flaws were determined to be fabrication-induced. In parallel with the above, several risk-informed Code cases have been developed for use on piping welds (e.g., ASME Code Cases N-560, N-577, and N-578). One of the methods for risk-informing piping examinations is via use of EPRI TR-112657, Rev. B-A, *Revised Risk-Informed Inservice Inspection Evaluation Procedure (NRC SER dated 10/28/99)*. Table 4-1, *Summary of Degradation-Specific Inspection Requirements and Examination Methods*, of the EPRI report lists the required degradation mechanisms to be evaluated in Class 1, 2, and 3 piping. It also identifies the risk-informed examination method required for each of these degradation mechanisms. The only degradation mechanism that requires a surface examination is O.D. chloride cracking. These two initiatives led ASME to investigate the value of surface examinations.

Code Case N-663 incorporates lessons learned from the risk-informed initiatives and industry examination experience into Section XI by requiring that an evaluation be conducted to identify locations, if any, where a surface examination would be of benefit from a generic piping degradation perspective. The results of this evaluation identify where O.D. degradation is most likely to occur by reviewing plant-specific programs and practices, and operating experience. If the potential for degradation is identified, Code Case N-663 defines examination techniques, volumes, and frequencies. As such, implementing Code Case N-663 will identify appropriate locations for surface examination, if any, and eliminate unnecessary examinations. Other ASME Section XI examination requirements for the subject piping welds, including volumetric examinations and pressure testing, will continue to be performed.

Code Case N-663 was approved by the ASME Boiler and Pressure Vessel Code Committee on September, 17, 2002, but has not yet been included in the most recent listing of NRC approved code cases provided in Revision 13 of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability – ASME Section XI Division 1."

Compliance with the proposed alternatives described above will provide an adequate level of quality and safety for examination of the affected welds, and will not adversely impact the health and safety of the public.

Similar requests for relief have been granted to Entergy Operations, Inc.'s ANO-1, Grand Gulf, River Bend, and Waterford 3 plants (referenced TAC NOS. MB 6880, MB 6881, MB 6879, MB 6882, dated August 26, 2003.)

6. **Duration of Proposed Alternative**

It is proposed to use the alternative for the remainder of the Third Inservice Inspection Interval for IP2.

7. **Attachment**

Code Case N-663 (for information).

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3  
THIRD TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM  
RELIEF REQUEST RR 3-37

Proposed Alternative  
In Accordance with 10CFR50.55a(a)(3)(i)

--Alternative Provides Acceptable Level of Quality and Safety--

1. **ASME Code Component(s) Affected**

Component Numbers: ASME Section XI Class 2 piping welds

Examination Category: C-F-1 and C-F-2

Item Number: C5.10 through C5.42, and C5.50 through C5.82

2. **Applicable Code Edition and Addenda**

The Code of Record for the third Inservice Inspection Interval is ASME Section XI Code, 1989 Edition, No Addenda.

3. **Applicable Code Requirements**

ASME Section XI IWC-2500 requires components be examined as specified in Table IWC-2500-1. These tables require a sampling of piping welds (as well as other components) be subjected to various types of non-destructive examinations (NDE, i.e. volumetric and/or surface examinations.) For the total population of non-exempt Category C-F-1 and C-F-2 piping welds, 7.5%, but not less than 28 welds, require surface examination.

4. **Reason for Request**

Code required surface examinations are applicable to the general population of C-F-1 and C-F-2 welds. The proposed alternatives as described in Code Case N-663 would require surface examination of areas identified as susceptible to outside surface attack, thus avoid unnecessary inspections and to conserve radiological dose, while still maintaining an adequate level of quality and safety for examination of the affected welds.

5. **Proposed Alternative**

Entergy proposes to use ASME Code Case N-663 in its entirety as an alternative to the surface examination requirements of Table IWC-2500-1 for examination categories C-F-1 and C-F-2. All areas of the subject welds identified as susceptible to outside surface attack shall be surface examined during the Indian Point Unit 3 (IP3) Third Ten-Year Interval in accordance with Code Case N-663.

### Basis for Use

The subject item numbers in ASME Section XI require a volumetric and/or surface exam on selected piping welds to ensure that generic degradation mechanisms are not active on either the inside diameter (I.D.) or the outside diameter (O.D.). However, these welds are selected using a deterministic set of requirements that are un-informed as to any possible degradation mechanisms. ASME Code Case N-663 provides an alternative to the current ASME Section XI requirements for defining the number and location of surface examinations for piping components.

The ASME Section XI Task Group on ISI Optimization, Report No. 92-01-01, *Evaluation of Inservice Inspection Requirements for Class 1, Category B-J Pressure Retaining Welds in Piping*, dated July 1995, concluded (with 50 units responding with a total of 9333 welds inspected) only 2 welds (0.02%) were found to have flaws detected by Section XI surface examinations. These flaws were determined to be fabrication-induced. In parallel with the above, several risk-informed Code cases have been developed for use on piping welds (e.g., ASME Code Cases N-560, N-577, and N-578). One of the methods for risk-informing piping examinations is via use of EPRI TR-112657, Rev. B-A, *Revised Risk-Informed Inservice Inspection Evaluation Procedure (NRC SER dated 10/28/99)*. Table 4-1, *Summary of Degradation-Specific Inspection Requirements and Examination Methods*, of the EPRI report lists the required degradation mechanisms to be evaluated in Class 1, 2, and 3 piping. It also identifies the risk-informed examination method required for each of these degradation mechanisms. The only degradation mechanism that requires a surface examination is O.D. chloride cracking. These two initiatives led ASME to investigate the value of surface examinations.

Code Case N-663 incorporates lessons learned from the risk-informed initiatives and industry examination experience into Section XI by requiring that an evaluation be conducted to identify locations, if any, where a surface examination would be of benefit from a generic piping degradation perspective. The results of this evaluation identify where O.D. degradation is most likely to occur by reviewing plant-specific programs and practices, and operating experience. If the potential for degradation is identified, Code Case N-663 defines examination techniques, volumes, and frequencies. As such, implementing Code Case N-663 will identify appropriate locations for surface examination, if any, and eliminate unnecessary examinations. Other ASME Section XI examination requirements for the subject piping welds, including volumetric examinations and pressure testing, will continue to be performed.

Code Case N-663 was approved by the ASME Boiler and Pressure Vessel Code Committee on September, 17, 2002, but has not yet been included in the most recent listing of NRC approved code cases provided in Revision 13 of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability – ASME Section XI Division 1."

Compliance with the proposed alternatives described above will provide an adequate level of quality and safety for examination of the affected welds, and will not adversely impact the health and safety of the public.



Similar requests for relief have been granted to Entergy Operations, Inc.'s ANO-1, Grand Gulf, River Bend, and Waterford 3 plants (referenced TAC NOS. MB 6880, MB 6881, MB 6879, MB 6882, dated August 26, 2003.)

6. **Duration of Proposed Alternative**

It is proposed to use the alternative for the remainder of the Third Inservice Inspection Interval for IP3.

7. **Attachment**

Code Case N-663 (for information).

PILGRIM NUCLEAR POWER STATION  
THIRD TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM  
RELIEF REQUEST PRR-34

Proposed Alternative  
In Accordance with 10CFR50.55a(a)(3)(i)

--Alternative Provides Acceptable Level of Quality and Safety--

1. **ASME Code Component(s) Affected**

Component Numbers: ASME Section XI Class 2 piping welds

Examination Category: C-F-1 and C-F-2

Item Number: C5.10 through C5.42, and C5.50 through C5.82

2. **Applicable Code Edition and Addenda**

The Code of Record for the third Inservice Inspection Interval is ASME Section XI Code, 1989 Edition, No Addenda.

3. **Applicable Code Requirements**

ASME Section XI IWC-2500 requires components be examined as specified in Table IWC-2500-1. These tables require a sampling of piping welds (as well as other components) be subjected to various types of non-destructive examinations (NDE, i.e. volumetric and/or surface examinations.) For the total population of non-exempt Category C-F-1 and C-F-2 piping welds, 7.5%, but not less than 28 welds, require surface examination.

4. **Reason for Request**

Code required surface examinations are applicable to the general population of C-F-1 and C-F-2 welds. The proposed alternatives as described in Code Case N-663 would require surface examination of areas identified as susceptible to outside surface attack, thus avoid unnecessary inspections and to conserve radiological dose, while still maintaining an adequate level of quality and safety for examination of the affected welds.

5. **Proposed Alternative**

Entergy proposes to use ASME Code Case N-663 in its entirety as an alternative to the surface examination requirements of Table IWC-2500-1 for examination categories C-F-1 and C-F-2. All areas of the subject welds identified as susceptible to outside surface attack shall be surface examined during the Pilgrim Nuclear Power Station (Pilgrim) Third Ten-Year Interval in accordance with Code Case N-663.

### Basis for Use

The subject item numbers in ASME Section XI require a volumetric and/or surface exam on selected piping welds to ensure that generic degradation mechanisms are not active on either the inside diameter (I.D.) or the outside diameter (O.D.). However, these welds are selected using a deterministic set of requirements that are un-informed as to any possible degradation mechanisms. ASME Code Case N-663 provides an alternative to the current ASME Section XI requirements for defining the number and location of surface examinations for piping components.

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Code Case N-663 was approved by the ASME Boiler and Pressure Vessel Code Committee on September, 17, 2002, but has not yet been included in the most recent listing of NRC approved code cases provided in Revision 13 of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability – ASME Section XI Division 1."

Compliance with the proposed alternatives described above will provide an adequate level of quality and safety for examination of the affected welds, and will not adversely impact the health and safety of the public.

Similar requests for relief have been granted to Entergy Operations, Inc.'s ANO-1, Grand Gulf, River Bend, and Waterford 3 plants (referenced TAC NOS. MB 6880, MB 6881, MB 6879, MB 6882, dated August 26, 2003.)

6. **Duration of Proposed Alternative**

It is proposed to use the alternative for the remainder of the Third Inservice Inspection Interval for Pilgrim.

7. **Attachment**

Code Case N-663 (for information).

**ASME CODE CASE N-663**

**Approval Date: September 17, 2002**

**Expiration Date: September 18, 2005**

**Case N-663**

**Alternative Requirements for Class 1 and 2**

**Surface Examinations**

**Section XI, Division 1**

*Inquiry:* What alternative to the surface examination requirements for piping welds of Examination Categories B-F, B-J, C-F-1, and C-F-2 may be used?

*Reply:* It is the opinion of the Committee that in lieu of the surface examination requirements for piping welds of Examination Category B-F (NPS 4 and larger), B-J (NPS 4 and larger), C-F-1, and C-F-2, surface examinations may be limited to areas identified by the Owner as susceptible to outside surface attack. Susceptibility to outside surface attack shall be determined in accordance with Table 1.

Examination Category B-F less than NPS 4 and Examination Category B-J less than NPS 4 shall be examined in accordance with IWB-2500.

All areas identified as susceptible to outside surface attack shall be examined during each interval. The requirements of IWB-2411, IWB-2412, IWC-2411, and IWC-2412, as applicable, shall be met. Acceptance standards shall be in accordance with IWB-3514 or IWC-3514, as applicable. The areas shall be reexamined in the same sequence, during subsequent inspection intervals over the service lifetime of the piping item. to the extent practical.

ASME CODE CASE N-663

TABLE 1  
SUSCEPTIBILITY CRITERIA

Mechanism	Criteria
External chloride stress corrosion cracking	<ul style="list-style-type: none"><li>• austenitic stainless steel base metal, welds, or heat affected zone (HAZ), and</li><li>• operating temperature &gt;150F, and</li><li>• a piping outside surface is within five pipe diameters of a probable leak path (e. g., valve stem) and is covered with nonmetallic insulation that is not in compliance with U.S. NRC Regulatory Guide 1.36 (e.g., chloride content) or equivalent requirements</li></ul> <p>or</p> <ul style="list-style-type: none"><li>• Austenitic stainless steel base metal, welds, or HAZ, and</li><li>• a piping outside surface is exposed to wetting from a concentrated chloride-bearing environment (e.g., seawater, brackish water, brine)</li></ul>
Other outside surface initiated mechanisms	Items identified as susceptible to outside surface attack by a plant-specific service history review. This review should include plant-specific processes and programs that minimize chlorides and other contaminants.