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Michael R. Kansler
Senior Vice President &
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July 1, 2002
NL-02-094
IPN-02-053

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

SUBJECT: Indian Point 2 and 3 Nuclear Power Plants
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64
ASME Code Relief Requests to Use Electrical Discharge Machining (EDM) for Contingency Repairs on Reactor Vessel Head Penetration Nozzles

Reference:
1. ENO letter, M. Kansler to USNRC, dated August 31, 2001 (IPN-01-063) regarding thirty-day response to NRC Bulletin 2001-01.
2. ENO letter, M. Kansler to USNRC, dated September 24, 2001 (NL-01-113) regarding supplemental thirty-day response to NRC Bulletin 2001-01.
3. Consolidated Edison letter, dated September 4, 2001 (NL-01-106) regarding thirty-day response to NRC Bulletin 2001-01.
4. ENO letter, M. Kansler to USNRC (IPN-01-079/NL-01-133), dated November 13, 2001, Revised Vessel Head Penetration Inspection Plans, NRC Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles".
5. USNRC letter, P. D. Milano to M. Kansler, Bulletin 2001-01, dated April 8, 2002, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles", Responses for Indian Point Units 2 and 3.
6. ENO letter, J. Herron to USNRC (NL-02-050/IPN-02-023), dated April 2, 2002, "Submittal of 15 Day response to NRC Bulletin 2002-01", for Indian Point Units 2 and 3.
7. USNRC letter, Robert A. Gramm to John R. Hamilton, dated June 17, 2002, (TAC Nos. MB4485, MB4486, and MB4490)

Dear Sir:

This letter transmits two identical request for reliefs from ASME Section XI Code requirements. RR 59 (Attachment I) is for Indian Point Nuclear Generating Unit No. 2 (IP2) and RR 3-30 (Attachment II) is for Indian Point Nuclear Generating Unit No. 3 (IP3). ENO proposes to use the alternative rules of later editions of the Code to qualify the EDM process as a contingency method in case repairs are needed for the reactor vessel upper head penetration nozzles.

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A similar request for relief has been approved for Entergy's ANO Units 1 and 2, and Waterford 3 plants ((Reference 7). This relief request has incorporated similar commitments in the proposed alternatives to perform additional qualification testing and metal removal as determined by the EDM process qualification testing.

These requests for relief are submitted pursuant to 10CFR50.55a(a)(3)(i). The proposed alternatives provide an acceptable level of quality and safety. Approval for RR 59 for IP2 is needed by September 15, 2002 to support the Fall 2002 refueling outage. Although RR 3-30 for IP3 is needed to support IP3's Spring 2003 refueling outage, which is currently scheduled for late March/Early April 2003, since both subject relief requests are essentially identical, we request your consideration to review both of them concurrently for final approval.

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
Senior Vice President and
Chief Operating Officer

Attachments: As stated

cc:

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ATTACHMENT I TO NL-02-094 / IPN-02-053

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

THIRD TEN-YEAR INSERVICE INSPECTION INTERVAL PROGRAM PLAN

Relief 59, Revision 0 (IP2)

ENTERGY NUCLEAR OPERATIONS, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
DOCKET NO. 50-247
DPR-26

RELIEF REQUEST NUMBER 59, Rev. 0

A. COMPONENT IDENTIFICATION

Code Class:	1
References:	Table IWB-2500-1, Category B-E
Examination Category:	B-E
Item Numbers:	B4.12, B4.13
Description:	Reactor Pressure Vessel (RPV) Head Penetration Nozzles

B. CODE REQUIREMENT

IWA-4120(a) of ASME Section XI, 1989 Edition states that repairs shall be performed in accordance with the Owner's Design Specification and the original Construction Code of the component or system. Later Editions and Addenda of the Construction Code or of Section III, either in their entirety or portions thereof, and code Cases may be used

ASME Section XI also imposes repair requirements that supplement or amend the repair rules of the construction code. Where applicable, compliance with these additional requirements is mandatory. When performing defect removal of P-Number 43 (inconel) materials using a thermal removal process, the supplemental requirements of IWA-4322 apply:

- IWA-4322

  "If thermal removal processes are used on P-No. 8 and P-No. 43 materials, a minimum of 1/16" material shall be removed from the thermally processed area."

C. RELIEF REQUESTED:

ENO proposes to utilize the electrical discharge machining (EDM) process to excavate PWSCC cracks or defects and remove weld crown surfaces of repair welds to facilitate performance of final NDE. In lieu of the code requirement of mechanically removing a minimum of 1/16" of material from all EDM processed areas, ENO requests the use of the ASME Section XI, 1995 Edition, 1997 Addenda (Reference 2) to qualify the EDM process.

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative will provide an acceptable level of quality and safety.

RELIEF REQUEST NUMBER 59, Rev. 0

D. BASIS FOR RELIEF

In performing necessary code repairs, IWA-4322 of the 1989 Edition of ASME Section XI requires the removal of a minimum of 1/16" of material from all thermally processed areas of P-Number 43 materials. Entergy believes that the basis of this requirement is to ensure that thermally cut or excavated surfaces are free of unacceptable surface irregularities, oxides, and fissures that were created by the thermal removal process. EDM is considered a thermal removal process by the ASME Code (Ref. 2 and 9). As such, a minimum of 1/16" of material must be mechanically removed from all EDM processed areas to comply with IWA-4322. However, use of mechanical removal processes would have adverse effects on the Alloy 600 RPV head penetration nozzles and welds. Specifically, the use of mechanical removal processes, such as grinding or machining, would result in an increased susceptibility of Alloy 600 materials and their associated welds to PWSCC.

The qualification requirements of IWA-4461.4 of ASME Section XI, 1995 Edition, 1997 Addenda would ensure that the proposed thermal process is capable of producing a surface finish that is free of cracks or fissures and meets the required surface roughness criteria of the owner. Where the cut surface is exposed to a corrosive medium, then corrosion testing or evaluations must also be performed. The qualification requirements of IWA-4461.4 are summarized below:

(a) The qualification test shall consist of two coupons of the same P-number material to be cut in production.

(b) The qualification coupons shall be cut using the maximum heat input to be used in production.

(c) The thermally cut surface of each coupon shall be visually examined at 10X and shall be free of cracks. The owner shall specify surface roughness acceptable for the application and shall verify that the qualification coupon meets the criterion.

(d) Each qualification test coupon shall be cross-sectioned, and the exposed surfaces shall be polished, etched with a suitable etchant, and visually examined at 10X. All sectioned surfaces shall be free of cracks.

(e) Corrosion testing of the thermally cut surface and heat affected zone shall be performed if the cut surface is to be exposed to a corrosive media. Alternatively, corrosion resistance of the thermally cut surface may be evaluated.

RELIEF REQUEST NUMBER 59, Rev. 0

In addition to the qualification testing requirements of IWA-4461.4 of ASME Section XI, 1995 Edition, 1997 Addenda, ENO will determine the thickness of the resultant heat affected zone (oxide layer) on the cut surfaces as part of the EDM qualification. The thickness of the resultant heat affected zone (oxide layer) will be determined by metallographic examination. Based on the heat affected zone (oxide) thickness measurements obtained during the EDM process qualification, post-EDM surface conditioning (polishing) operations will be performed to ensure that the heat affected zone (oxide surface) layer is removed.

E. PROPOSED ALTERNATE EXAMINATION

Pursuant to 10CFR50.55a(a)(3)(i), ENO proposes an alternative to the thermal removal requirements of IWA-4322 as applicable to P-No. 43 materials. Instead of mechanically removing 1/16" of material from all thermally processed areas as required by IWA-4322, ENO proposes to qualify the EDM process in accordance with IWA-4461.4 of the 1995 Edition, 1997 Addenda of ASME Section XI. In addition to the requirements of IWA-4461.4, ENO will also perform the following:

- Determine the thickness of the resultant heat affected zone (oxide) layer on the cut surface by metallographic examination during EDM process qualification.

- Based upon the heat affected zone (oxide) thickness measurements obtained during the EDM qualification process, remove the heat affected zone (oxide) layer from cut or excavated surfaces when performing repair activities on RPV head penetration nozzles or J-welds.

F. JUSTIFICATION FOR RELIEF

ENO believes that compliance with the repair rules as stated in Ref. 1 and as described in Section B of this request would result in an increased susceptibility of the RPV head penetration nozzles to PWSCC. The proposed alternative would provide an acceptable level of quality and safety. Therefore, we request that the proposed alternative be authorized pursuant to 10CFR50.55a(a)(3)(i).

A similar request for relief has been approved for Entergy's ANO Units 1 and 2, and Waterford 3 plants (Reference 10). This relief request has incorporated similar commitments in the proposed alternatives to perform additional qualification testing and metal removal as determined by the EDM process qualification testing.

RELIEF REQUEST NUMBER 59, Rev. 0
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G. PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the reminder of the third inspection interval, through April 3, 2006.

H. ATTACHMENTS TO RELIEF

None

I. REFERENCE

1. ASME Section XI, 1989 Edition

2. ASME Section XI, 1995 Edition, 1997 Addenda

3. ENO Letter, M. Kansler to USNRC dated August 31, 2001 (IPN-01-063) regarding thirty-day response to NRC Bulletin 2001-01.

4. ENO Letter, M. Kansler to USNRC dated September 24, 2001 (NL-01-113) regarding supplemental thirty-day response to NRC Bulletin 2001-01.

5. Consolidated Edison Letter, dated September 4, 2001 (NL-01-106) regarding thirty-day response to NRC Bulletin 2001-01.

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7. NRC Letter, P. D. Milano to M. Kansler, Bulletin 2001-01, dated April 8, 2002, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles", Responses for Indian Point Units 2 and 3.

8. ENO Letter, J. Herron to USNRC (NL-02-050/IPN-02-023), dated April 2, 2002, "Submittal of 15 Day response to NRC Bulletin 2002-01", for Indian Point Units 2 and 3.

9. Interpretation XI-1-95-60, Section XI, IWA-4322, EDM and MDM Processes.

10. USNRC letter, Robert A. Gramm to John R. Hamilton, dated June 17, 2002, (TAC Nos. MB4485, MB4486, and MB4490).

ATTACHMENT II TO NL-02-094 / IPN-02-053

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

THIRD TEN-YEAR INSERVICE INSPECTION INTERVAL PROGRAM PLAN

Relief 3-30, Revision 0 (IP3)

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3
DOCKET NO. 50-286
DPR-64

RELIEF REQUEST NUMBER 3-30, Rev. 0
(Page 1 of 4)

A. COMPONENT IDENTIFICATION

Code Class:	1
References:	Table IWB-2500-1, Category B-E
Examination Category:	B-E
Item Numbers:	B4.12, B4.13
Description:	Reactor Pressure Vessel (RPV) Head Penetration Nozzles

B. CODE REQUIREMENT

IWA-4120(a) of ASME Section XI, 1989 Edition states that repairs shall be performed in accordance with the Owner's Design Specification and the original Construction Code of the component or system. Later Editions and Addenda of the Construction Code or of Section III, either in their entirety or portions thereof, and code Cases may be used

ASME Section XI also imposes repair requirements that supplement or amend the repair rules of the construction code. Where applicable, compliance with these additional requirements is mandatory. When performing defect removal of P-Number 43 (inconel) materials using a thermal removal process, the supplemental requirements of IWA-4322 apply:

- IWA-4322

  "If thermal removal processes are used on P-No. 8 and P-No. 43 materials, a minimum of 1/16" material shall be removed from the thermally processed area."

C. RELIEF REQUESTED:

ENO proposes to utilize the electrical discharge machining (EDM) process to excavate PWSCC cracks or defects and remove weld crown surfaces of repair welds to facilitate performance of final NDE. In lieu of the code requirement of mechanically removing a minimum of 1/16" of material from all EDM processed areas, ENO requests the use of the ASME Section XI, 1995 Edition, 1997 Addenda edition (Reference 2) to qualify the EDM process.

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative will provide an acceptable level of quality and safety.

RELIEF REQUEST NUMBER 3-30, Rev. 0

D. BASIS FOR RELIEF

In performing necessary code repairs, IWA-4322 of the 1989 Edition of ASME Section XI requires the removal of a minimum of 1/16" of material from all thermally processed areas of P-Number 43 materials. Entergy believes that the basis of this requirement is to ensure that thermally cut or excavated surfaces are free of unacceptable surface irregularities, oxides, and fissures that were created by the thermal removal process. EDM is considered a thermal removal process by the ASME Code (Ref. 2 and 9). As such, a minimum of 1/16" of material must be mechanically removed from all EDM processed areas to comply with IWA-4322. However, use of mechanical removal processes would have adverse effects on the Alloy 600 RPV head penetration nozzles and welds. Specifically, the use of mechanical removal processes, such as grinding or machining, would result in an increased susceptibility of Alloy 600 materials and their associated welds to PWSCC.

The qualification requirements of IWA-4461.4 of ASME Section XI, 1995 Edition, 1997 Addenda would ensure that the proposed thermal process is capable of producing a surface finish that is free of cracks or fissures and meets the required surface roughness criteria of the owner. Where the cut surface is exposed to a corrosive medium, then corrosion testing or evaluations must also be performed. The qualification requirements of IWA-4461.4 are summarized below:

(a) The qualification test shall consist of two coupons of the same P-number material to be cut in production.

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(d) Each qualification test coupon shall be cross-sectioned, and the exposed surfaces shall be polished, etched with a suitable etchant, and visually examined at 10X. All sectioned surfaces shall be free of cracks.

(e) Corrosion testing of the thermally cut surface and heat affected zone shall be performed if the cut surface is to be exposed to a corrosive media. Alternatively, corrosion resistance of the thermally cut surface may be evaluated.

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Pursuant to 10CFR50.55a(a)(3)(i), ENO proposes an alternative to the thermal removal requirements of IWA-4322 as applicable to P-No. 43 materials. Instead of mechanically removing 1/16" of material from all thermally processed areas as required by IWA-4322, ENO proposes to qualify the EDM process in accordance with IWA-4461.4 of the 1995 Edition, 1997 Addenda of ASME Section XI. In addition to the requirements of IWA-4461.4, ENO will also perform the following:

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- Based upon the heat affected zone (oxide) thickness measurements obtained during the EDM qualification process, remove the heat affected zone (oxide) layer from cut or excavated surfaces when performing repair activities on RPV head penetration nozzles or J-welds.

F. JUSTIFICATION FOR RELIEF

ENO believes that compliance with the repair rules as stated in Ref. 1 and as described in Section B of this request would result in an increased susceptibility of the RPV head penetration nozzles to PWSCC. The proposed alternative would provide an acceptable level of quality and safety. Therefore, we request that the proposed alternative be authorized pursuant to 10CFR50.55a(a)(3)(i).

A similar request for relief has been approved for Entergy's ANO Units 1 and 2, and Waterford 3 plants (Reference 10). This relief request has incorporated similar commitments in the proposed alternatives to perform additional qualification testing and metal removal as determined by the EDM process qualification testing.

RELIEF REQUEST NUMBER 3-30, Rev. 0
(Page 4 of 4)

G. PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the reminder of the third inspection interval, through July 20, 2009.

H. ATTACHMENTS TO RELIEF

None

I. REFERENCE

1. ASME Section XI, 1989 Edition
2. ASME Section XI, 1995 Edition, 1997 Addenda
3. ENO Letter, M. Kansler to USNRC dated August 31, 2001 (IPN-01-063) regarding thirty-day response to NRC Bulletin 2001-01.
4. ENO Letter, M. Kansler to USNRC dated September 24, 2001 (NL-01-113) regarding supplemental thirty-day response to NRC Bulletin 2001-01.
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