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May 19, 2004
NL-04-060

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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SUBJECT: Indian Point Nuclear Generating Units 2 and 3
Docket No. 50-247 and 50-286
**NRC First Revised Order EA-03-009 Relaxation Requests for
Inspection of Reactor Pressure Vessel Heads**

REFERENCES:

1. NRC letter dated February 20, 2004; R. Borchardt to Holders of Licenses for Operating Pressurized Water Reactors, "Issuance of First Revised Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors."
2. Entergy letter to NRC dated March 27, 2003 (NL-03-054); "NRC Order EA-03-009 Relaxation Request Regarding Inspection of Reactor Pressure Vessel Head Nozzles".

Dear Sir:

Entergy Nuclear Operations, Inc (Entergy) is submitting three relaxation requests pertaining to inspections of the Indian Point 2 (IP2) and Indian Point 3 (IP3) Reactor Pressure Vessel (RPV) heads in accordance with NRC First Revised Order, EA-03-009 (Reference 1). The requests, provided in Attachments 1, 2, and 3, are summarized below:

- Attachment 1: Relaxation request for IP3 only, regarding ultrasonic testing of five RPV head nozzles that have a threaded region less than one-inch below the J-groove weld. This request supersedes a similar request previously submitted in Reference 2.
- Attachment 2: Relaxation request for IP2 and IP3, regarding extent of coverage for the bare metal visual examination of the RPV heads.
- Attachment 3: Relaxation request for IP3 only, regarding use of previously performed nonvisual NDE of RPV head penetration nozzles for determining the scope of coverage for the subsequent inspection.

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A response to the request in Attachment 2 for IP2 is needed by September 30, 2004 to support the refueling outage planned for Fall 2004. A response to the remaining requests for IP3 is needed by December 30, 2004 to support planning for the IP3 refueling outage planned for Spring 2005. There are no new commitments identified in this letter. If you have any questions or require additional information, please contact Mr. Kevin Kingsley at 914-734-6695.

Sincerely,



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ATTACHMENT I TO NL-04-060

RELAXATION REQUEST FOR IP3 REGARDING ULTRASONIC TESTING OF REACTOR PRESSURE VESSEL HEAD NOZZLES IN ACCORDANCE WITH FIRST REVISED NRC ORDER EA-03-009, SECTION IV. F.

A. ASME COMPONENTS AFFECTED

Component Number: B4.12

Description: Reactor Pressure Vessel (RPV) Head Penetration Nozzles (5 locations)

Code Class: 1

B. REQUIREMENTS OF FIRST REVISED NRC ORDER EA-03-009

Section IV.C.5 (b)(i) of the Order (Reference 1) requires ultrasonic testing (UT) over a specified volume of RPV head penetration nozzles. The lower boundary of the inspection volume must be: "... 2 inches below the lowest point at the toe of the J-groove weld OR **1.0 inch** below the lowest point at the toe of the J-groove weld ... including all RPV head penetration nozzle surfaces below the J-groove weld that have an operating stress level (including all residual and normal operation stresses) of 20 ksi tension and greater."

C. PROPOSED ALTERNATIVE

Entergy Nuclear Northeast, Inc (Entergy) proposes to define the lower boundary of the inspection volume for the five affected RPV head penetration nozzles as: "**to the top of the threaded region, which is nominally 0.96 inch** below the lowest point at the toe of the J-groove weld ... including all RPV head penetration nozzle surfaces below the J-groove weld that have an operating stress level (including all residual and normal operation stresses) of 20 ksi tension and greater."

D. REASON FOR RELAXATION REQUEST

The proposed alternative provides an acceptable level of quality and safety.

E. JUSTIFICATION

The design of the RPV head penetration nozzles (see Figure 1-1) includes a threaded section, approximately $\frac{3}{4}$ inches long, at the bottom of the nozzles. At 5 locations (nozzles 74, 75, 76, 77, and 78 as shown in Figure 1-2) the dimensional configuration is such that the distance from the lowest point at the toe of the J-groove weld to the top of the threaded region is slightly less than the 1-inch lower boundary limit specified in section IV.C.5 (b)(i) of the First Revised Order. Since UT

results would not be meaningful in the threaded region, Entergy proposes that the lower boundary of the UT inspection extend to the top of the threaded region.

Entergy has confirmed through analysis that the operating stress levels (including residual and normal operation stresses), in the region at and below the proposed lower boundary limit of the inspection volume, are less than 20 ksi tension.

In addition Entergy will comply with the requirement for determining if leakage has occurred into the annulus between the RPV head penetration nozzle and the RPV head. This determination is made by the bare metal visual examination at the top of the RPV head surface that includes inspection 360° around the head penetration nozzles.

F. DURATION OF RELAXATION

Entergy requests relaxation of this requirement for all inspections where ultrasonic examination techniques are used to inspect the five affected RPV head penetration nozzles in response to the requirements of the NRC Order EA-03-009, including the inspection previously performed in the Spring of 2003.

G. ATTACHMENTS TO RELAXATION REQUEST

Figure 1-1: IP3 RPV Head Penetrations – Nozzle Weld Detail

Figure 1-2: IP3 RPV Head Penetrations - Nozzle Location Map

H. REFERENCES

1. NRC Letter dated February 20, 2004, "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"

FIGURE 1-1

IP3 RPV Head Penetrations – Nozzle Weld Detail

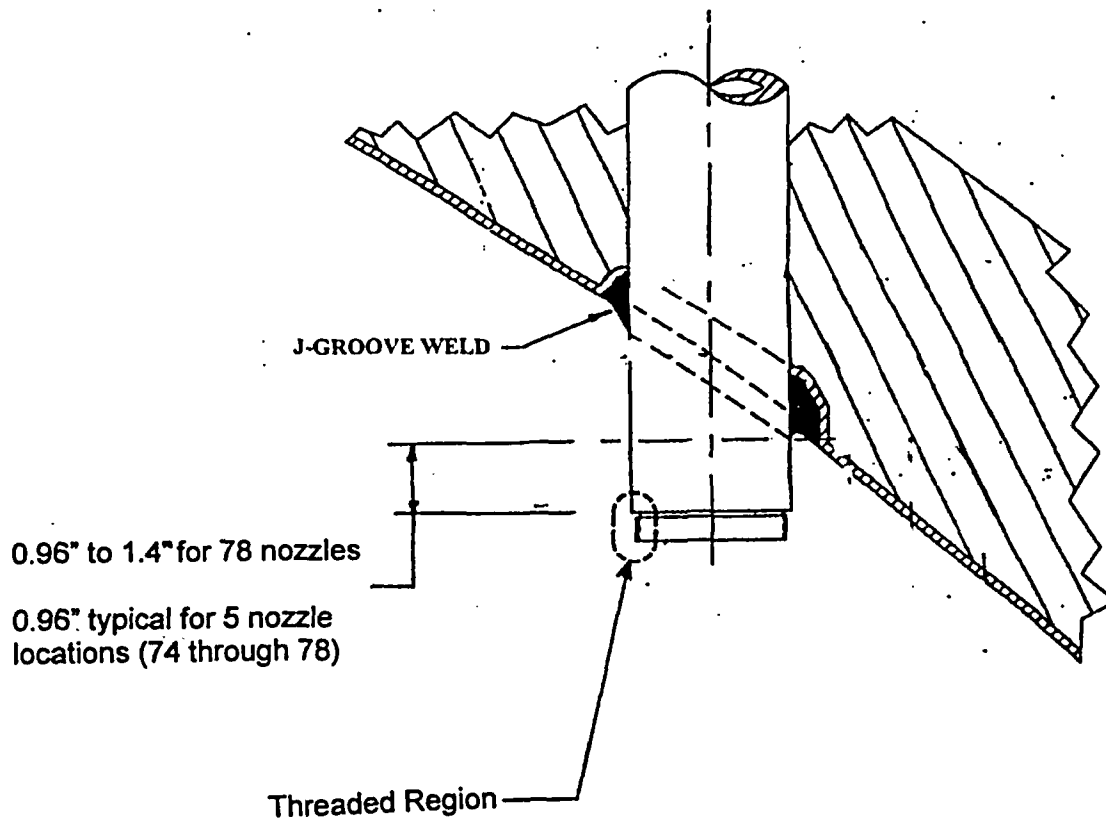
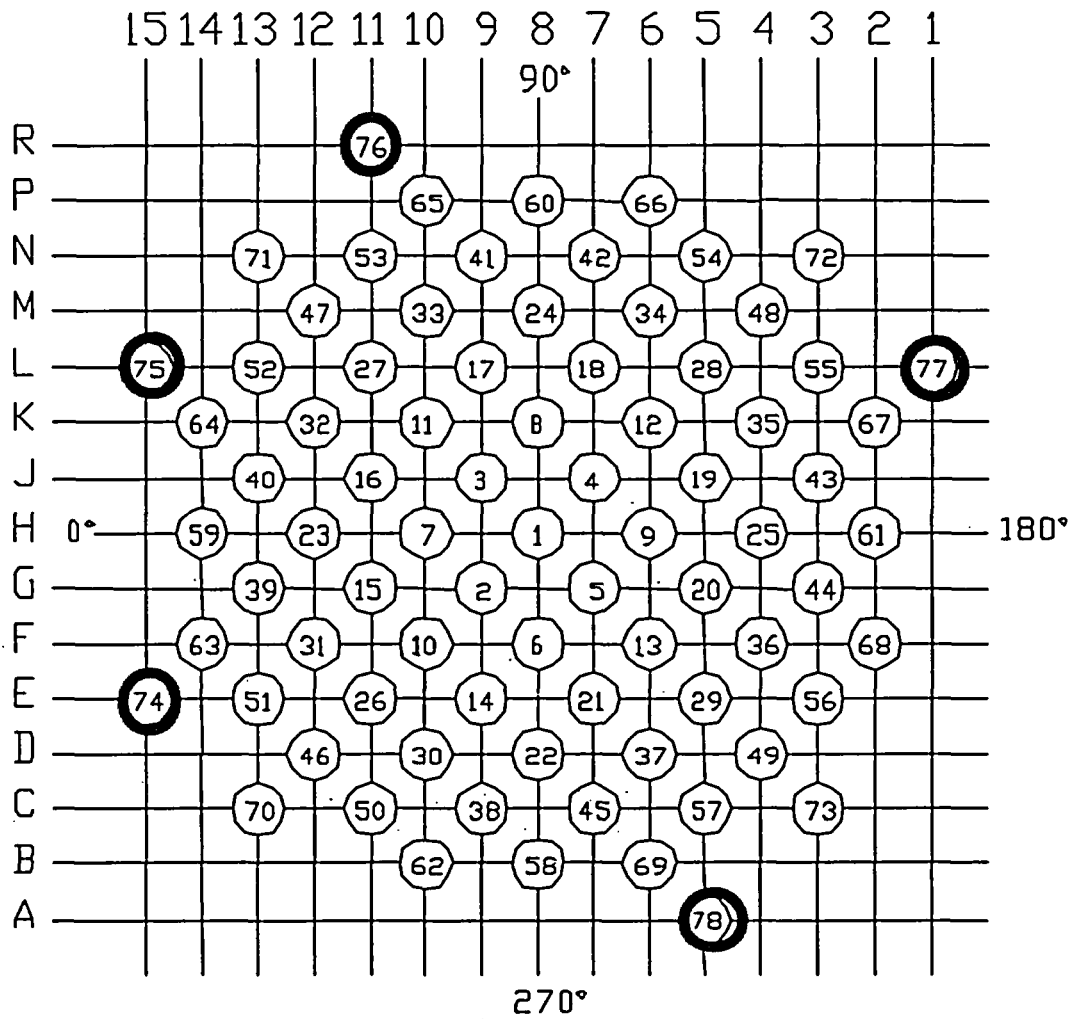


FIGURE 1-2

IP3 RPV Head Penetrations - Nozzle Location Map



Nozzle locations with 0.96" nominal distance from top of threaded region to lowest point at the toe of the J-groove weld. [74, 75, 76, 77, and 78]

ATTACHMENT 2 TO NL-04-060

RELAXATION REQUEST FOR IP2 AND IP3 REGARDING BARE METAL VISUAL EXAMINATION OF REACTOR PRESSURE VESSEL HEAD IN ACCORDANCE WITH FIRST REVISED NRC ORDER EA-03-009, SECTION IV. F.

A. ASME COMPONENTS AFFECTED

Component Number: B15.10

Description: Reactor Pressure Vessel (RPV) Head

Code Class: 1

B. REQUIREMENTS OF FIRST REVISED NRC ORDER EA-03-009

The requirements for a bare metal visual examination of the RPV head surface are specified in Section IV.C.(5)(a) of the Order (Reference 1). This section states in part:

“Bare metal visual examination of 100 percent of the RPV head surface (including 360° around each RPV head penetration nozzle). For RPV heads with the surface obscured by support structure interferences which are located at RPV head elevations downslope from the outermost RPV head penetration, a bare metal visual inspection of no less than 95 percent of the RPV head surface may be performed ...”

C. PROPOSED ALTERNATIVE

Entergy will perform a bare metal visual examination of no less than 95 percent of the RPV head surface. The small area not being inspected is partially obscured by a reflective metal insulation (RMI) support ring located downslope from the outermost RPV head penetrations.

D. REASON FOR RELAXATION REQUEST

Compliance with the specified requirement (100% of the RPV head surface) would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

E. JUSTIFICATION

The RPV head insulation package consists of RMI panels supported above the RPV head surface such that remote visual devices can be used to perform the bare metal visual examination, without removing the RMI. The outer wall of the RMI package (RMI support ring) rests on the RPV head downslope of the outermost penetration nozzles. Although this RMI support ring provides structural support for the other panels in the insulation package, it may not

be considered as a 'support structure' as intended in Section IV.C.(5)(a) of the Order. Therefore Entergy is requesting a relaxation for the bare metal visual examination to cover less than 100 percent of the RPV head, but at least 95 percent consistent with the Order, based on interference from this insulation component.

Consistent with the requirements of Section IV.C.(5)(a) of the Order, Entergy will inspect upslope and downslope of the interference and if evidence of boron or corrosive product is identified under the RMI support ring, the examination will be expanded to cover the affected area under the interference. The RMI support ring does not prevent the inspection of 360° around the RPV head penetration nozzles.

Although the RMI support ring is removable, the other components of the insulation package supported by the support ring and the control rod drive mechanism cooling shroud would have to be removed first. This is a significant labor-intensive task and Entergy estimates that the dose to personnel removing and reinstalling the shroud and insulation would be approximately 7 man-rem for IP2 and 3.5 man-rem for IP3. The additional stay-times in the radiation field required to perform the removal and reinstallation task represents a hardship without a compensating increase in the effectiveness of the bare metal visual examination.

During the prior bare metal visual inspection (November 2002 for Indian Point 2 and April 2003 for Indian Point 3), inspection coverage was 100 percent because a plant modification was implemented which replaced the originally installed Kaylo Block permanent insulation with the new RMI panels. Therefore the area under the new RMI support ring was previously cleaned and inspected with satisfactory results.

F. DURATION OF RELAXATION

Entergy requests that this relaxation be effective for Indian Point Units 2 and 3 for all future bare metal visual examinations performed per Section IV.C.(5) (a).

G. REFERENCES

1. NRC Letter dated February 20, 2004, "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"

ATTACHMENT 3 TO NL-04-060

RELAXATION REQUEST FOR IP3 REGARDING INSPECTION OF REACTOR PRESSURE VESSEL HEAD AND PENETRATION NOZZLES IN ACCORDANCE WITH FIRST REVISED NRC ORDER EA-03-009, SECTION IV. F.

A. ASME COMPONENTS AFFECTED

Component Number: B 15.10 and B4.12

Description: Reactor Pressure Vessel (RPV) Head and Penetration Nozzles

Code Class: 1

B. REQUIREMENTS OF FIRST REVISED NRC ORDER EA-03-009

The inspection requirements for a moderate category plant are specified in Section IV. C. (2) of the Order (Reference 1), which states:

“For those plants in the Moderate category, RPV head and head penetration inspections shall be performed such that at least the requirements of paragraph IV.C.(5)(a) or paragraph IV.C.(5)(b) are performed each refueling outage. In addition the requirements of paragraph IV.C.(5)(a) and paragraph IV.C.(5)(b) shall each be performed at least once over the course of every 2 refueling outages.”

Paragraph IV.C. (5)(a) specifies bare metal visual examination requirements of the RPV head surface and paragraph IV.C. (5)(b) specifies requirements involving nonvisual NDE inspection of the RPV head penetration nozzles.

C. PROPOSED ALTERNATIVE

During the 3R13 Refueling Outage, Entergy Nuclear Operations, Inc (Entergy), will perform NDE inspection, of those head penetration nozzles that were not inspected during the 3R12 Refueling Outage. This scope of coverage includes 37 nozzles that were not inspected plus 3 nozzles that were partially inspected. Entergy will also perform the bare metal visual examination during 3R13, even though the bare metal visual examination was previously completed in 3R12.

D. REASON FOR RELAXATION REQUEST

The proposed alternative provides an acceptable level of quality and safety.

E. JUSTIFICATION

During the previous RPV head inspection for Indian Point 3 in the Spring of 2003 (3R12), Entergy performed bare metal visual examination of 100 percent of the RPV head surface and nonvisual NDE inspection of approximately one-half of the penetration nozzles (Reference 2). Since Indian Point 3 remains in the 'Moderate' category, only one inspection type or the other (bare metal visual or NDE) needs to be performed each outage, as long as each type is performed at least once over the course of every 2 refueling outages. Since nonvisual NDE was completed on 38 nozzles (as shown in Figure 3-1) during Refueling Outage 3R12, Entergy proposes to inspect the remaining 40 nozzles in the next Refueling Outage, 3R13. This satisfies the intent of the Order to perform NDE of nozzles at least every other outage for a Moderate category plant. In addition, in order to ensure an effective assessment of the overall condition of the RPV head, Entergy proposes to also perform the bare metal visual inspection of the RPV head in 3R13.

F. DURATION OF RELAXATION

Entergy requests that this relaxation be effective for the inspection that will be performed during refueling outage 3R13, scheduled for Spring 2005.

G. ATTACHMENTS TO RELAXATION REQUEST

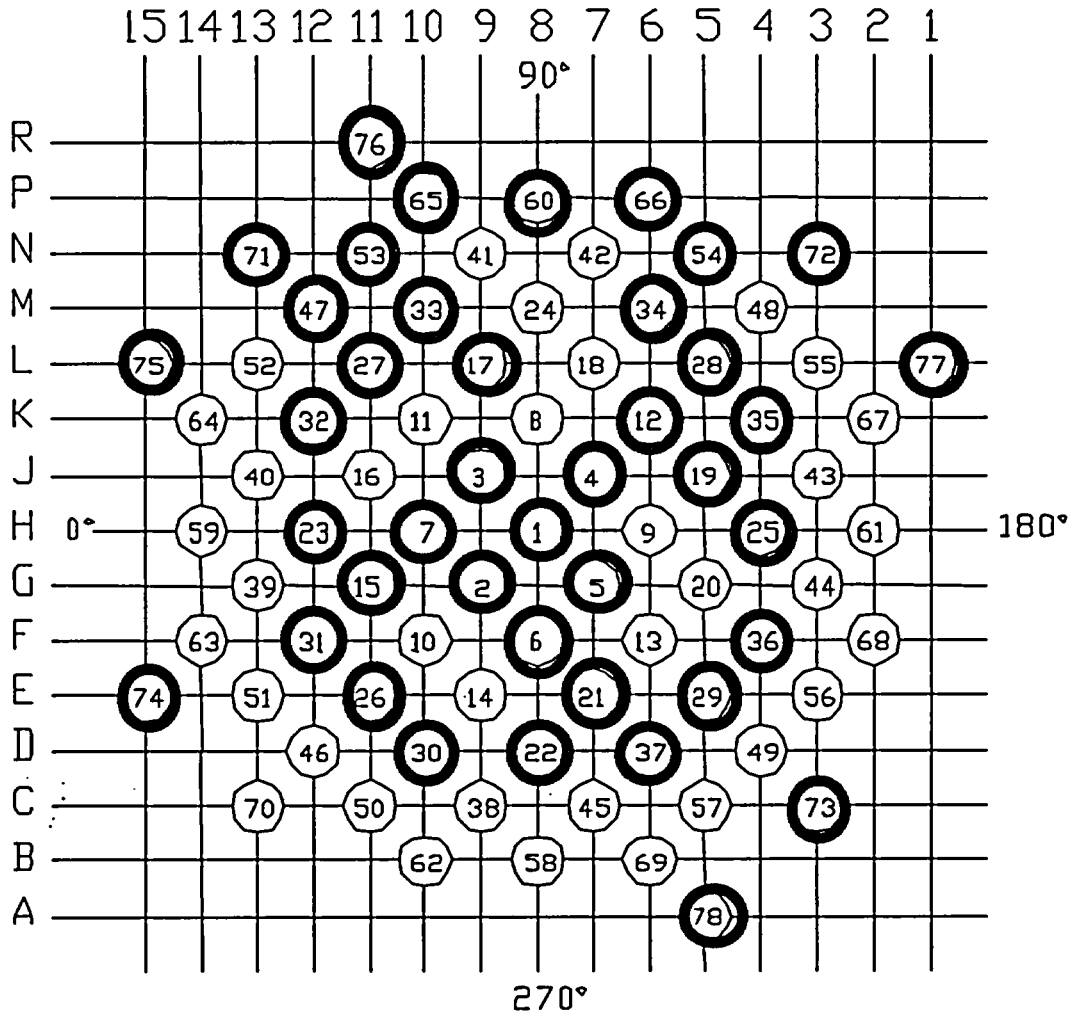
Figure 3-1: IP3 RPV Head Penetrations - Nozzle Location Map

H. REFERENCES

1. NRC Letter dated February 20, 2004, "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"
2. Entergy letter to NRC dated June 12, 2003 (NL-03-098); "Reactor Vessel Head Inspection Results; Indian Point 3, Spring 2003 Refueling Outage".

FIGURE 3-1

IP3 RPV Head Penetrations - Nozzle Location Map



Location of 41 nozzles inspected using nonvisual NDE methods during Refuel Outage 3R12 as reported in Entergy letter NL-03-098, dated June 12, 2003. Note that coverage of nozzles 6, 65, and 66 was 90%, 91%, and 83% respectively due to geometry constraints. Use of a smaller probe may resolve the limitation for future inspections.