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Michael R. Kansler  
President

February 3, 2003  
NL-03-024

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

SUBJECT: Indian Point Nuclear Generating Unit No. 3  
Docket No. 50-286  
**Response to Questions Regarding Relief Request RR 3-16, Rev. 2**  
**The Third 10-Year Inservice Inspection Program Plan**

Reference: 1. Entergy letter to the NRC, IPN-02-076, regarding "Response to Request for Additional Information Regarding Relief Requests for the Third 10-Year Inservice Inspection Program Plan," dated September 23, 2002.

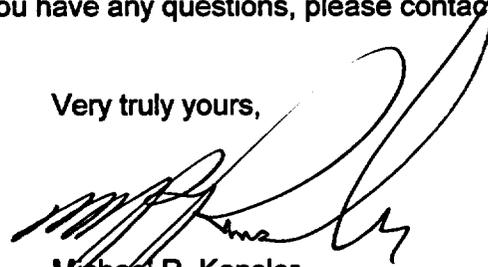
Dear Sir:

Entergy submitted Relief Request RR 3-16, Rev. 2 in Reference 1, which proposed the use of a color camera to perform remote visual examination of the pressurizer inner radius nozzles. In a telephone conference held on December 19, 2002, Entergy representatives and the NRC staff discussed questions regarding the resolution/capability of the proposed color camera. Entergy indicated a color camera with enhanced magnification capability would be used. In a follow-up telephone call held on January 29, 2003, Entergy clarified that the proposed remote visual examination would be a VT-1 examination. This letter submits a revised relief request RR 3-16, Rev. 3 (Attachment 1), which confirms a VT-1 remote visual examination will be performed, using a color camera with enhanced magnification capability and a resolution sensitivity to detect a 1-mil width wire or crack.

Approval for RR 3-16, Rev. 3 is requested by March 3, 2003 to support implementation for the upcoming R12 refueling outage.

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.

A047

February 3, 2003  
NL-03-024

**Attachments: 1. Indian Point Unit 3, Relief Request RR 3-16, Rev. 3**

**cc:**

**Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
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**Mr. Patrick Milano, Project Manager  
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**ATTACHMENT 1 TO NL-03-024**

**Relief Request RR 3-16, Rev. 3  
Third 10-Year Inservice Inspection Interval Program  
Indian Point Nuclear Generating Unit No. 3 (IP3)**

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

**RELIEF REQUEST NUMBER 3-16 (I), Rev. 3**

**A. COMPONENT IDENTIFICATION**

Code Class: 1  
References: Table IWB-2500-1, Figure IWB-2500-7  
Examination Category: B-D  
Item Number: B3.120  
Description: Inspection of Pressurizer Nozzle Inside Radius Sections

**B. CODE REQUIREMENT**

Table IWB-2500-1, Category B-D, requires a volumetric examination of the pressurizer nozzle inside radius section.

**C. RELIEF REQUESTED**

Indian Point 3 requests relief from the performing the code required volumetric examination of the pressurizer nozzle inside radius section.

**D. BASIS FOR RELIEF**

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested on the basis that the nozzle design makes it impractical to perform the examination. The pressurizer was designed and fabricated to Codes in effect during the late 1960s. The Codes used did not provide for full access for inservice inspection nor did they require a surface finish in the nozzle area suitable for UT examination. The design of the nozzles, utilizing a gradual inside radius section, is specifically intended to reduce stress in this area and minimize the conditions that might lead to cracking.

The nozzles on the pressurizer are cast with the vessel heads. The identification numbers for these nozzles are 20IR, 21IR, 22IR, 23IR, 24IR, and 25IR as shown on sketch INT-1-2100. The as-cast surface of the heads, combined with the geometry of this area, makes ultrasonic examination of the nozzle inner radii impractical (see drawing 681J281). Entergy has consulted with EPRI on other inspection techniques, such as the phased array. Although phased array could cover a larger inspection volume, it is also limited by the requirement of a relatively smooth inspection surface. Because of the casting, the pressurizer nozzle surface is quite uneven and therefore not suitable for either the UT or the phased array inspection techniques. An uneven surface will change the direction of the beam, resulting in an amplified deviation. Additionally, to perform an effective inspection, a transducer matching the curvature of the nozzle area is also required. The varying curvature of the nozzles thus prevents an effective inspection of this area as well. The geometry and size of the nozzles are such that a radiographic examination is not feasible. Specifically, the radiographic test film cannot be placed properly from the I.D. due to a lack of interior structure. Placement of the source will not allow proper film to source distance, resulting in greatly reduced sharpness. Access to the exterior nozzle inspection area is also

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limited due to the following physical restrictions: 1) the relief valves, piping, the platform at elevation 123'-3" that is used for valve inspection and removal; 2) the plate and channel assembly at elevation 120'-11"; 3) insulation and the missile shield wall, as shown in attached drawings 9321-F-25453, 9321-F-25463 and 9321-F-53253. As a result, any surface or visual examination would be significantly restricted, especially considering the anticipated high radiation levels on the outside and the as-clad surface on the interior.

A similar relief to perform only the visual, VT-2 examination was initially requested for the 2<sup>nd</sup> ISI Interval, but was granted with an additional condition to perform a remote video examination of the pressurizer nozzle inside radius sections, with the exception of the pressurizer surge nozzle (25IR), which has a retaining basket covering the outlet, thus precluding remote visual examination (Reference SER dated December 21, 1994, TAC NO. M8269 for Relief Request No. 9). These pressurizer nozzles inside radius sections were remote visually inspected during the Second ISI Interval (Refueling Outage 10 in 1999). No evidence of cracking was found.

**E. PROPOSED ALTERNATE EXAMINATION**

In lieu of the code-required volumetric examination, all nozzles (with the exception of Pressurizer Surge Nozzle 25IR) will be examined visually (VT-1) using a remote color video camera. The camera equipment will have enhanced magnification with a resolution sensitivity to detect a 1-mil width wire or crack. This visual (VT-1) examination for all accessible nozzles will be performed at the same time during an outage when the Pressurizer manway cover is removed for maintenance activities, or by the end of the 10-Year interval for ISI inspection. In addition, all nozzles will be visually examined (VT-2) at each refueling outage during system pressure tests in accordance with IWB-2500, Category B-P, and Code Case N-498-1. It is expected that any through wall defects would be detected by the proposed alternate examinations prior to failure of the component. This is based on the expectation that the component will experience leakage before a catastrophic failure ("leak before break").

**F. JUSTIFICATION FOR RELIEF**

The type and frequency of examinations proposed for the nozzles are the same as those in effect for the 2<sup>nd</sup> inspection interval. Based on the reliable operating history of this and similar vessel nozzles at other plants, and the satisfactory remote visual examination results from the inspection performed in 1999, the granting of this relief to perform the remote visual VT-1 and the VT-2 examination of the pressurizer nozzles during a system pressure test will not decrease the overall level of quality and safety. The remote visual examination will be the alternate examination for the 3<sup>rd</sup> Interval.

Since access to perform the VT-1 visual examination is through the pressurizer manway, it will be performed during the interval when other maintenance activities require the pressurizer manway to be removed, or by the end of the interval. All the accessible nozzles will be examined at the same time to minimize impact on outage schedules, radwaste

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generation and radiation exposures. During the 2<sup>nd</sup> Interval, approximately 150 mRem was recorded for the performance of the remote visual examination.

**G. PERIOD FOR WHICH RELIEF IS REQUESTED**

Relief is requested for the third inspection interval, July 21, 2000 through July 20, 2009.

**H. ATTACHMENTS**

The following attachments were previously submitted with RR 3-16, Rev. 2 (IPN-02-076, Reference 1 of the attached cover letter).

- Sketch INT-1-2100
- Drawing 681J281, Rev.4
- Drawing 9321-F-25453, Rev.20
- Drawing 9321-F-25463, Rev.12
- Drawing 9321-LL-53253, Rev. 2