

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 736.8007



William A. Josie
Resident Manager

August 9, 1989
IP3-89-059

Docket No. 50-286
License No. DPR-64

Mr. Jacque Durr, Chief
Engineering Branch
Division of Reactor Safety
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406

SUBJECT: Inspection No. 50-286/89-81 and Associated Notice of Violation (89-81-02)

Dear Mr. Durr:

This letter and Attachment I provide the Authority response to Inspection Report No. 50-286/89-81 and its associated notice of violation (89-81-02). This violation cites the Authority for not complying with the original plant construction code per the requirements of 10CFR50.55a(c)(4) during non-destructive examination (NDE) of recently completed reactor coolant system welds. Specifically, the absence of a requirement to perform RCS weld inside surface liquid penetrant inspection is cited as a non-compliance with the original plant construction code.

It is the Authority's position, however, that a valid basis existed for not requiring this inspection, which was in fact consistent with the original plant construction code. The rationale behind our position is detailed in Attachment I. Information is also provided in Attachment I which, in our opinion, demonstrates that no conditions indicative of a weld quality problem existed prior to ultimate performance of the liquid penetrant inspections. Based on this information, the Authority disagrees with violation 89-81-02.

With regard to Notice of Violation 89-81-01, the Authority believes that a number of additional perspectives warrant reflection for the record. Primarily, the Authority wishes to emphasize that linear indications found during NRC re-examination on areas adjacent to several welds were in fact being addressed by the Authority under a separate mechanism from the weld acceptance program, such that no potentially adverse quality condition would have remained unevaluated or uncorrected. Secondly, the Authority wishes to note that such issues as weld examination boundary definition and timing of NDE (which are

8908160242 890809
FDR ADDCK 05000286
Q PDC

IEO1
111

underlying considerations of violation 89-81-01) are treated somewhat more flexibly in the governing code for the Authority's weld NDE activities than they are in the NRC's NDE procedures. Therefore, the Authority believes that our NDE program complied with the governing code for these activities.

Should you or your staff have any questions concerning this matter, please contact Mr. M. Peckham of my staff.

Sincerely,



William A. Josiger
Resident Manager
Indian Point Unit 3
Nuclear Power Plant

WAJ:SMS:rl

Attachment

cc: Document Control Desk (original)
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Resident Inspector's Office
Indian Point 3
U.S. Nuclear Regulatory Commission
P.O. Box 337
Buchanan, Ny 10511

ATTACHMENT I
NRC INSPECTION REPORT 50-286/89-81
VIOLATION 89-81-02 RESPONSE

VIOLATION:

10 CFR 50.55(a)(c)4 requires that the reactor coolant pressure boundary to be constructed in accordance with the applicable Code Edition and addenda that were required by Commission regulations at the time of issuance of the construction permit.

In accordance with Revision 0 of the Indian Point 3 Final Safety Analysis Report, dated July 1982, the applicable code for nondestructive examinations of the reactor coolant piping welds made as part of the steam generator replacement is ASME B31.7 Class I which requires liquid penetrant examinations on both outside and inside (if accessible) surfaces of all finished welds.

Contrary to the above, an NRC review revealed that, the licensee's implementation of site Technical Specification for Welding, Postweld Heat Treatment and Nondestructive Examination 16802-M-005 did not require inside surface examinations for the finished steam generator nozzle to piping welds. Subsequent to identification of this deficiency by the NRC, inside surface examinations performed by the licensee by liquid penetrant examination disclosed rejectable linear indications in these welds.

This is a Severity Level IV violation. (Supplement 1)

RESPONSE:

The violation states that the Authority did not initially include in the Indian Point 3(IP3) steam generator replacement project(SGRP) quality assurance program a requirement to perform liquid penetrant (PT) inspections of the inner surfaces of finished RCS pipe welds. It was stated that this was in violation of 10CFR50.55(a)(c)4, which requires that the reactor coolant pressure boundary be constructed in accordance with the applicable Code Edition and addenda that were required by Commission regulations at the time of issuance of the IP3 construction permit. That determination was based in turn, on language contained with the IP3 Final Safety Analysis Report (FSAR) section 4.5.3 comparing the original IP3 RCS quality assurance program to a number of the provisions of USAS B31.7, Nuclear Power Piping, one of which was a requirement for a PT inspection of finished RCS weld inner surfaces, if accessible. The IP3 FSAR indicates that such inspections were performed on the original RCS pipe finished weld inner surfaces. The Authority believes that the NRC's interpretation of this FSAR language to mean that USAS B31.7 was the original construction

ATTACHMENT I
NRC INSPECTION REPORT 50-286/89-81
VIOLATION 89-81-02 RESPONSE

code for IP3 for purposes of compliance with 10CFR50.55(a)(c)4 was the basis for the violation. The Authority must disagree with this basis and state that for this purpose USAS B31.7 was not the original IP3 plant construction code. IP3's construction permit was issued eleven days prior to USAS B31.7, therefore USAS B31.7 cannot be the code to which 10CFR50.55(a)(c)4 refers to in this case. The true IP3 plant construction code for this purpose is ANSI B31.1-1955, which has no requirement for PT of weld inner surfaces. The IP3 FSAR identifies ANSI B31.1-1955 as the original plant piping construction code in a number of places. A further basis for USAS B31.7 not being the original IP3 plant construction code follows:

Section 4.5.3 of the FSAR does draw the conclusion that the quality assurance measures implemented during the original plant construction resulted in a quality level for the IP-3 RCS which was comparable to that provided by USAS B31.7. This conclusion, in turn, was supported by comparison to various aspects of USAS B31.7 as noted above. The historical origin of that information in the FSAR, however, does not support the characterization of USAS B31.7 as the original plant piping construction code. The conclusions and supporting comparison to USAS B31.7 appears in the IP3 FSAR as a result of a response from Consolidated Edison(Con ED) (IP3 original owner) to a question asked by the Atomic Energy Commission(AEC) during the licensing review for Indian Point 2 (IP2). The actual question from the AEC to Con Ed called for a comparison of the quality requirements as implemented for IP2 to those of a January 1969 draft version of USAS B31.7. The IP2 response information was subsequently incorporated into the IP3 FSAR in anticipation of the same question being asked during the AEC's licensing review for IP3. The IP3 information was actually the IP2 response transferred verbatim into the IP3 FSAR, but with the context of the AEC question omitted.

The Authority recognizes an obligation to maintain the quality level of the IP3 RCS comparable to that provided by USAS B31.7, based on the conclusion to this effect in the FSAR. In this regard, the Authority wishes to emphasize: 1) that the SGRP RCS weld NDE program was directly comparable with the FSAR/B31.7 provisions in all applicable respects other than the inside weld surface PT; 2) that a legitimate basis existed for the exception in the case of the inside surface PT, which was consistent with the original RCS piping fabrication/erection specifications; and 3) that no condition adverse to quality would have remained in place had the PT not ultimately been performed, such that the quality level of the RCS was no longer comparable to that provided by USAS B31.7.

ATTACHMENT I
NRC INSPECTION REPORT 50-286/89-81
VIOLATION 89-81-02 RESPONSE

The Authority's basis for not including an inside weld surface PT in the RCS weld acceptance program is as follows:

The methods and scope for non-destructive examination (NDE) of SGRP welds on RCS piping were founded on two elements: 1) conformance to the latest edition of the code to which the original RCS welding was required to conform (ANSI B31.1), and 2) consistency with the requirements of the original RCS piping fabrication/erection specification, which included QA requirements beyond the code requirements in some cases, and which formed the basis for the comparisons to USAS B31.7 contained in the IP3 FSAR.

Liquid penetrant examination of weld surfaces is not required at all by ANSI B31.1, however, IP3 FSAR section 4.5.3 indicates in item f that both external and internal surface liquid penetrant examinations were performed during the original RCS installation. This was in compliance with the original RCS erection specification, which required (without reference to USAS B31.7) liquid penetrant examination of all external weld surfaces, as well as for internal weld surfaces if accessible. It is noted that there was no radiological condition at that time which would have influenced any determinations of accessibility.

Had the SGRP welding QA requirements been based solely on compliance with the original RCS installation code, ANSI B31.1, no liquid penetrant examination of even the external weld surfaces would have been performed. However, this external surface requirement was included in the SGRP QA program because it was a requirement of the original RCS erection specification. The SGRP QA measures did not originally include a liquid penetrant examination of the inside weld surfaces, since there are now radiological conditions involved which, in the Authority's judgement, rendered the inside weld surface inaccessible. Because inside weld surface examination was not a code requirement, and because not performing such an examination was considered consistent with original specifications based on the accessibility language, it was decided not to perform this examination. Radiological conditions were also the basis for the Authority's initial resistance to performing an inside surface PT after NRC suggestions to do so. The Authority estimates that the exposures incurred in the course of performing these PTs was at least 3000 mR.

Although the inspection report indicates that the inside weld surfaces were accessible for PT, the Authority believes that radiological conditions were a valid consideration in determining the accessibility of these areas. That position is consistent with ASME Code Section XI, which is applicable to IP3.

ATTACHMENT I
NRC INSPECTION REPORT 50-286/89-81
VIOLATION 89-81-02 RESPONSE

The Authority believes that the linear indications found upon performance of the PT inspections were grind marks or other non-relevant superficial imperfections, not indicative of a weld quality problem. The bases for this conclusion are the satisfactory baseline NDE results documented for the affected machined surfaces prior to welding; the knowledge that grinding had been performed on the inside root to ensure good x-ray quality; and the satisfactory in-process and final radiographic results for the welds (as documented by both the Authority and NRC). It should be noted that the pre-radiography grinding involved much less time and effort than PTs, and was therefore considered justifiable in ALARA terms in view of the benefits of successful radiography. All linear indications were easily removed by flapping or buffing, without weld repair or major rework. Had these superficial linear indications been masking any significant flaws, these would have been evident on the in-process and final x-rays, and would have required more than flapping and buffing to remove.