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September 19, 1988

Re: Indian Point Unit No. 2
Docket No. 50-247

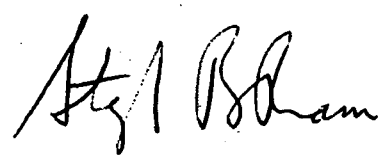
Document Control Desk
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

SUBJECT: Response to NRC Inspection No. 50-247/88-24, Notice of Violation and Enforcement Conference Meeting

Following the August 4, 1988 Enforcement Conference Meeting which addressed the inadvertent opening of all four main steam isolation valves (MSIVs) on June 23, 1988, you transmitted a Notice of Violation as part of Enforcement Conference Report 50-247/88-24 on August 19, 1988. The violations described in the Notice include performance of an inadequate safety evaluation of a modification to the MSIV logic circuitry in 1982, inadequate review by the onsite safety review group, untimely event reporting, and inadequate and untimely review of the event. Your letter also cited five areas of weakness in the Con Edison organization's response to the event.

Provided herewith as Attachment A is our response to the Notice of Violation and Attachment B is our response to the Enforcement Conference Letter. Should you or your staff have any questions, please contact Mr. Jude G. Del Percio, Manager, Regulatory Affairs at (914) 526-5127.

Very truly yours,



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U.S. Nuclear Regulatory Commission
P.O. Box 38
Buchanan, NY 10511

September 19, 1988

Re: Indian Point Unit No. 2
Docket No. 50-247

Attachment A

Response to Notice of Violation

Violation

A. 10 CFR 50.59 permits the licensee to change the facility design provided the change does not involve a unreviewed safety question, and the basis for such a determination is documented in a written safety evaluation.

Contrary to the above, when in 1982 the licensee changed the facility design through implementation of modification ESG 82-15043, Main Steam Isolation Valve (MSIV) solenoid-operated valve upgrade, (1) an unreviewed safety question was created, in that the modification added unmonitored fuses to the MSIV closure circuit, failure of which had not previously been evaluated; and (2) no safety evaluation was written documenting the licensee's basis why this change did not involve an unreviewed safety question.

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

Response

A. The 1982 modification to the main steamline isolation circuitry did introduce a potential undetected failure mode in a safeguards actuation circuit that was not thoroughly analyzed until after the MSIVs inadvertently opened on June 23, 1988. The cause of this condition is attributed to an omission that occurred during the design evolution of this particular modification package, whereby a change in the scope of work was made (i.e., the addition of unmonitored fuses in each of the redundant main steamline isolation logic circuits) without an accompanying rigorous analysis to identify and resolve the potential for any unreviewed safety question associated with such a change.

As an initial corrective action, all safeguards actuation logic circuits were reviewed to ensure that a blown fuse scenario would be detected. The results of the review indicate that all energize to actuate engineered safeguards logic circuits are provided with fuse

monitoring via undervoltage relays tied to an alarm and light indication. The only exception was the main steamline isolation logic circuitry and certain SI auxiliary relays. These circuits were modified to be consistent with the other engineered safeguards actuation logic circuits and appropriate alarm response and test procedures were revised. Additionally, Engineering Operations Manual, OP-290-1, section 5.2, paragraph 3.2 was revised on April 14, 1988 to provide additional guidance on single failure criteria.

Several long term corrective measures have been initiated and are outlined below with currently scheduled completion dates. These measures will preclude recurrence of events of this type.

1. A review of safety related schematics has been initiated. There are approximately 600 drawings in the scope of this review. The review process will document on a data sheet: drawing number, circuit type and function, testing and test frequency, and where appropriate, the need for enhancement (e.g. revise test scheme, add fuse monitors). This review will be completed by the end of December, 1988. In parallel, those circuits identified as candidates for enhancement will be evaluated as they are identified. The results of this effort will be integrated with the Design Basis Documentation Program.

2. A review has been initiated of installed plant modifications where there was an accompanying determination that no written safety evaluation was required. This review is being conducted to confirm the adequacy of the original determinations and to identify and correct any conditions that may be analogous to the 1982 MSIV circuit modification. We have identified 278 Class A and 82 non-class installed modifications for which a determination was made that no written safety evaluation was required. The review of these modifications will be completed by the end of January, 1989.

3. An enhanced training program on the implementation of the 10 CFR 50.59 safety evaluation process will be completed by the end of 1988.

4. An engineering training program on the use of Industry Codes and Standards, will be completed by the end of 1988. This program will provide our engineering staff with a broad base of knowledge on past and present good engineering and design practices based upon industry experience (i.e., lessons learned).

Violation

B. Technical Specification 6.5.1.6 and Station Administrative Order (SAO) 131, require the onsite Station Nuclear Safety Committee (SNSC) to review all proposed changes or modifications to plant systems that affect nuclear safety and render a written determination regarding the creation of an unreviewed safety question. Technical Specification 6.5.1.6 and SAO-404 revision 1 require the SNSC to review facility operations to detect potential nuclear safety hazards.

Contrary to the above, (1) the SNSC reviewed modification ESG 82-15043 in September 1982 and failed to recognize that the installation of the unmonitored fuses in the MSIV closure circuit created an unreviewed safety question; and (2) following the June 23, 1988 unexpected MSIV opening, the SNSC reviewed the event and failed to detect the potential nuclear safety hazard which existed during plant operation with the unmonitored fuses installed.

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

Response

B. (1) As stated in our response to Violation A, we indicated that the cause of the installation of unmonitored fuses in the main steamline isolation logic circuits was an omission that occurred during the design evolution of the modification. Oversight during SNSC review and approval of the modification is considered a part of this omission. Our determination to review installed modifications which have been made without a written safety evaluation will allow us to identify and correct any conditions that may be analogous to the 1982 MSIV circuit modification.

(2) Following the June 23, 1988 inadvertent MSIV opening, the SNSC was apprised that same day (during a regularly scheduled meeting) of the event, it's probable cause, and ongoing troubleshooting and investigation by the Operations Manager. At that time, station personnel were working on obtaining information to understand the engineering aspects of the event and its cause. The event was considered significant by the SNSC, however a full assessment of the safety significance was not possible until sufficient engineering information became available. In the interim, to assure MSIV operability, I & C technicians were instructed to perform continuity checks of the circuit fuses concurrent with valve stroke tests prior to startup. This was determined to be adequate to return the Unit to service. The SNSC review of the event on June 23 complied with Technical Specification 6.5.1.6 and SAO-404 revision 1, since operability of the MSIVs was assured and a broader scope evaluation was in progress.

Violation

C. 10 CFR 50.72 requires the licensee to report to NRC within 4 hours of the occurrence of an event or condition that alone could have prevented the fulfillment of a safety function needed to mitigate the consequences of an accident.

Contrary to the above, when on June 23, 1988 a system design anomaly was apparent during the MSIV closure circuit surveillance test, the licensee did not report the system single failure vulnerability of the MSIV control circuits which jeopardized their ability to fulfill their full safety function until June 29, about six days after the event.

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

Response

C. We do not agree that there was any late reporting associated with this event. Our evaluations of the June 23, 1988 event were ongoing through June 29, 1988 and continued for several additional weeks. On June 23, 1988 the Resident Inspector was informally notified of the event and the ongoing evaluation. On June 29, it was conservatively decided that the event was reportable under 10 CFR 50.72 because it was felt that if one assumed the negative fuse was blown and not monitored, a single failure in the redundant train could have rendered the automatic function inoperable. In the weeks following our June 29 hotline report, an additional detailed evaluation was conducted and on July 28, we provided a status update in a letter to the NRC again reaching the conclusions similar to that of the June 29 report. Subsequent to the July 28 status report, we realized that the surveillance testing alone was an acceptable method to meet the single failure criteria for eliminating potential undetected failures.

Our detailed evaluations also covered the unmonitored and untested positive fuses installed in the manual control portion of the circuits. Since the test scheme for the monthly logic testing did not include these fuses, they are considered undetectable failures. Given certain conditions, it can be postulated that all four MSIVs could re-open at low steam pressure. Although this condition was not previously analyzed, we determined that the consequences of such an occurrence were insignificant and were bounded by the FSAR analyses.

We have concluded for the foregoing reasons that the condition reported on June 29 was an "engineering event" existing since 1982 that was discovered only as a result of a comprehensive evaluation following inadvertent opening of the MSIV's on June 23. Because the reportability determination made on June 29, while the evaluation was continuing, was conservative and the engineering information present at that time was not available on June 23, it follows that there was no late reporting.

Violation

D. Technical Specification 6.8 requires procedures and administrative policies to be established, implemented, and maintained.

Station Administrative Order (SAO) 132 requires a written event report discussing, in part, the cause, corrective actions, and implementation responsibility and schedule for those activities. A preliminary report is required within 2 days of the event with a followup final report within 20 days.

Contrary to the above, the SAO-132 report (88-09) for the June 23, 1988 main steam isolation valve unexpected actuation event was inadequate, in that the preliminary report, which was not completed within 2 days, did not specify the required corrective actions and their implementation responsibilities and schedules, nor was the final report completed within 20 days of the event.

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

Response

D. While the literal requirements of SAO-132 may not have been fully complied with in that an approved preliminary report was not available within the required 2 days and the final report was not issued within 20 days, it is clear that the intent of SAO-132 was complied with throughout.

The purpose of the preliminary report is to compile whatever initial information is understood about the event, any short term actions planned to determine the cause of the event, and any plans associated with corrective maintenance, troubleshooting and plant conditions. Although the preliminary report was not approved by the General Manager-NPG within two days as required by the SAO, it did contain all necessary preliminary information. Any required corrective actions, implementation responsibilities and schedules are to be included in section X of the final report.

Additionally, subsequent to the event a task force was established to review and evaluate all circumstances surrounding the event. The task force was directed to expeditiously address both plant engineering issues as well as the administrative processes and to make recommendations for both short and long term corrective actions as necessary. It was therefore necessary to wait for the task force to complete its analysis before the corrective activities required for a final SAO-132 event report came into existence. Since the task force did not complete its analysis until July 18, 1988, it was not possible to issue a final SAO-132 report within 20 days of the event.

We have reviewed the overall process whereby information for the SAO-132 report is assembled and have concluded that the timing associated with this particular report was unique to events which are followed by a task force-type evaluation.

September 19, 1988

Re: Indian Point Unit No. 2
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Attachment B

Response to Enforcement Conference Letter

In addition to the Notice of violation, the August 19, 1988 letter cited five areas of weakness in our response to the event. These include:

1. Lack of formality and oversight in event followup activities.
2. Delayed implementation of initial corrective actions.
3. Inadequate initial corrective actions, which in this instance were cited as mainly the failure to establish promptly a surveillance program for the installed fuse monitor lamps and incorporate the corrective actions in plant procedures.
4. Untimely recognition of the root cause and reportability of the event.
5. Inadequate involvement of the site safety review organization.

Our responses to your observations involving untimely reporting of the event and adequacy of SNSC review (items 4 and 5) are included as part of Attachment A. The other three observations focus on an apparent lack of attention to event analysis and followup sufficient to assure timely implementation of corrective actions, such as, in this instance, the installation of the fuse monitoring lamps.

We agree that the informal nature of the decision relating to the fuse monitoring lamps resulted in their being installed later than planned. However, as we explained at the August 4, 1988 enforcement conference meeting, our decision to install fuse monitors in these circuits was not intended to provide continuous monitoring of fuse status. Installation of the lamps was neither considered a pre-condition to plant startup nor required to verify MSIV operability. Rather, the lamps were intended to aid technicians in verifying fuse status during the performance of the monthly logic testing, thereby eliminating the potential for recurrence of the event. Given this initial rationale, there was no need to install the fuse monitor lamps prior to next testing, almost a month hence. This apparently lessened the sense of urgency to implement this interim action. Formality and oversight of overall event followup activities was provided by the multidisciplinary task force that was established to analyze the event and recommend short and long term corrective actions.

Given the somewhat esoteric circuitry aspects of this event, and the need to evaluate the function and significance of monthly logic testing in connection with determining whether an undetectable failure mode had been revealed by the event, the full implications were not immediately apparent. Our understanding of the potential safety significance evolved over several days, culminating on June 29 when we conservatively initiated a hotline notification to the NRC pursuant to 10 CFR 50.72. Subsequently, a decision to perform frequent surveillance of the monitor lamps was made. A requirement for shift checks of these lamps was incorporated on the DSR-2 CCR turnover sheet on June 30, 1988.