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William J. Cahill, Jr.
Chief Nuclear Officer

February 16, 1995
IPN-95-012

U.S. Nuclear Regulatory Commission
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Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
License No. DPR-64
Response to Request for Evaluation of Identified Concerns
Regarding Activities at Indian Point 3

Reference: NRC Letter, Richard W. Cooper, II to Leslie Hill, Jr., NYPA
dated December 16, 1994

Dear Sir:

This is in response to your letter of December 16, 1994 to Mr. Leslie Hill, Jr. concerning activities at Indian Point 3. As requested, we have performed a thorough and objective evaluation of the concerns articulated in the attachment to your letter. A summary of our results are as follows.

A task group composed of an independent consultant with extensive experience in nuclear regulatory affairs and three managers from the Authority's Nuclear Generation Department with responsibility in quality assurance and engineering, having no line responsibility in maintenance, performed the evaluation which has been reviewed by senior management and provides the basis for this submittal. The task group's evaluation included interviews of all but one of the individuals named in the attachment to your December 16th letter. The individual not interviewed is a former staff augmentation contract employee who has an unlisted phone number. We are continuing to attempt to contact this individual. Many other individuals were interviewed in an attempt to completely understand the alleged incidents.

The task group also performed an extensive search for documents that might provide more details of the events leading to the alleged incidents. Some of the events were not well documented, but the recollections of those interviewed enabled the task group to develop an understanding of the issues.

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The results of the task group's efforts are summarized in attachment 1 to this letter. The attachment does not include personal privacy, proprietary, or safeguards information to be withheld from public disclosure. Additional information which is of a personal privacy or proprietary nature is available for your review. Our evaluation confirmed that during the time periods in question, certain activities affecting quality were performed without adequate procedural controls, and with insufficient documentation to provide an accurate record of the activities related to the alleged incidents.

These issues are part of a pattern that was prevalent for many years at our nuclear facilities. It was identified through your observations, those of INPO and of our consultants, and confirmed by our own reviews. This pattern was tolerated and probably fostered an absence of a questioning attitude on the part of personnel on all managerial and professional levels, and led to temporizing judgements regarding operating and maintenance practices and corrective actions. As your findings in several reports (NRC Inspection Report 50-286/ 89-14, 91-14, 92-06, 93-22 and 93-80) indicate, this pattern led to a lack of attention to the letter and the spirit of regulatory requirements and guidance, and an insensitivity to the need for rigorous evaluation of the safety implications of operating and maintenance conditions and practices.

As you know, the Authority has a new management team, which in the Nuclear Generation organization has placed many experienced persons from other parts of the industry in key line positions. For example, the line controlling policy and decisions in the operations and maintenance activities at Indian Point 3 consists of myself as Chief Nuclear Officer; Les Hill, Resident Manager; Jim Zach, General Manager-Operations; Joe DeRoy, General Manager-Maintenance; Dale Spoerry, Training Manager, and others. All of these individuals have had experience in other parts of the industry, are new to the operating/ maintenance function at Indian Point 3, and were not involved in the unsatisfactory pattern that developed in that area.

The Authority acknowledges that certain activities performed during the time period covered by the incidents alleged in your letter were not in compliance with regulatory requirements. Some of these issues have been addressed in NRC Inspection Reports noted above. We have evaluated the identified issues and found that they are not unlike those that resulted in our decision to shutdown Indian Point 3 in February 1993. The causes of the decline in performance, and plans for corrective action, are documented in the Restart and Continuous Improvement Plan (RCIP).

It is further noted that we have measures in place to assure that issues such as those identified by your letter will not recur. We have also communicated to all personnel at our nuclear sites, and in our White Plains Office that we must have a questioning attitude in all that we do at these sites, and in support of them, that the unacceptable practices of the past will not be tolerated by the Authority management.

I am providing this response and request that any future correspondence of this nature to the Authority be addressed directly to me for action.

Should you have any additional questions regarding this letter, please contact Mr. J. Kelly at (914) 681-6275.

Very truly yours,

William J. Cahill, Jr.
Chief Nuclear Officer

Attachments

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Attachment 1 to IPN-95-012

ISSUE No. 1 (Paraphrased)

Near the end of the 1989 refueling outage, it was determined that NYPA needed to inspect the Transite boards and replace those that were either missing of damaged. The inspection revealed an extensive problem that would require installing hundreds of board feet of Transite. When the results were presented, it was decided to fix only those boards that were visible from the floor. The Transite boards were possibly required by Appendix B. Not all the Transite boards were repaired because it would have extended the outage. It is possible that the boards still have not been repaired.

Investigation Results

The Authority investigation confirmed that near the end of the 1989 outage, an effort was initiated to determine the extent of missing and damaged Transite board used to satisfy the requirements for the separation of safety related cable trays in the Indian Point 3 (IP3) containment building. This effort identified an amount of missing/damaged Transite board which would require an extensive effort to replace, including the erection of large amounts of scaffolding. Maintenance work requests had been prepared to effect the Transite board replacement, but a management decision was made to perform only that work which involved the replacement of Transite board that could be reached by ladder from the lower level of the containment building. Some of the Authority personnel interviewed believed that a safety evaluation to support this decision had been prepared, but a written safety evaluation could not be found during the course of this investigation, and other personnel interviewed had no recollection of seeing, or being aware of, such an evaluation. Because members of plant management wanted to avoid a significant delay in the plant startup, they apparently made the decision to not replace all of the Transite board without performing a safety evaluation. A member of the plant management team at the time of this decision, who is no longer with the Authority, stated that the decision was made by the management team to expedite plant startup. He was not aware of any safety evaluation that supported the decision. The other members of the plant management team who were alleged to be involved in this decision were interviewed and had no recollection of the issue.

The fact that missing/damaged Transite board was not replaced prior to the plant startup following the 1989 outage was substantiated by the records of the Transite board replacement during the 1992 outage. The 1992 effort was initiated based on the NRC's finding, and reporting of missing and broken Transite board in the plant in 1991. Based on this report, the Authority performed a thorough inspection of all safety related and some non-safety related cable trays inside and outside the containment building. All missing and damaged Transite board was replaced with Marinite board because of asbestos in the Transite. The replacement records show that approximately 80% of the Transite board replaced in the containment was in those areas where it had not been replaced in 1989.

The Transite board was originally installed to satisfy a commitment in the FSAR to meet established cable separation requirements. Credit was also taken for some of the Transite board in the containment as the radiant heat shield needed to satisfy 10 CFR 50, Appendix R requirements. Efforts are in progress to determine how much, if any, of the missing/damaged

Transite board that was not replaced in 1989 is included in the group of Transite board used in the Appendix R analysis.

The Authority will assure that a documented inspection of all safety-related installed Transite and Marinite board has been completed prior to startup. Missing and damaged safety-related board found during the inspection will be replaced prior to startup.

ISSUE No. 2 (Paraphrased)

Around 1989 or 1990, a Material Substitution Evaluation (MSE) was written to replace damaged worm gears with home-made hardened brass worm gears in safety related valves. Some of the valves in question were butterfly valves in the service water system, such as SWN-99. The manufacturer was contacted concerning this substitution and they stated that they would not endorse the MSE. When the individuals involved were informed, they stated that the MSE had to be approved because several had already been installed throughout the plant. The MSE was rejected, but it was not clear what action, if any, was taken with it or the already installed hardened brass worm gears.

Investigation Results

A search of engineering requests, work requests, and modifications was made to find any reference to a change-out of steel worm gears with brass worm gears. Engineering request RES 88-3-165-RW was found which mentioned "Brass for cast iron," but the modification (MSE 90-3-315) prepared in response to the engineering request called for replacing iron for iron.

No work request was found that changed worm gears from iron to brass as alleged. Several work requests were found in which the valve was entirely replaced from Fisher to Jamesbury. One case was found where a temporary modification (TM-1271) was performed to move the valve handwheel to the valve stem for valve SWN-34-1 because of damaged spur and pinion gears. No attempt was made to substitute brass for iron.

Interviews with several Authority personnel indicate that maintenance personnel did manufacture and install some brass gears. The personnel contacted believed that a modification package had not been developed and the gears were installed only in non-safety related valves.

Based on the uncertainty of where the brass gears may have been installed, all Fisher butterfly valves greater than 6 inches in diameter (twenty-one), including SWN-99, were inspected. Of the twenty-one valves, all valves with Fisher manual actuators (nine), two valves with Limitorque manual actuators, two valves with Continental manual actuators, and one valve with a Jamesbury manual actuator, were opened to verify the proper gears in place. The only valves with improper brass gears were two nonsafety related service water Fisher manual actuator valves. The issue regarding the two valves with brass gears will be resolved and closed out with the Deviation and Event Report (DER) process.

ISSUE No. 3 (Paraphrased)

Near the end of the 1989 refueling outage, a work package was written to uncouple the 31 containment recirculation sump pump from its motor in support of testing EQ splices. It was decided not to uncouple the pump from the motor. Due to reverse rotation, the pump was destroyed because electrical leads were reversed. The leads apparently were not reversed during the 1989 refueling outage, but during the 1987 refueling outage. Therefore the pump had been inoperable for the entire cycle following the 1987 refueling outage.

Investigation Results

The Authority investigation confirmed, through personnel interviews and document reviews, that a decision was made to not uncouple the recirculation pump and perform a "bump" test following maintenance work to repair equipment qualification (EQ) splices in the motor cabling. The decision included a commitment to "bump" the pump and verify proper rotation during the performance of the Technical Specification (TS) required surveillance test scheduled later that month (May 1989). During the surveillance test, the pump was not "bumped" as planned, but was started and damaged by reverse rotation, and the motor breaker tripped on overload.

The investigation was not successful in establishing when the wiring to the motor was connected improperly to cause the motor to rotate in the reverse direction. The pump had been tested satisfactorily with a 15 minute run in July 1987. Subsequent to the July 1987 test no other rotational testing of the pump was performed until the pump was damaged during the performance of the May 1989 test. During the intervening period, two maintenance activities were documented which could have resulted in the wiring error. Both of the maintenance activities (August 1987 and May 1989) involved disconnecting the motor leads and repairing the EQ splices. These two maintenance activities were well documented and inspected, and do not appear to be likely candidates for the wiring error.

Several of the personnel interviewed stated that they recalled the use of the 31 recirculation pump motor connections as the source of high current electrical power for a "weld loop" in the containment during major outages. The weld loop was used to provide power for welding and post-weld heat treatment. A work request was issued in September 1985 to "run temporary leads" from the 31 recirculation pump leads, but no documented evidence of this type of usage during other major outages was found during this investigation. Some of the personnel interviewed recalled the use of a weld loop during the 1987 and 1989 outage, but could not provide any specifics.

The investigation could not conclude when the wiring error occurred. The cable splicing activities in August 1987 and May 1989 are the only documented possibilities, but appear to be unlikely. If undocumented weld loop connections were made as alleged, they would be the likely causes for the wiring error. The Authority can only conclude that there is no evidence to support the fact that Recirculation Pump 31 was operable throughout the period of plant operations from August 1987 until the 1989 refueling outage. This issue was addressed in NRC Inspection Reports 50-286/89-14 and 92-06.

The Authority has tested the two containment recirculation sump pumps during the current outage (test 3PT-R13). The remaining electrically driven pumps, subject to the testing requirements of the Technical Specifications and In-service Testing Program (IST), have been or will be tested prior to startup to confirm their operability. The operability of the Spent Fuel Pit pump, recently added to the IST program, will be confirmed through normal usage of the pump.

In addition, the Authority will assure prior to startup that the Indian Point 3 procedures and work standards clearly require that: (1) motors are "bumped" for rotation prior to their reconnection (i. e., coupling) to plant equipment when maintenance activities are performed which could alter their rotational direction, and (2) activities such as the use of permanent plant equipment and power sources for temporary purposes would only be performed under the engineering evaluations and controls provided by plant procedures for temporary modifications.

Attachment 2 to IPN-95-012

List of Commitments

Commitment Number	Commitment	Due Date
IPN-95-012-01	Inspect, and repair as necessary, all safety related Transite and Marinite board.	Prior to plant startup from current outage.
IPN-95-012-02	Resolve issue regarding two valves with brass gears.	Prior to plant startup from current outage.
IPN-95-012-03	Revise procedure to assure motors are "bumped" for rotation prior to reconnected following maintenance.	Prior to plant startup from current outage.
IPN-95-012-04	Establish procedures to control the use of permanent equipment and power sources for temporary purposes.	Prior to plant startup from current outage.