John D. O'Toole
Vice President

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July 18, 1986

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

Director of Nuclear Reactor Regulations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTN: Mr. Steven A. Varga, Project Director
PWR Project Directorate No. 3
Division of PWR Licensing-A

Dear Mr. Varga:

Transmitted with this letter is Revision 1 to the "Inservice Testing Program Summary for the interval July 1, 1984 through June 30, 1994". This revision results from NRC's October 26, 1984 and August 27, 1985 requests for additional information, Con Edison's October 22, 1985 response to those requests , the NRC/Con Edison working meeting held at NRC Region I offices in King of Prussia, Pa. on November 13 and 14, 1985 and followup conference calls on December 9, 1985 and January 28, 1986 relating to the Indian Point Unit No. 2 pump and valve inservice testing (IST) program. Changes from the February 16, 1984 initial submittal are identified by a change bar in the right hand margin.

Two items that remain unresolved include quarterly full code parameter testing for the boric acid transfer pumps and turbine driven auxiliary Boiler Feedwater Pump. In both instances the staff has taken the position that installation of local flow indication is required to facilitate the requisite testing. Our position has been and continues to be that full code parameter testing to verify operational readiness will provide little if any enhancement in overall reactor safety in view of the function of these pumps, the testing already being performed, as well as the overall redundancy and diversity associated with the boration and decay heat removal functions.

Specifically, ASME B&PV Code Section XI, paragraph IWP-1100 requires inservice testing for "centrifugal and displacement type pumps ... that are required to perform a specific function in shutting down a reactor or in mitigating the consequences of an accident...".

The only design basis transient that considers emergency boration using the boric acid transfer pumps is the FSAR evaluation of postulated boron

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dilution events. Based on that evaluation, emergency boration is not required to "mitigate" a dilution event. The maximum potential dilution flow rate is such that, given the alarms and indication available to the operator to warn of an impending dilution event, sufficient time is available to terminate the event without borating to maintain shutdown margin. This is accomplished by isolating the dilution source. Thus, emergency boration is not required to mitigate the consequences of an accident. With regard to the requirement for inservice testing of pumps "that are required to perform a specific function in shutting down a reactor", shutdown to the hot shutdown condition is accomplished using control rods. Unlike the requirement in IWV-1100 for the inservice testing of valves, inservice testing of pumps does not require shutting down a reactor to the cold shutdown condition. Boration capability is required to bring the reactor to cold shutdown; boration capability is not required to bring the reactor to hot shutdown. Accordingly, the boric acid transfer pumps are not within the scope of Section XI for inservice pump testing and therefore need not meet the Section XI pump testing requirements. These pumps are currently included in the program at Con Edison's option and will be inservice tested to the extent we have determined practical.

The turbine driven auxiliary boiler feedwater pump does serve to mitigate the consequences of potential loss of heat sink and certain other types of design basis accidents. As such, it is required to be tested to the Section XI inservice pump testing requirements quarterly. Two motor driven Auxiliary Feedwater pumps are redundant to the turbine driven pump. Any one of the three pumps alone is sufficient to satisfy accident analysis assumptions.

These pumps supply relatively cold (100°F) auxiliary feedwater to the steam generators (550°F); thus quarterly testing of these pumps in their normal system alignment creates the potential for thermal fatigue of the associated feedwater piping and fittings.

In addition, initiation of auxiliary feedwater under normal operating conditions creates a potential for feedwater flow/steam flow mismatch that can result in tripping the reactor. Because of the concerns previously noted, the only time design flow tests can be performed in the safety system alignment is at extended cold shutdowns, i.e. refuelings. Also because of these concerns, the quarterly testing required by the code is accomplished using an alignment that differs from the normal safety system alignment, i.e. via the minimum flow recirculation line. Such tests are, in fact performed per the Technical Specifications, and all code parameters are obtained at refuelings. The lack of flow indication in the minimum flow path precludes obtaining flow measurements quarterly, although all other code parameters are obtained. Degradation can be determined quarterly based on head measurement alone since the same minimum flow recirculation path with the same system resistance is used in each quarterly test. Thus a degradation in head values with time is indicative of pump degradation. Head degradation beyond the specified Section XI allowables requires corrective action.

We believe that starting and running the turbine driven auxiliary feedwater pump quarterly at minimum flow and obtaining head, vibration and bearing temperature measurements together with full code parameter tests under design flow conditions at refuelings will assure that sufficient information is available to facilitate decision making and determining the need for corrective action. Installation of local flow indication to facilitate full code parameter testing on a quarterly basis under minimum flow conditions will provide little if any enhancement in overall reactor safety in view of the testing already being performed. Therefore, we believe such testing to be unnecessary and unwarranted. Finally, the installation of flow indication in the minimum flow recirculation line results in a permanent increase in recirculation path pressure drop. The effect of increasing pressure drop is to further reduce flows through the recirculation line causing the pump to operate even closer to its shut-off head. Operating in this condition increases the conversion of flow energy to heat within the pump, ultimately increasing pump wear and decreasing pump reliability.

A revised Technical Specification change request that would replace the existing Inservice Inspection Program contained in Section 4.2 of the Technical Specifications with a commitment to an Inservice Inspection and Testing Program and periodic updating, consistent with 10 CFR 50.55a is included as Attachment A to this letter. This revision supercedes a previously proposed change request dated May 5, 1977 and a subsequent revision dated February 16, 1984, neither of which has been approved by NRC.

Should you or your staff have any questions, please contact us.

Very truly yours,

for/ John D. O'Toole
Vice President

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