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October 21, 1981
IPN-81-82

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

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Asymmetric Pressure Vessel Loading

Dear Sir:

This letter requests that the NRC issue an interim Safety Evaluation Report (SER) regarding the subject issue until such time that a final SER can close-out this issue for the Indian Point Unit 3 facility (IP-3).

By letter dated June 25, 1981 (IPN-81-44) the Authority submitted a non-proprietary version of the IP-3 Reactor Coolant System (RCS) Tearing Stability Analysis. The proprietary version of this analysis was transmitted to the Commission on June 10, 1981, by the Fracture Proof Design Corp., along with a request for withholding from public disclosure.

On September 3, 1981, Authority personnel and its consultant presented the IP-3 RCS Tearing Stability Analysis to the NRC Staff (see attached attendees list). This analysis concludes that a double-ended guillotine pipe break of the RCS is not possible under loads greater than level D (faulted), which is the largest design load, and this conclusion is accompanied by a large margin for stability of cracks in the RCS. The analysis demonstrates that if a crack is present and the loads cause yielding of the cracked section, the crack will open resulting only in a small coolant leakage rate. At the conclusion of the meeting, the consensus of the NRC attendees was that additional material property data is necessary in order to fully satisfy the Commission. The Commission has data



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which shows welds are less tolerant of cracks by a factor of two compared with base metal and it noted that no data exists for high J-integral (J) values. Thus, the data required is for welds in wrought and cast stainless steels and the bimetallic nozzle to stainless weld, all at J values from J_{IC} to 50,000 in.-lb./in.²; and, for base metal at J values from 30-50,000 in.-lb./in.². A materials testing program, expected to be complete within eight months, is being initiated to gather this data.


The Authority is confident, based on the assurances of its consultant, that inclusion of the above described data, when available, will not alter the conclusions of the Tearing Stability Analysis due to the large margin of stability. Therefore, the Authority has cancelled the installation of reactor vessel restraints, previously planned to be installed during the upcoming refueling outage. These restraints were recommended by WCAP-9117 in order to preclude the possibility of asymmetric pressure vessel loading. Since the WCAP assumes a double-ended guillotine pipe break, the IP-3 RCS Tearing Stability Analysis can be used to demonstrate that asymmetric pressure vessel loading is not possible due to RCS pipe stability. Hence, the need for reactor vessel restraints has been eliminated.

The NRC Staff drafted a SER for WCAP-9117 early this year which has not yet been issued due to unresolved questions. However, the Authority considers WCAP-9117 to be inapplicable in light of the IP-3 RCS Tearing Stability Analysis.

Based on the above, the Authority requests that the NRC Staff issue an interim SER until such time as all remaining concerns regarding the data base of the Tearing Stability analysis can be resolved. This interim SER should evaluate the operability of IP-3 without reactor vessel restraints. A conclusion that the IP-3 facility is safe to operate, until such time as all questions regarding pipe stability can be resolved, is fully justified. Support for this conclusion lies in the fact that even though unresolved NRC questions exist regarding the IP-3 RCS Tearing Stability Analysis, more than a sufficient margin of stability is evident. In addition, the small risk, if any, which interim operation presents is far outweighed by the 200 man-rem exposure which would be incurred due to the unnecessary installation of reactor vessel restraints.

The Authority believes that prompt issuance of the interim SER is essential to the proper resolution of this issue and will be an important aid to both NRC and the Authority in the event that a final SER is not available once the IP-3 hearings commence.

Very truly yours,



J.P. Bayne
Senior Vice President
Nuclear Generation

cc: Mr. T. Rebelowski
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IP-3 TEARING STABILITY ANALYSIS

September 3, 1981 Presentation

ATTENDEES:

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Barry Elliot, NRR
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