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Vice President

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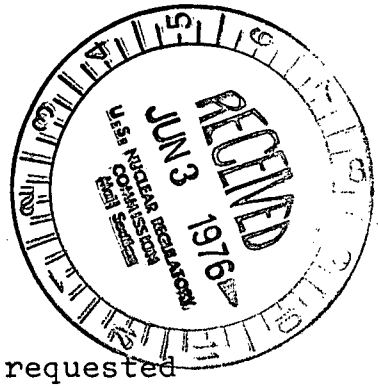
May 28, 1976

Re Indian Point Unit No. 2
Docket No. 50-247
Facility Operating License
No. DPR-26



Director of Nuclear Reactor Regulation
Attn: Mr. Robert W. Reid, Chief
Operating Reactors Branch # 4
Division of Reactor Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

In Mr. George Lear's letter of May 27, 1975, the NRC requested additional information concerning the four (4) swing-check type main steam isolation valves (MSIVs) installed at Indian Point Unit No. 2. Specifically, that letter requested a summary of analyses employed to confirm the integrity of MSIVs under dynamic loads associated with a postulated downstream steam line break. This submittal completes our response to this matter.

The MSIVs presently installed at Indian Point Unit No. 2 are butt welded end type, 28" pipe diameter, 24" seat diameter, ANSI 600 lb. standard class, Atwood and Morrill Co., Inc. (A&M), swing-disc type check valves. These valves have 25¼" diameter carbon steel discs and carbon steel disc arms. The valves were analyzed for static differential pressure loadings in accordance with the codes in effect at the time of purchase (ANSI B 16.5). The Indian Point Unit No. 2 MSIVs have experienced several closures at full power with no damage to the valve discs or seats from the resulting dynamic loadings.

A&M, in conjunction with their consultant, Teledyne Materials Research (TMR), has performed dynamic analyses for recent MSIV installations. The A&M and TMR analysis was developed for the MSIVs at the Farley Unit of Alabama Power Co. The Farley analysis has been submitted to and accepted by the NRC (Joseph M. Farley Nuclear Plant, Final Safety Analysis Report, Appendix 10A, Amendment No. 45, Docket No. 50-348).

The Indian Point Unit No. 2 MSIVs are of the same design as those installed at the Farley Unit. Based on their analyses, A&M has recommended that the MSIVs at Indian Point Unit No. 2 be modified to incorporate the design changes made to the Farley MSIVs. These modifications would replace the existing carbon steel valve discs and disc arms with stainless steel discs and redesigned stiffer disc arms to reduce valve strains developed during closure following a postulated downstream pipe break.

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Con Edison is ordering the replacement parts for these valves to make these changes. A&M's current estimate for delivery of the new internals is approximately one year after receipt of a purchase order. Therefore, the new internals will be scheduled for installation during the next refueling outage for Indian Point Unit No. 2 presently planned for Fall, 1977.

Attachment A to this letter provides our response to the information requested in Mr. George Lear's letter of May 27, 1975. The dynamic impact study of the Indian Point No. 2 MSIVs with the new internals is provided in Attachment B which contains TMR Technical Report TR-2267(a), "Evaluation of the Ginna and Indian Point Main Steam Isolation Valve Discs for Impact Resulting from Pipe Rupture", dated April 30, 1976.

Very truly yours,

William J. Cahill, Jr.

Enc.
WJC:nvg

ATTACHMENT A

Indian Point Unit No. 2

NRC Request for Additional MSIV Information

Question No. 1(a):

1. Provide a summary of the analyses employed to confirm the integrity of the main steam isolation valves (MSIVs) under the dynamic loads associated with the postulated steam line breaks. Include the following:

   (a) The maximum calculated impact energy that will be sustained by valve internal elements and seating surfaces under the conditions imposed by postulated main steam line breaks for your station.

Response:

The maximum calculated energy is 167,500 ft-lb at impact under conditions imposed by a postulated downstream steam line break.

Question No. 1(b):

(b) A summary of the methods employed to calculate the energy levels given in response to (a) above.

Response:

A summary of the methods used to calculate energy is given in Sections 1.0-6.0 of the TMR Technical Report (Attachment B). The TMR Report is being submitted without Appendix A or B to that report which contain the actual hand calculations of the fluid dynamics and structural analyses from which the report results were obtained. However, should the need arise for NRC review of these Appendices, they will be made available on request.

Question No. 1(c):

(c) A summary of the maximum stress or strain calculated to occur in the principle elements of the valve assembly when subject to the impact forces characterized in (a) above.

Response:

Maximum Equivalent Strains:

(1) In disc rim = 16.5%, $<$30% maximum allowable.
(2) In disc center = 9.5%, $<$18% maximum allowable.

Question No. 1(d):

(d) A summary of any other methods or criteria employed in conjunction with or in lieu of the information requested in (a), (b), and (c) above to provide assurance that the valve is adequately designed to perform the specified safety functions.

Response:

None.

Question No. 2:

2. Describe any modifications incorporated in or to be incorporated in the main steam isolation valves at your station. Provide the present schedule for completion of this work.

Response:

Additional modifications required for the Indian Point Unit No. 2 MSIVs are the installation of the new internals as discussed in this letter.