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50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316
AUTH.NAME AUTHOR AFFILIATION
DOLAN,J.E. Indiana & Michigan Electric Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation

SUBJECT: Submits info requested in Item 1 of NRC 780518 ltr re vibratory loads associated w/operation of positive displacement charging pumps.Pulsation dampener installed on Unit 2,reciprocating charging pump from 1979.

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INDIANA & MICHIGAN ELECTRIC COMPANY

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May 22, 1980
AEP:NRC:00127A

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

This letter and its attachment, supply the information requested in Item No. 1 of the enclosure to Mr. A. Schwencer's letter of May 18, 1978 regarding vibratory loads associated with the operation of positive displacement charging pumps. As discussed in our AEP:NRC:00015 submittal of August 8, 1978, pressure pulsation dampeners were not originally included in the design of the CVCS/Charging System at the Cook Plant, but would be installed to reduce pressure pulsations on the discharge of the reciprocating charging pumps. A description of these pulsation dampeners was submitted to the Commission via our AEP:NRC:00127 letter of October 26, 1979.

A pulsation dampener was installed on the discharge flange of the Unit No. 2 reciprocating charging pump during the refueling outage of the Unit which took place in the Fall of 1979. A pulsation dampener will be installed in Unit No. 1 during the upcoming refueling outage. Submittal of the information contained herein fulfills the commitment made in our AEP:NRC:00127 letter. The item numbers used in the attachment correspond to those used in the enclosure to Mr. Schwencer's letter of May 18, 1978.

Indiana & Michigan Electric Company interprets 10 CFR 170 as requiring that no fee accompany this submittal.

Very truly yours,

John E. Dolan

John E. Dolan
Vice President

A001
S/1

Attachments
cc: (Attached)

8005280651

cc: R. C. Callen
G. Charnoff
R. S. Hunter
R. W. Jurgensen
D. V. Shaller - Bridgman

ATTACHMENT

TO

AEP:NRC:00127A

REQUEST FOR ADDITIONAL INFORMATION

1. Furnish the following information if pulsation or other mechanical devices are used at the positive displacement pump to reduce vibratory loads transmitted to the pipe systems.

   a. Describe the mechanical device employed, i.e., manufacturer, type, size, location (suction or discharge side of the pump or both), etc.

   b. Furnish the percentage of the total vibratory load that is absorbed by the mechanical device.

   c. Furnish the peak alternating stress of the affected pipe system. Is this peak alternating stress below the endurance limits?

      NOTE: If the mechanical device absorbed 90% or greater of the vibratory load, the peak alternating stress and the fatigue usage factor should be nil, provided the piping system is properly supported.

RESPONSE

1.a. This information was previously supplied in our Submittal No. AEP:NRC:0127A, dated October 26, 1979.

1.b. An independent consultant performed pulsation tests of the reciprocating charging pump system prior to and after installation of the pulsation dampener. The tests were performed with the pressure transducers connected at the following locations: pump suction, at the Number 3 pump cylinder head, between the pump discharge and the pulsation dampener, and downstream of the pulsation dampener.

Test data were taken at various pump speeds to determine the maximum pressure pulsations, downstream of the pulsation dampener. The maximum pressure pulsation was found to be 3.4% of the discharge pressure pulsation at the maximum pump speed.

1.c. The peak alternating stress and the fatigue usage factor are neglibible, since the pulsation dampener reduced the system pressure fluctuations to less than 10% of the system working pressure.