METROPOLITAN EDISON COMPANY

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December 13, 1978
GQL 2000

Director of Nuclear Reactor Regulation
Attn: S. A. Varga, Chief
Light Water Reactors Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Inservice Inspection Program

On July 18, 1978, we submitted for your review and approval, 40 copies of the Inservice Inspection Program for TMI-2, and on September 25, 1978, we submitted some corrections to our Inspection Program. Recently we have made an additional change; therefore, enclosed please find 40 copies of the following corrected page:

Second Page of Table D-1

The justification for this change is also enclosed as Attachment A. Should you have any questions, please contact me, or Mr. R. A. Lengel of our Licensing staff.

Sincerely,

J. G. Herbein
Vice President-Generation

JGH:RAL:cjg

cc: Mr. Harley Silver (NRC)

Enclosure

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ATTACHMENT A
CHANGE TO TABLE D-1
THREE MILE ISLAND UNIT NO. 2
INSERVICE INSPECTION PROGRAM - PUMPS

Change: Method of Testing the Emergency Feedwater Pump (Turbine driven)

JUSTIFICATION: The installed flow instrumentation will not produce repeatable results from month to month. Engineering Change Modification No. 4244 added flow instrumentation (Annubar, Type 73) for verification of the head-flow curve during the Unit 2 startup testing. Annubar (brand name) are primary flow sensors designed to sense the fluid velocity profile and convert it to a differential pressure. This differential pressure (ΔP) is then used in a Bernoulli energy balance equation to yield the flow rate (Q). The final equation for this particular Annubar is $Q = 150.1\ \Delta P$. This Annubar is installed in the 6 inch line on the suction side of the pump (EF-P1). During startup testing, EF-P1 supplied water through a 6 inch discharge line to the Steam Generators producing a ΔP reading of approximately 40 inches of water at the Annubar.

However, during inservice (ISI) pump testing flow is through a 2½ inch recirculation line and the velocity is very low on the suction side of EF-P1 where the Annubar is installed. As a result, the Annubar only produces a ΔP of less than one inch of water. Small fluctuations and uncertainties in the measurement of this small ΔP when utilized in the equation, $Q = 150.1\ \Delta P$ (with its large constant of 150.1) yield results that are not repeatable from one test to another. In conclusion, the installed flow instrument is not adequate for ISI pump testing.

ASME Section XI IWP-1600 states, "Rotative speed, flow rate and differential pressure are basic parameters which ....describe the hydraulic characteristics of a pump ....During test when the values of any two of these parameters are adjusted to references values the value of the third parameter is established." With the above in mind, we will hold Q and rpm constant and measure ΔP for the test of EF-P1. The allowable ranges as given in Table IWP-3100-2 will then be applied to the above measured ΔP. The flow path for the ISI test of EF-P1 will be through a minimum recirculation orifice, which is 0.389 inches in diameter. Flow through this orifice at the high discharge pressure of EF-P1 will be constant since flow through the orifice will be choked.

In conclusion, we will not measure Q because of instrument inadequacies. However, the test of EF-P1 will meet the requirements of ASME Section XI because flow and rpm will be constant and ΔP will be measured.

THREE MILE ISLAND UNIT NO. 2

INSERVICE INSPECTION PROGRAM - PUMPS

TABLE D-1 (REVISION 1)

PUMP NAME	PUMP NUMBER(S)	FLOW DIAGRAM	ISI DRAWING	TEST QUANTITIES MEASURED *							TEST INTERVAL
				N	P_i	ΔP	Q	V	LUBR. LEVEL	T_b	
EMERGENCY FEEDWATER PUMP (TURBINE DRIVE)	EF-P1	2005	300-011-GN2	X	X	X		X	X	X	MONTHLY DURING OPERATION
MAKE-UP PUMP	MU-P1A MU-P1B MU-P1C	2024	300-005-GN2		X	X		X	X	X	MONTHLY DURING OPERATION
NUCLEAR SERVICE RIVER WATER	NR-P1A NR-P1B NR-P1C NR-P1C	2033	300-010-GN2		X	X					MONTHLY DURING OPERATION
CONTROL BUILDING RIVER WATER BOOSTER PUMPS	NR-P2A NR-P2B	2033	300-010-GN2		X	X					MONTHLY DURING OPERATION

*SEE ASME SECTION XI TABLE IWP - 1100.1 FOR DEFINITION OF TEST QUANTITIES