

INSERVICE INSPECTION OF TMI-1 PUMPS
PROVIDED WITH EMERGENCY POWER SOURCES

I. Scope and Objectives

This attachment describes the inservice inspection program for all Class 1, 2, and 3 pumps which are provided with an emergency power source. The objective of this program is to provide assurance of the operational readiness of these pumps during their service life.

II. Identification of Class Boundaries

Class 1, 2, and 3 boundaries were established in accordance with the NRC Standard Review Plan Section 3.2.2 (11/24/75), ANSI N18.2A (1975), and Regulatory Guide 1.26 Revision 3.

III. Applicable Code Edition and Addenda

In accordance with 10 CFR 50, paragraph 50.55a (b), the applicable Code Edition and Addenda are the 1974 Edition with Addenda through Summer 1975.

IV. Period of Applicability

In accordance with 10 CFR 50, paragraph 50.55 a (g) (4) (iv), this program is applicable from January 1978 to September 1979.

V. Inspection Program

The inspection program, which is detailed in the attached Table D-1, will be carried out in accordance with ASME Section XI, 1974 Edition with Addenda through Summer 1975. Specific exceptions to the ASME XI Code requirements for each component are identified in attached Table D-2 along with the basis for each exception requested.

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THREE MILE ISLAND UNIT NO. 1
INSERVICE INSPECTION PROGRAM - PUMPS

TABLE D-1

PUMP NAME	PUMP NUMBER (S)	FLOW DIAGRAM	ISI DRAWING	TEST QUANTITIES MEASURED *							TEST INTERVAL
				N	PI	ΔP	Q	V	LUBR. LEVEL	T _b	
SPENT FUEL	SF-P1A SF-P2A	C-302-630	300-018-GN1				X	X	X		MONTHLY DURING OPERATION
EMERGENCY FEEDWATER (MOTOR DRIVE)	EF-P2A EF-P2B	C-302-081	300-009-GN1		X	X	X	X	X	X	MONTHLY DURING OPERATION
EMERGENCY FEEDWATER (TURBINE DRIVE)	EF-P1	C-302-081	300-009-GN1	X	X	X	X	X	X	X	MONTHLY DURING OPERATION
MAKE-UP & PURIFICATION	MU-P1A MU-P1B MU-P1C	C-302-661	300-017-GN1		X	X		X	X	X	MONTHLY DURING OPERATION
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* SEE ASME SECTION XI FOR DEFINITION OF TEST QUANTITIES

THREE MILE ISLAND UNIT NO. 1

INSERVICE INSPECTION PROGRAM -- PUMPS

TABLE D-1

PUMP NAME	PUMP NUMBER (S)	FLOW DIAGRAM	ISI DRAWING	TEST QUANTITIES MEASURED *							TEST INTERVAL
				N	P1	Δ P	Q	V	LUBR. LEVEL	T _D	
NUCLEAR SERVICE RIVER WATER	NR-P1A NR-P1B NR-P1C	C-302-202	300-002-GN1		X	X					MONTHLY DURING OPERATION
NUCLEAR SERVICE CLOSED COOLING WATER	NS-P1A NS-P1B NS-P1C	C-302-610	300-010-GN1		X	X		X	X	X	MONTHLY DURING OPERATION
REACTOR BUILDING EMERGENCY COOLING	RR-P1A RR-P1B	C-302-202	300-002-GN1		X	X	X				MONTHLY DURING OPERATION
SCREEN WASH	SW-P1A SW-P1B	C-302-203	300-014-GN1		X	X					MONTHLY DURING OPERATION
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* SEE ASME SECTION XI FOR DEFINITION OF TEST QUANTITIES

THREE MILE ISLAND UNIT NO. 1

INSERVICE INSPECTION PROGRAM - PUMPS

TABLE D-1

PUMP NAME	PUMP NUMBER (S)	FLOW DIAGRAM	ISI DRAWING	TEST QUANTITIES MEASURED *							TEST INTERVAL
				N	Pi	Δ P	Q	V	LUBR. LEVEL	T _b	
BUILDING SPRAY	BS-P1A BS-P1B	C-302-712	300-012-GN1		X	X	X	X	X	X	MONTHLY DURING OPERATION
DECAY HEAT REMOVAL	DH-P1A DH-P1B	C-302-640	300-005-GN1		X	X	X	X	X	X	MONTHLY DURING OPERATION
DECAY HEAT CLOSED COOLING WATER	DC-P1A DC-P1B	C-302-645	300-003-GN1		X	X	X	X	X	X	MONTHLY DURING OPERATION
DECAY HEAT RIVER WATER	DR-P1A DR-P1B	C-302-202	300-002-GN1		X	X	X				MONTHLY DURING OPERATION

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* SEE ASME SECTION XI FOR DEFINITION OF TEST QUANTITIES

THREE MILE ISLAND UNIT NO. 1

INSERVICE INSPECTION PROGRAM - PUMPS

TABLE D-1

PUMP NAME	PUMP NUMBER (S)	FLOW DIAGRAM	ISI DRAWING	TEST QUANTITIES MEASURED *							TEST INTERVAL	
				N	Pi	Δ P	Q	V	LUBR. LEVEL	Tb		
SCREEN HOUSE VENTILATION EQUIPMENT	SW-P2A SW-P2B	C-302-203	300-014-GN1		X	X						MONTHLY DURING OPERATION
CONTROL BLDG. CHILLED WATER	AH-P3A AH-P3B	C-302-847	300-011-GN1		X	X		X				MONTHLY DURING OPERATION
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* SEE ASME SECTION XI FOR DEFINITION OF TEST QUANTITIES

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THREE MILE ISLAND - UNIT NO. 1
INSERVICE INSPECTION PROGRAM - PUMPS
EXCEPTIONS TO ASME XI REQUIREMENTS

TABLE D-2

PUMP NAME	PUMP NO.	ASME XI CODE CLASS.	ASME III CODE CLASS	ASME XI EXCEPTION REQUESTED *	JUSTIFICATION	TESTING PERFORMED IN LIEU OF CODE REQUIREMENT
REACTOR BUILD- ING EMERGENCY COOLING	RR-P1A	3	NON NUCLEAR	V	SEE NOTE 1	MOTOR VIBRATION WILL BE MEASURED
	RR-P1B			T _b LUBR. LEVEL	SEE NOTE 2 SEE NOTE 2	NONE NONE
SCREEN WASH	SW-P1A	3	NON NUCLEAR	Q	SEE NOTE 3	NONE
	SW-P1B			V	SEE NOTE 1	MOTOR VIBRATION WILL BE MEASURED
				T _b LUBR. LEVEL	SEE NOTE 2 SEE NOTE 2	NONE NONE
SCREEN HOUSE VENTILATION EQUIPMENT	SW-P2A	3	NON NUCLEAR	Q	SEE NOTE 3	NONE
	SW-P2B			V	SEE NOTE 1	MOTOR VIBRATION WILL BE MEASURED
				T _b LUBR. LEVEL	SEE NOTE 2 SEE NOTE 2	NONE NONE
CONTROL BLDG. CHILLED WATER	AH-P3A	3	NON NUCLEAR	Q	SEE NOTE 3	NONE
	AH-P3B			T _b	SEE NOTE 5	NONE

* SEE ASME SECTION XI FOR DEFINITION OF TEST QUANTITIES

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THREE MILE ISLAND - UNIT NO. 1
INSERVICE INSPECTION PROGRAM - PUMPS
EXCEPTIONS TO ASME XI REQUIREMENTS

TABLE D-2

PUMP NAME	PUMP NO.	ASME XI CODE CLASS.	ASME III CODE CLASS	ASME XI EXCEPTION REQUESTED *	JUSTIFICATION	TESTING PERFORMED IN LIEU OF CODE REQUIREMENT
DECAY HEAT RIVER WATER	DR-P1A DR-P1B	3	NON NUCLEAR	V T _b LUBR. LEVEL	SEE NOTE 1 SEE NOTE 2 SEE NOTE 2	MOTOR VIBRATION WILL BE MEASURED NONE NONE
SPENT FUEL	SF-P1A SF-P1B	3	N-3	P _i ΔP T _b	SEE NOTE 4 SEE NOTE 4 SEE NOTE 5	P _i WILL BE CALCULATED NONE NONE
MAKEUP & PURIFICATION	MU-P1A MU-P1B MU-P1C	2	N-2	Q	SEE NOTE 3	NONE
NUCLEAR SERVICE RIVER WATER	NR-P1A NR-P1B NR-P1C	3	NON NUCLEAR	Q V T _b LUBR. LEVEL	SEE NOTE 6 SEE NOTE 1 SEE NOTE 2 SEE NOTE 2	WILL BE MEASURED DURING SHUTDOWN MOTOR VIBRATION WILL BE MEASURED NONE NONE
NUCLEAR SERVICE CLOSED COOLING	NS-P1A NS-P1B NS-P1C	3	NON NUCLEAR	Q	SEE NOTE 3	NONE

* SEE ASME SECTION XI FOR DEFINITION OF TEST QUANTITIES

JUSTIFICATION NOTES

FOR TABLE D-2

Note 1

This is a vertical deep well type pump with the pump submerged under water at all times. It is not practical to measure pump vibration in this type of installation. Past operating experience has shown that motor vibration is indicative of pump mechanical problems in this type of installation. Therefore, motor vibration will be measured in lieu of pump vibration.

Note 2

This is a vertical deep well type pump with the pump submerged under water at all times. Pump bearings are lubricated by the fluid being pumped. There are no installed means of measuring bearing temperature and the pump design and installation makes it impractical to measure in any other manner.

Note 3

There are no flow meters installed in the flow path of this pump therefore test quantity "Q" cannot be measured. An exception is requested per 10 CFR 50, 50.55 a (g) (4) since measurement of system flow would require a design change to this system and therefore not be within the limits of the current design.

Note 4

Since there is no pump inlet pressure gauge installed, test quantities P_i and ΔP cannot be directly measured. An exception is requested per 10 CFR 50, 50.55 a (g) (4) since measurement of pump inlet pressure would require a design change to this system and therefore not be within the limits of the current design. However, pump inlet static pressure will be calculated based upon the difference in elevation between pump suction and the source of pump suction fluid.

Note 5

Pump bearing temperature cannot be measured on this pump since the bearings are located deep inside the pump casing and are surrounded by an oil reservoir. An exception is requested per 10 CFR 50, 50.55 a (g) (4) in that measurement of parameter T_b is not practical within the limits of design of this pump.

Note 6

Flow metering for this system is located in the common discharge lines from all three pumps. Plant operating requirements dictate the operation of at least two Nuclear Service River Water pumps during plant operations, thereby making it impossible to measure flow for a single pump. Pump flow will be measured for each pump during plant shutdown when operation of only one pump is required.