INSERVICE TESTING PLAN

REVISION 7

SAN ONOFRE NUCLEAR GENERATING STATION

UNIT 2

SOUTHERN CALIFORNIA EDISON COMPANY

May 1984

Pump Relief Request No. 7

SYSTEM: Safety-Related Systems

COMPONENT: All pumps in the program

CLASS 2 and 3

FUNCTION: To provide flow to the safety systems.

TEST

REQUIREMENT: IWP-4320 - measurement of the temperature of the liquid being pumped.

BASIS FOR

RELIEF: Temperature variations of the fluid being pumped at the reference condition are small and do not have a significant impact on Pump Differential Pressure.

NOTE: (Winter, 1979 Addenda deleted this requirement.)

ALTERNATIVE

TESTING: None

Pump Relief Request No. 8

SYSTEM: Chemical and Volume Control

COMPONENT: P190, P191, P192

CLASS 2 and 3

FUNCTION: Makeup flow to RCS

TEST REQUIREMENT: IWP-4510 - at least one displacement vibration amplitude (MILS peak-to-peak) composite shall be read during each In-service Test.

BASIS FOR RELIEF: Vibration Monitoring equipment available cannot meet code requirement (IWP-4520 (b)) for measurement in displacement (MILS) due to band pass filter which deletes vibration input below 350 cycles per minute (350 rpm), Pump rpm is 196.

ALTERNATIVE TESTING: Test in units of velocity. This measurement has no band pass filter and meets the requirements of IWP-4520 (b). This provides vibration monitoring at one-half to one times pump rpm where most machinery malfunctions will be detected.

TABLE 1

PUMP IN-SERVICE TESTING PROGRAM

NOTES AND CLARIFYING REMARKS

YES Indicates quantity can be measured or observed.

NO Indicates quantity not available for measurement or not needed.

NOTES

Note 1 The LPSI, Diesel Fuel Transfer, Containment Spray and Auxiliary Feedwater pumps have test paths that are "FIXED RESISTANT LOOPS," therefore, flowrate does not have to be determined since differential pressure can be.

Note 2 The Diesel Fuel Transfer Pumps are submergence type pumps, located inside concrete vaults, and are not acccessible. Therefore, it is not possible to measure thrust bearing temperature. In addition, vibration pickups are permanently mounted on the driver. Submergence of pump precludes direct monitoring of pump bearing.

Note 3 The Saltwater Cooling Pumps are of the vertical turbine type with submerged, inaccessible pump bearings. To help detect bearing wear, thrust bearing temperature and vibration measurements will be taken. The Saltwater Cooling Pump seals and bearings are cooled and lubricated by the Domestic Water System. Therefore, water flow to the bearings will be indicated.

Note 4 There is no installed instrumentation to allow measurement of bearing temperature. Therefore, a surface pyrometer is used on the bearing casing to measure this parameter.

Note 5 Inlet pressure is calculated for this pump.

Note 6 Vibration measurements for this pump will be made in units of velocity.

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TABLE 1
ASME - CLASS 1, 2 and 3 PUMPS (UNIT 2)

REVISION 1 | DATE 2/3/83 |

PUMP NUMBER	PUMP NAME	CL	P&ID AND COORDINATES	TEST PARAMETERS								
				SPEED	INLET PRESS	DIFF PRESS	FLOW RATE	VIBRATION	BEARING TEMP. (NOTE 4)	LUBE LEVEL	TEST FREQUENCY	TEST REMARKS
P012	Containment Spray Pump	2	40114 C-5	NA	YES	YES	NO	YES	YES	YES	QUARTERLY	NOTE 1
P013	Containment Spray Pump	2	40114 E-5	NA	YES	YES	NO	YES	YES	YES	QUARTERLY	NOTE 1
P015	Low Pressure Safety Injection Pump	2	40112 G-5	NA	YES	YES	NO	YES	YES	YES	QUARTERLY	NOTE 1
P016	Low Pressure Safety Injection Pump	2	40112 F-5	NA	YES	YES	NO	YES	YES	YES	QUARTERLY	NOTE 1
P017	High Pressure Safety	2	40112 E-5	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P018	Low Pressure Safety Injection Pump	2	40112 D-5	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P019	Low Pressure Safety Injection Pump	2	40112 B-5	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P020	Spray Chemical Addition Pump	2	40114 E-7	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P021	Spray Chemical Addition Pump	2	40114 F-7	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P024	Component Cooling Water Pump	3	40127 G-4	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P025	Component Cooling Water Pump	3	40127 E-4	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P026	Component Cooling Water Pump	3	40127 D-4	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P093	Diesel Fuel Transfer Pump	3	40116 B-2	NA	YES	YES	NO	YES	NO	NO	QUARTERLY	NOTES 1, 2 & 5
P094	Diesel Fuel Transfer Pump	3	40116 B-3	NA	YES	YES	NO	YES	NO	NO	QUARTERLY	NOTES 1, 2 & 5

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TABLE 1
ASME - CLASS 1, 2 and 3 PUMPS (UNIT 2)

REVISION 1 | DATE 2/3/83 |

PUMP NUMBER	PUMP NAME	P&ID AND COORDINATES		TEST PARAMETERS								
		CL		SPEED	INLET PRESS	DIFF PRESS	FLOW RATE	VIBRATION	BEARING TEMP. (NOTE 4)	LUBE LEVEL	TEST FREQUENCY	TEST REMARKS
P095	Diesel Fuel Transfer Pump	3	40116 B-5	NA	YES	YES	NO	YES	NO	NO	QUARTERLY	NOTES 1, 2 & 5
P096	Diesel Fuel Transfer Pump	3	40116 B-6	NA	YES	YES	NO	YES	NO	NO	QUARTERLY	NOTES 1, 2 & 5
P112	Saltwater Cooling Pump	3	40126 G-7	NA	YES	YES	YES	YES	YES	NO	QUARTERLY	NOTES 3 & 5
P113	Saltwater Cooling Pump	3	40126 F-7	NA	YES	YES	YES	YES	YES	NO	QUARTERLY	NOTES 3 & 5
P114	Saltwater Cooling Pump	3	40126 B-7	NA	YES	YES	YES	YES	YES	NO	QUARTERLY	NOTES 3 & 5
P307	Saltwater Cooling Pump	3	40126 D-7	NA	YES	YES	YES	YES	YES	NO	QUARTERLY	NOTES 3 & 5
P140	Auxiliary Feedwater Pump (Steam)	3	40160 E-6	YES	YES	YES	NO	YES	YES	YES	MONTHLY	NOTE 1
P141	Auxiliary Feedwater Pump (Steam)	3	40160 B-6	NA	YES	YES	NO	YES	YES	YES	MONTHLY	NOTE 1
P160	Auxiliary Building Emergency Chilled Water Pump	3	40180 B-6	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P162	Auxiliary Building Emergency Chilled Water Pump	3	40179 B-6	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P174	Boric Acid Makeup Pump	3	40125 D-5	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P175	Boric Acid Makeup Pump	3	40125 C-5	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	
P190	Charging Pump	2	40125 G-2	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	NOTE 6
P191	Charging Pump	2	40125 E-2	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	NOTE 6
P192	Charging Pump	2	40125 D-2	NA	YES	YES	YES	YES	YES	YES	QUARTERLY	NOTE 6
P504	Auxiliary Feedwater Pump (Motor)	3	40160 G-6	NA	YES	YES	NO	YES	YES	YES	MONTHLY	NOTE 1

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