

SUSQUEHANNA STEAM ELECTRIC STATION

UNIT 1

INSERVICE INSPECTION PROGRAM PLAN

FOR

PUMP AND VALVE OPERATIONAL TESTING

| Rev. | Description | Prepared by: | Approved by: | Date |
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| 7 | Compliance with NRC Generic Letter 89-04 | Signatures on File | | |
| 8 | Responses to NRC Comments | Signatures on File | | |
| 9 | Addition of Water Level Backfill Valves | Signatures on File | | |
| 10 | 10 Year ASME Code Update | Signatures on File | | |
| 11 | Corrections to Valve Tables | Signatures on File | | |
| 12 | Addition of Fuel Pool Cooling Valves | <i>Becky Ball</i> | <i>m. m. Jones</i> | 5/12/95 |

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SUSQUEHANNA STEAM ELECTRIC STATION
 UNIT 1
 PUMP AND VALVE INSERVICE INSPECTION
 TESTING PROGRAM

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RELIEF REQUEST NUMBER 15

System: Control Structure Chilled Water

P&ID: M-186

| Pump | Class | Function |
|--------|-------|--|
| OP162A | S | Chilled water loop circulating pump |
| OP162B | S | Chilled water loop circulating pump |
| OP171A | 3 | Emergency condenser water circulating pump |
| OP171B | 3 | Emergency condenser water circulating pump |

Impractical Test Requirement: OMa-1988, Part 6, paragraph 5.2, requirement that the resistance of the system be varied until either the measured differential pressure or the measured flow rate equals the corresponding reference value.

Basis for Relief: Control of the flows and pressures of these pumps is automatic; no means for manual control has been provided. The ultimate function of these pumps is to provide chilled water to the cooling coils of the Control Structure HVAC system. Rather than individually testing each pump for proper functioning based on the prescribed measurements required by the ASME Code, operation of the chilled water loop with cooling supplied by the emergency condenser loop provides a functional system test which is indicative of proper operation of all system components. This testing is more practical and provides a method of pump testing which does not require the removal of this safety system from operation.

Alternate Testing: Monitor the chilled water loop chiller discharge temperature and verify that the specified discharge temperature is maintained demonstrating proper functioning of each entire chiller train. Additionally monitor the three Table 2 test quantities: differential pressure, flow rate, and vibration amplitude.

REFUELING OUTAGE TEST JUSTIFICATION NUMBER 21

| System | P&ID | Valve Number | Class |
|--------|-------|--------------|-------|
| RHR | M-151 | 151060 | 2 |
| RHR | M-151 | 151070 | 2 |
| FPC | M-153 | 153001 | 3 |
| FPC | M-153 | 153021 | 3 |
| FPC | M-153 | 153070A | 3 |
| FPC | M-153 | 153070B | 3 |
| ESW | M-153 | 153090A | 3 |
| ESW | M-153 | 153090B | 3 |
| ESW | M-153 | 153091A | 3 |
| ESW | M-153 | 153091B | 3 |
| ESW | M-153 | 153500 | 3 |
| ESW | M-153 | 153501 | 3 |
| FPC | M-153 | 153018A | 3 |
| FPC | M-153 | 153018B | 3 |

Category: B

Function: Supply cooling water and makeup water to Spent Fuel Pool following loss of normal Fuel Pool Cooling.

Impractical Test Requirement: Exercise valves once per 92 days.

Basis For Deferment: Refueling period frequency exercise testing is considered appropriate for these valves because:

- (1) Exercising once each refueling period provides an acceptable level of quality and safety; and
- (2) Exercising each 92 days would result in hardship without a compensating increase in the level of quality and safety for those valves in ESW system; and

REFUELING OUTAGE TEST JUSTIFICATION NUMBER 21 (Cont'd.)

- (3) Exercising each 92 days would result in hardship without a compensating increase in the level of quality and safety for those valves in the Fuel Pool Cooling (FPC) System. The system has to be shutdown completely to stroke valve 153001 closed and is placed in a restricted flow configuration by stroking of either valve 153018A or B; and
- (4) Exercising each 92 days would result in unusual difficulty without a compensating increase in the level of quality and safety for those valves in the RHR System. Exercise testing of the 151070, RHR to FPC return valve, may cause the RHR Division 1 system to depressurize. The Division 1 of RHR might have to be removed from service while refilling and venting of the discharge LPCI injection lines is accomplished.

Each RHR Fuel Pool Cooling Assist Line (1 line per unit) contains six (6) manual valves (151060, 151070, 153001, 153021, and 153070A/B). Each of the ESW Fuel Pool Makeup Lines (2 lines per unit) contains three (3) manual valves (153090A/B, 153091A/B, 153500 and 153501). Each of the Fuel Pool Cooling normal supply lines to the Fuel Storage Pool contains one (1) Manual Isolation Valve (153018A/B). The accidents defined in the FSAR do not consider these manual valves or the tie between the RHR or the ESW and Fuel Pool Cooling and Cleanup systems. The accidents defined in the FSAR are consistent with the guidance given in Regulatory Guide 1.70 and the Standard Review Plan. The FSAR does state that the ESW system provides a Seismic Category I source of makeup water to the spent fuel pool; therefore, these valves are important to safety and should be tested periodically. An exercise testing frequency of once each fuel cycle for each of the manual valves mentioned in the RHR, ESW and FPC systems is considered to be commensurate with their importance to safety. Manual stroking of these valves any more frequently than that would be wasteful of resources and personnel radiation exposure.

Additionally, though not explicitly stated, periodic exercising (opening and closing) of many of these manual valves in the ESW Fuel Pool Makeup Lines has been accomplished previously at a frequency of at least once each 3 or 4 years during the Code Period in the course of performing the Fuel Pool Cooling System Pressure Test and the ESW System Pressure Test. This exercising frequency



11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

REFUELING OUTAGE TEST JUSTIFICATION NUMBER 21 (Cont'd.)

is considered to be commensurate with the safety functions to be performed by the manual valves and is considered to be sufficient for valves of such simplicity and high reliability.

Since the beginning of plant operation, the manual valves have proven to be highly reliable. No difficulty has ever been observed with their operation or maintenance, and no significant maintenance has been required. The only maintenance ever needed for any of these manual valves in ESW System (12 total between the two units) was the repacking of the stem of one valve (253091B) in 1990. From this experience we conclude that these valves have a very low likelihood of failure, as had been confirmed by their historical exercising. Additionally these valves will continue to be exercised during the Fuel Pool Cooling System Pressure Tests and the ESW System Pressure Tests that are independent of the IST Program.

Alternative Testing: Exercise each manual valve at least once during each refueling period.

FUEL POOL COOLING & CLEANUP M-153 Sheet 1

| Valve Number | P&ID Coordinates | ASME Class | ASME Category | Active/Passive | Valve Size (inches) | Valve Type | Actuator Type | Remote Position Indication | Safety Position | Tests Required | Tests Performed | Test Frequency | CS/RO Justification | Relief Request(s) | Remarks |
|--------------|------------------|------------|---------------|----------------|---------------------|------------|---------------|----------------------------|-----------------|----------------|-----------------|----------------|---------------------|-------------------|-----------------|
| 153001 | C-6 | 3 | B | A | 10 | GT | MA | -- | C | FS | FS | Q | RJ21 | -- | |
| 153018A | A-4 | 3 | B | A | 6 | GB | MA | -- | C | FS | FS | Q | RJ21 | -- | |
| 153018B | A-5 | 3 | B | A | 6 | GB | MA | -- | C | FS | FS | Q | RJ21 | -- | |
| 153021 | C-7 | 3 | B | A | 16 | GT | MA | -- | O/C | FS | FS | Q | RJ21 | -- | |
| 153070A | A-7 | 3 | B | A | 8 | GB | MA | -- | O/C | FS | FS | Q | RJ21 | -- | |
| 153070B | A-7 | 3 | B | A | 8 | GB | MA | -- | O/C | FS | FS | Q | RJ21 | -- | |
| 153071A | A-5 | 3 | C | A | 8 | CK | SA | -- | O | FS FS | PS FS | O SD | -- | RR09 RR20 | Open test only. |
| 153071B | A-5 | 3 | C | A | 8 | CK | SA | -- | O | FS FS | PS FS | O SD | -- | RR09 RR20 | Open test only. |
| 153090A | A-5 | 3 | B | A | 2 | GB | MA | -- | O | FS | FS | Q | RJ21 | -- | |
| 153090B | A-6 | 3 | B | A | 2 | GB | MA | -- | O | FS | FS | Q | RJ21 | -- | |
| 153091A | A-4 | 3 | B | A | 2 | GB | MA | -- | O | FS | FS | Q | RJ21 | -- | |
| 153091B | A-6 | 3 | B | A | 2 | GB | MA | -- | O | FS | FS | Q | RJ21 | -- | |
| 153500 | A-4 | 3 | B | A | 2 | GB | MA | -- | O | FS | FS | Q | RJ21 | -- | |
| 153501 | A-6 | 3 | B | A | 2 | GB | MA | -- | O | FS | FS | Q | RJ21 | -- | |

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