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ACCESSION NBR:9403180155 DOC.DATE: 94/02/22 NOTARIZED: NO DOCKET #
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50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
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SUBJECT: Submits response to request for addl info re ISI Relief Request 1RR-20 & 2RR-17 for relief from hydrostatic test requirements for number of Class 2 sys.

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MAY

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FEB 22 1994

Director of Nuclear Reactor Regulation
Attention: Mr. C. L. Miller, Project Director
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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
REQUEST FOR ADDITIONAL INFORMATION
ON ISI RELIEF REQUESTS - 1RR-20 AND 2RR-17 **Docket Nos. 50-387**
PLA-4056 FILE R41-2 **and 50-388**

Dear Mr. Miller:

The following is in response to your Staff's request for additional information on our ISI Relief Request Nos. 1RR-20 and 2RR-17 for relief from the hydrostatic test requirements for a number of Class 2 systems.

(a) For the RCIC and HPCI turbines, the Licensee states that "it is impractical to submit an assembled turbine to hydrostatic test conditions" but has not stated why. This is insufficient justification for granting relief.

Response

The following design features of the RCIC and HPCI turbines make it impractical to perform hydrostatic (or pneumatic) pressure testing on the assembled components:

(1) The turbines cannot be vented, entrapping air in the turbine during hydrostatic testing,

(2) It cannot be confirmed that the turbines can be properly drained after hydrostatic testing. Any residual water entrapped in the turbine or its recesses would damage the equipment when subjected to steam,

(3) Water leaking past the steam seals during hydrotesting would contaminate the lube oil system, and

(4) In addition, portions of the actual pressure boundary are physically inaccessible due to the design of the turbine casing. This would prevent detection of leakage in those areas during the performance of a hydrostatic or pneumatic test. It should also be noted that the turbines are insulated making a pneumatic test impractical.

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The only practical alternative test is a system functional pressure test. Consideration was made to extend the hold time beyond the required ten minutes, however, the hold time is limited because of suppression pool heat up during HPCI or RCIC operation.

(b) For the RCIC discharge piping, the Licensee states that Valve PCV-150F015 is not an adequate hydrostatic pressure boundary. Therefore, the section of piping between valves PCV-150F015 and PCV-150F046 will be tested at a reduced pressure of 190 psig (instead of 1355 psig). This is a significant difference in test pressure. What is the maximum pressure that Valve PCV-150F015 can be pressurized to? Is this valve required to isolate the downstream portions of the system from the pump discharge?

Response

The maximum pressure PCV-150F015 is subjected to is 1140 psig during a system functional pressure test. This valve is a Target Rock Model 750KK-403 Pressure Control valve which is not designed to isolate the system, but to regulate downstream pressure. It is a self-contained unit with a spring loaded piston and cannot be manually closed/gagged to hydrotest the upstream piping. There are no other practical alternatives in isolating this portion of the system. It should also be noted that IWA-5224(d) permits extending the pump suction hydrotest boundary to the first shutoff valve on the discharge side of the pump. In reference to Figure 1RR-20.7 (Figure 2RR-17.7) this would extend the RCIC pump suction test boundary to HV-150F046 (HV-250F046), which is tested at 198 psig. From a technical standpoint, the only portion of piping that is required to be pressurized at 1355 psig is that section between HV-150F046 and PCV-150F015.

(c) The RCIC turbine steam supply line is isolated from the RCIC turbine by a governor valve. The Licensee states that this is not an adequate boundary for the hydrostatic test and that the turbine stop valve will be used for the test boundary. Thus, the piping between the valves will receive a VT-2 during the functional test. What is the pressure for the functional test. What is the maximum pressure the governor valve can withstand?

Response

The pressure for the RCIC steam supply functional pressure test is ≥920 psig. The actual pressure at the valve is unknown due to the pressure drop across the steam admission valve and stop valve upstream of it. The governor valve does not have a disk/seat design that is capable of isolating the system, but regulates flow for speed control of the turbine.

(d) For the RHR relief valve discharge line to the suppression pool, an open flow path test is allowed (for open ended systems). However, the Licensee states that the open flow path test of the complete section of piping cannot be accomplished without intentional system over-pressurization and subsequent unnecessary relief valve cycling. No alternative is proposed. From the Licensee's drawings, it appears that an alternative pressure test is possible (e.g., the system has a test gauge attached and appears to be isolable). What other options have been considered? The drawing indicates that the relief valve is gagged closed. Can it be gagged open?

Response

An alternate test is performed on the RHR relief valve discharge line. This test is a 10CFR50 Appendix J test between the PSVs and the in-line spectacle blind (1S299A/B and 2S299A/B). It should be noted that the function of the PSVs was for overpressurization protection during the steam condensing mode of RHR, which is no longer functional for these Units. The only function that this discharge line now performs is to provide a vent path from the RHR heat exchangers. The Flow Test that is performed confirms an open flow path for this vent line via the discharge line to the suppression pool.

This is a formal response to a telephone call which discussed the questions and responses.

If you have any additional questions, please contact Mr. C.T. Coddington (215) 774-7915.

Very truly yours,

R. G. Byram

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