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APR 19 1984

Dr. Thomas E. Murley
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
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SUSQUEHANNA STEAM ELECTRIC STATION
FINAL REPORT ON A DEFICIENCY INVOLVING
SDV VENT & DRAIN VALVE WATERHAMMER
ER 100508 FILE 821-10
PLA-2116

Docket No. 50-388

References: (1) PLA-1762 dated July 29, 1983
(2) PLA-1987 dated December 14, 1983

Dear Dr. Murley:

This letter serves to provide the Commission with a final report on a deficiency involving waterhammer loading on the scram discharge volume (SDV) vent & drain lines after opening the SDV vent & drain valves on scram reset. This deficiency was reported under 10CFR50.55(e) as potentially reportable by telephone to Mr. G. Rhoads of NRC Region I by Mr. J. Saranga of PP&L on June 28, 1983.

A description of this problem, the cause, and the safety implications were provided to the Commission in Reference (1). Reference (2) submitted updated information to the NRC regarding the status of PP&L's corrective actions. This letter provides the results and conclusions from our program to examine this deficiency. The results of the testing and analyses to resolve this concern were received in mid-March from Teledyne Engineering Services, the testing contractor. The reports for Units 1 & 2 are available for NRC inspection.

The results of the Unit I test and supporting computer analysis indicate that the maximum Unit I SDV reset stress in the vent line is less than 1,000 psi and is approximately 6,500 psi for the drain line. The maximum Unit I SDV reset waterhammer support loads are 154 lbs. and 465 lbs. for the vent and drain lines, respectively. The evaluation of the pipe stresses and support loads against the CRD Design Stress Report indicates that the pipe stresses are satisfactory and satisfy the design criteria. The support loads are satisfactory with the exception of the loads on support 1N65 on the drain line and 1S58 on the vent line. The drain line support required the addition of a brace and was upgraded accordingly during the recent (3/3-3/23/84) Reactor Recirc. Valve stem repair outage. The vent line support requires an additional clamp to provide added restraint in the axial direction. Under the current design the waterhammer loads slightly exceed the capacity of the clamp. However, a substantial number of scram cycles would be needed before a

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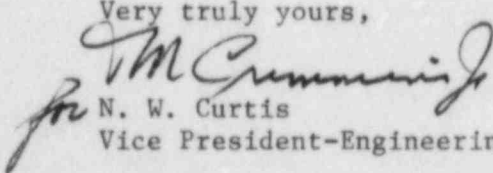
serious overstress condition would develop. We expect to modify this support prior to the end of 1984.

The results of the Unit II test and supporting computer analysis indicate that the maximum Unit II SDV reset stress in the vent and drain line piping is 4,400 psi and 4,200 psi, respectively. The maximum support loads caused by reset waterhammer are 683 lbs. and 1,060 lbs. respectively. The evaluation of the pipe stresses and support loads against the CRD Design Stress Report indicates that the pipe stresses are satisfactory and satisfy the design criteria. This evaluation also indicates that all of the support loads are satisfactory except that the pipe clamp capacity in the axial direction is exceeded for one support on the drain line and six supports on the vent line. These supports will be modified prior to initial criticality on Unit II under DCP 84-3064. A justification for interim operation until initial criticality was provided to your Mr. R. H. Jacobs, Susquehanna Sr. Resident Inspector, prior to Unit 2 fuel load.

In Reference (2), it was indicated that a cold test (TP-155-03) was expected to be performed on Unit 1 after the hot test (TP-155-02). The cold test was not implemented because sufficient information was received from the hot test.

Since the pipe clamp capacity is exceeded for one support on the drain line and six supports on the vent line, a possibility existed for a pipe leak sometime over the 40 year life of the plant if corrective action had not been taken. Consequently PP&L feels that this deficiency is reportable under 10CFR50.55(e). We trust the Commission will find this report to be satisfactory.

Very truly yours,


N. W. Curtis

Vice President-Engineering & Construction-Nuclear

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