

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9404010118      DOC. DATE: 94/03/24      NOTARIZED: NO      DOCKET #  
 FACIL: 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv      05000388  
 AUTH. NAME      AUTHOR AFFILIATION  
 BYRAM, R.G.      Pennsylvania Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION  
 MILLER, C.L.      Project Directorate I-2

SUBJECT: Requests one time relief from performing sys hydrostatic test as required by ASME Section XI, Subparagraph IWA-4400(a) in connection w/replacement of drain valves on Loop B of reactor recirculation sys. Relief Request 2RR-22 encl.

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MAR 24 1994

Director of Nuclear Reactor Regulation  
Attention: Mr. C. L. Miller, Project Director  
Project Directorate I-2  
Division of Reactor Projects  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
REQUEST FOR RELIEF FROM HYDROSTATIC  
TESTING REQUIREMENTS

PLA-4111

FILE R41-2

Docket No. 50-388

Reference: Letter to Mr. C. L. Miller (NRC) from R. G. Byram (PP&L), PLA-4101, "Request to use ASME Code Case N-416-1", dated 3/8/94.

Dear Mr. Miller:

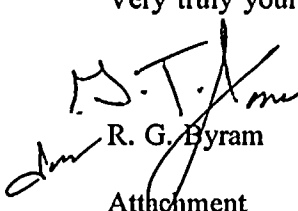
The purpose of this letter is to request a one time relief from performing a system hydrostatic test as required by ASME Section XI, Subparagraph IWA-4400(a) in connection with the replacement of the drain valves on the 'B' loop of the Reactor Recirculation System. Attached are the basis for relief and the alternative provisions.

This letter also supersedes the above referenced letter.

The replacement of the drain valves is scheduled to start on April 7, 1994. We request your approval by that date in order to support the replacement.

If you have any questions, please contact Mr. C. T. Coddington at (610) 774-7915.

Very truly yours,

  
R. G. Byram

Attachment

010019

9404010118 940324  
PDR ADDCK 05000338  
P PDR

APR 7 1994

cc: NRC Document Control Desk (original)  
NRC Region I  
Mr. G. S. Barber, NRC Sr. Resident Inspector - SSES  
Mr. R. J. Clark, NRC Sr. Project Manager - Rockville

**RELIEF REQUEST NO. 2RR-22****I. IDENTIFICATION OF COMPONENTS AND IMPRACTICAL CODE REQUIREMENTS**

ASME Section XI, 1980 Edition incorporating Winter 1981 Addenda, subparagraph IWA-4400 (a) Pressure Test, states that "...repairs (or replacements) by welding on the pressure retaining boundary, a system hydrostatic test shall be performed in accordance with IWA-5000."

During the initial primary containment entry for the Unit 2 sixth refuel outage, two Class I drain valves on the Reactor Recirculation system were identified as needing replacement due to leakage. The valves are 2 inch socket welded manufactured by Borg Warner and identified as 243F051B and 243F052B per the attached drawing. A localized hydrostatic pressure test could be performed but this would encompass the 2P401B Reactor Recirc Pump Seal. Based on similar Industry Events, it is believed that the integrity of the Mechanical Seals will be compromised and it will require an unscheduled seal replacement. The other alternative provided by the Code is a system hydrostatic pressure test. Although this only represents a 10% increase in pressure (1035 vs. 1138 psig, power uprated) a significant number of alterations to plant systems (i.e. disabling nuclear instrumentation and MSRVS, etc.) must be performed to accomplish the task. Performing a system hydrostatic pressure test would provide minimal increased margin of safety with regards to structural integrity in lieu of a proposed system Leakage Test.

**II. BASIS FOR RELIEF**

The requirement to perform a hydrostatic pressure test on the above 2 inch socket welded valves provides a minimal increase in nuclear safety while potentially damaging plant equipment if a localized hydrostatic test is performed. A 'freeze seal' was considered but is impractical due to the existing pipe configuration. A system hydrostatic pressure test represents only a 10% increase in pressure over a System Leakage test; however, the test places the reactor in an off-normal condition, alters plant systems, and challenges control room operators' ability to safely operate the Unit. Alterations to plant systems include:

- Disabling Nuclear instrumentation required for safety system actuation
- Gagging safety relief valves
- Disabling significant portions of the vessels over pressurization protection

Performance of a System Leakage test at 90% (100 psig less) of the required hydrostatic pressure plus improvements in welding and NDE techniques provide sufficient assurance that the structural integrity of the components are maintained.

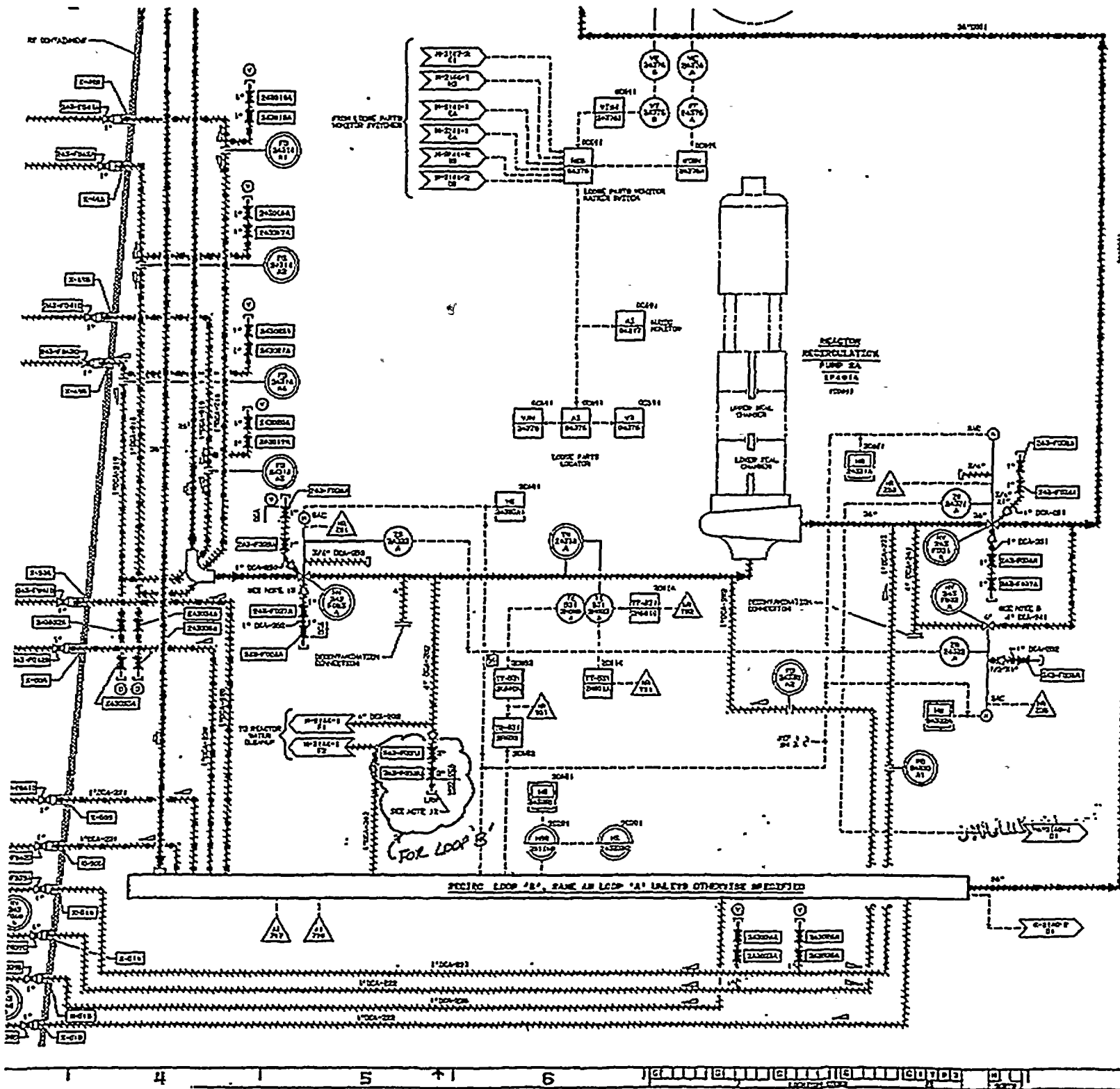
It should also be noted that the ASME Section XI Code Committee has recently approved Code Case N-416-1 (copy attached) which eliminates the need to perform a hydrostatic test, providing certain alternate testing is performed. This Code Case, however, has not been published or endorsed by the NRC in Reg. Guide 1.147.

### III. ALTERNATIVE PROVISIONS

Alternative provisions for performing the hydrostatic pressure test required by IWA-4400 (a) of the ASME Section XI Code shall consist of:

- 1) All required pre and post weld surface (i.e., Liquid Dry Penetrate) NDE shall be performed in accordance with the original construction code, ASME Section III, 1971 Edition including Addenda through Winter of 1972.
- 2) Pre-service inspection (baseline) of the replacement welds shall be performed in accordance with ASME Section XI, 1980 Edition through Winter of 1981 Addenda.
- 3) Prior to return to service, a VT-2 visual examination shall be performed in conjunction with a system leakage test at normal operating pressure in accordance with the pressure-temperature curves in Technical Specification 3.4.6.1 (IWB-5221).

MAR 21 04:29PM PP&L INSE



- NOTES:
1. THIS PIPING WAS AS DESIGNED BY P&L, IN ETC. IS A MATCH SYSTEM. (P-2143, 2141)
  2. LOCATE BRANCH CONNECTION AS CLOSE AS POSSIBLE TO THE MAIN LINE. LOCATE PIPING AS CLOSE AS POSSIBLE TO THE MAIN CONNECTION.
  3. THE RC PIP. NUMBER FOR THIS SYSTEM IS 2141.
  4. NOTE ROOMS
  5. REACTOR VESSEL IS A 36" DIA. 1600' HGT. FACE AND 2" DIA. 1600' HGT. FACE FLANGE.
  6. MOTOR FLANGES ARE 3" DIA. 1600' HGT.
  7. NOTE ROOMS
  8. LOOP 'B' PIPING IS ON LINE. PIPING IS 24" DIA.
  9. THIS PIPING IS IDENTIFIED AS BEING IN THE TOWER. USE 1" DIA. UP TO 12' TOWER.
  10. SINK PIPING IS IDENTIFIED FOR BE DISTRIBUTION TO A ROOM OF 1/2 DIA. PER FOOT SMALL. USE 1" DIA. FOR 12'.
  11. ALL PIPING BEING LIFT INCLUDES 1/2" DIA. 1600' HGT. 1/2" DIA. 1600' HGT.
  12. 1" LOOP ONLY. THIS DRAIN IS OPERATED AND DRAIN IS DIRECTLY INTO THE 1" DIA. 1600' HGT. 1" LOOP ONLY. THIS DRAIN IS CAPPED WITH A BOLD PIPING AND IS THREADED TO ALLOW REPAIR. BEYOND THE CAP CONNECTION ARE BE USED FOR A PIPING UP TO BE INSTALLED BETWEEN THE VALVE AND REACTOR. THE REACTOR IS A 36" DIA. 1600' HGT. REACTOR.
  13. LOOP 'B' DRAIN LINE FROM REACTOR AND DRAIN DRAIN VALVE 2A/2B/2C AND NUMBER NOTE ROOMS. THE REACTOR REPORT OF 2" DIA. 1600' HGT. 2" DIA. 1600' HGT.

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SUSQUEHANNA S.E.S.  
UNIT 2  
P&L  
REACTOR RECIRCULATION

AREA	REV.	NO.
PP&L DIVISION NO.	E105943	0
REVISION NO.	M-2143	7 OF 2

M-2143, M, E105943, 001, 02



**CODE CASE N-416-1**

**ALTERNATIVE PRESSURE TEST REQUIREMENT FOR WELDED REPAIRS OR  
INSTALLATION OF REPLACEMENT ITEMS BY WELDING**

**Section XI, Division 1 - Class 1, 2, and 3**

**INQUIRY:** What alternative pressure test may be performed in lieu of the hydrostatic pressure test required by IWA-4000 for welded repairs or installation of replacement items by welding?

**REPLY:** It is the opinion of the Committee that in lieu of performing the hydrostatic pressure test required by IWA-4000 for welded repairs or installation of replacement items by welding, a system leakage test may be used provided the following requirements are met.

1. NDE shall be performed in accordance with the methods and acceptance criteria of the applicable Subsection of the 1992 Edition of Section III.
2. Prior to or immediately upon return to service, a VT-2 visual examination shall be performed in conjunction with a system leakage test, using the 1992 Edition of Section XI, in accordance with IWA-5000, at nominal operating pressure and temperature.
3. Use of this Case shall be documented on an NIS-2 Form.

If the previous version of this case were used to defer a Class 2 hydrostatic test, the deferred test may be eliminated when the requirements of this revision are met.

**APPLICABILITY:** ASME Section XI, 1974 Edition through the 1992 Edition with 1992 Addenda.





200