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 MILLER, C.L. Project Directorate I-2

SUBJECT: Documents results of PP&L's actions to resolve MSIV jet impingement issues for Susquehanna Units 1 & 2.

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MAR 01 1993

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
FINAL DOCUMENTED RESULTS OF
MSIV JET IMPINGEMENT ISSUES
PLA-3847 FILE R41-2**

Docket Nos. 50-387
and 50-388

Dear Mr. Miller:

- References:
- 1) Letter, PLA-3421, "Action Plan to Resolve Jet Impingement Questions," H.W. Keiser to W.R. Butler, dated August 17, 1990.
 - 2) Letter, PLA-3575, "Schedule of Resolution of Jet Impingement Issues," H.W. Keiser to W.R. Butler, dated May 30, 1991.

The purpose of this letter is to document the results of PP&L's actions to resolve MSIV jet impingement issues for Susquehanna Units 1 and 2. The action items, completion dates and documents corresponding to each action item are provided in Attachment 1. The documents cited are available for review at NRC request.

PP&L is proceeding with modifications to the MSIV limit switches to address jet impingement effects on the inboard MSIVs as a result of postulated recirculation pipe rupture. The modification will relocate some of the limit switch assemblies to a shielded location and install one reinforced assembly on the shielded side of the valve. This modification will not alter the function of the MSIVs. No changes in maintenance or operating practices are envisioned. In addition, there are no changes to the FSAR or Technical Specifications that need to be made. The modifications are planned for the U1-7RIO scheduled to begin September 11, 1993 for Unit 1 and the U2-6RIO scheduled to begin March 12, 1994 for Unit 2.

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This concludes all PP&L actions regarding jet impingement issues. We will keep you advised of any schedule changes.

Any questions regarding the information in the attachment should be directed to Mr. J.B. Wesner at (215) 774-7911.

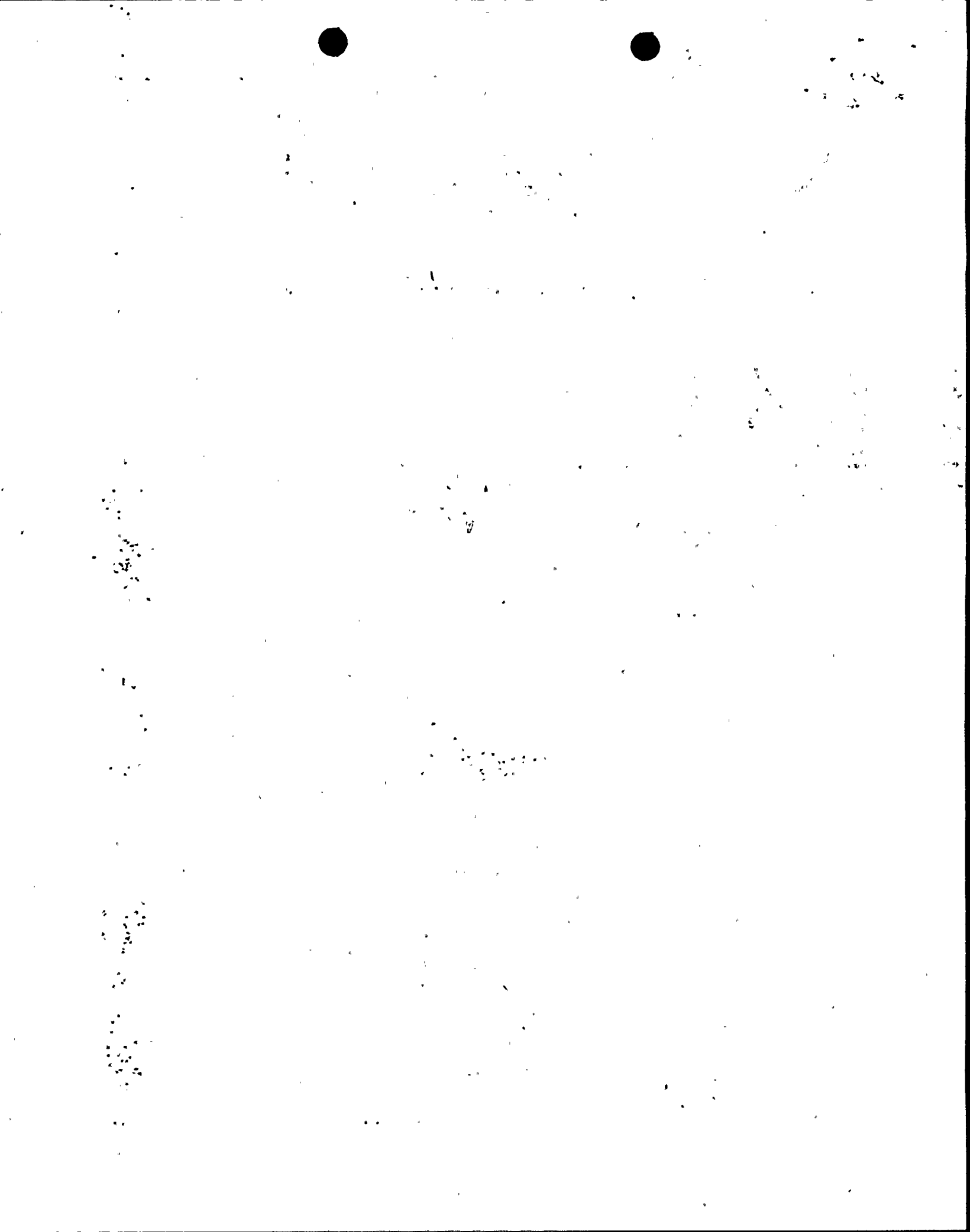
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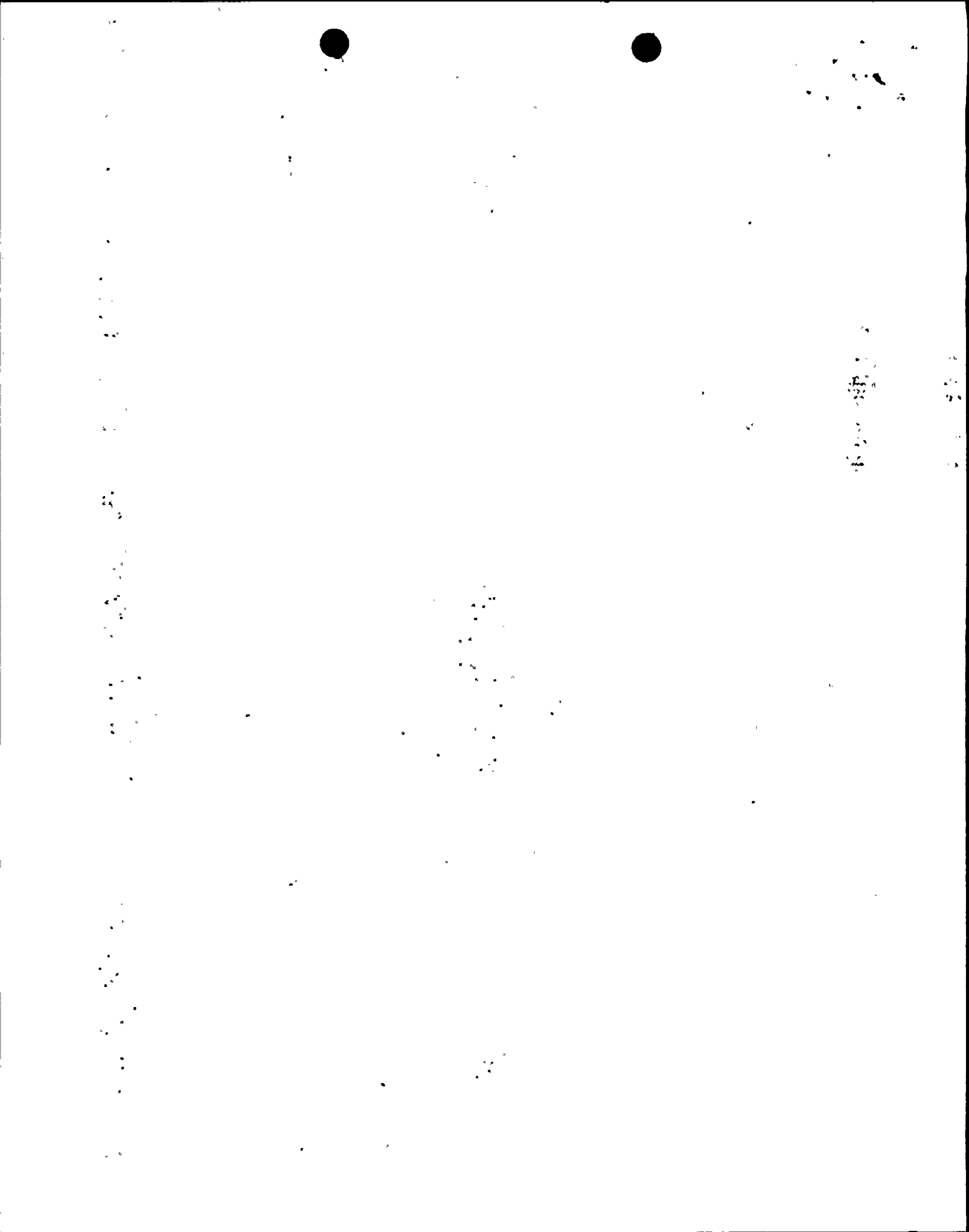
H. W. Keiser

Attachment: documentation of Jet Impingement results

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



<i>COMMITMENT IMPLEMENTATION SCHEDULE FOR MSIV JET IMPINGEMENT RESOLUTION</i>		
<i>Action Plan Item</i>	<i>Documentation</i>	<i>Completion Unit 1 Unit 2</i>
1. Review target areas for jet loads from the Recirculation System nozzle breaks and other nozzles where configurations of piping and bioshield doors are similar.	BLP-20634 Unit 1 BLP-28016 Unit 2	Complete 2/91 Complete 2/91
1.A Perform walkdowns as necessary during the Unit 1 fifth and Unit 2 fourth refueling outages to identify potential safety-related targets.	Walkdown complete for Unit 1 and for Unit 2. PLS-9262, Rev. 0 Attachment 2	Complete 9/90 Complete 4/91
2. Qualify the MSIVs to the Recirculation System jet impingement loads and temperatures (includes the MSIVs and associated components).	(See Items 2.A and 2.B)	(See Items 2.A and 2.B)
2.A Finalize jet impingement analyses for the most limiting N1 and N2 nozzle break locations. These analyses will provide jet pressure and temperature envelopes as a function of distance from the break locations and will form a basis for MSIV load definition.	GE report GE-NE-189-49-0991 Rev. 1 and PP&L calculations: SE-B-NA-124 Rev. 0 PLS-9274 Rev. 0 PLS-9276 Rev. 0	Complete 10/91 Complete 10/91
2.B Determine by analysis an enveloping jet impingement load to which the MSIVs can be qualified. Qualify the MSIVs by comparison of qualification load to calculated load.	PP&L calculations: PLS-9276 Rev. 0 M-MSS-029 Rev. 1 M-MSS-030 Rev. 0	Complete 5/92 Complete 5/92



COMMITMENT IMPLEMENTATION SCHEDULE FOR MSIV JET IMPINGEMENT RESOLUTION			
<i>Action Plan Item</i>	<i>Documentation</i>	<i>Completion</i>	
		<i>Unit 1</i>	<i>Unit 2</i>
3. Analyze the effect of jet impingement on other equipment.	(See Items 3.A, 3.B, 3.C)	(See Items 3.A, 3.B, 3.C)	
3.A Using the jet impingement pressure and temperature envelopes for the worst case Recirculation System nozzle breaks, evaluate the effects of the jet impingement on other equipment within the jet zone of influence.	PP&L calculation PLS-9262 Rev. 0 showed that original jet impingement loadings were acceptable for most targets. (See 3.C below)	Complete 5/92	Complete 5/92
3.B Analyze equipment targets for jet loads from nozzle breaks where configurations of piping and bioshield doors are similar to the Recirculation System.	No essential targets are within the jets where the configuration of piping and bioshield doors are similar to the recirculation system. See PP&L calculation PLS-9262 Rev. 0	Not Required	
3.C Where safety-related equipment analyzed for jet loads cannot be qualified, design and install hardware to mitigate jet loadings.	Design changes planned for Unit 1, DCP 92-3033 and Unit 2, DCP 92-3034 on MSIV Limit switch location and reinforcement.	U1-7RIO	U2-6RIO
4. Submit documented results of items to NRC.	PLA-3847	Complete 2/93	Complete 2/93