

**Discussion and Proposed Resolution of NRC AIT URI  
(unresolved issue) Relating to MSIS Impact on AF-A  
Operability  
(6/14/04 Three Unit LOOP trip)**

During the three Unit LOOP (6/14/04) a question was raised concerning MSIS impact on AFA-P01 OPERABILITY. The MSIS actuation closes solenoid isolation valves SGA-UV1133 (steam trap SGN-M23 isolation valve) and SGA-UV1134 (steam trap SGN-M24 isolation valve). These traps are upstream of the MSIV's and remove condensate from the steam supplied to the Terry Turbine (AF-A) pump. Procedure 40OP-9SG01 "Main Steam" Section 4.9 "Critical Steam Trap Blowdown Operation" identifies these traps as affecting the operability of AFA-P01. The basis is stated in the procedure hidden text as follows: *These steam traps are required to be "blown-down" on a periodic basis when the trap is removed from service and the unit is in Modes 1 through 4 with the steam generators required for heat removal because condensation buildup can occur. EER-90-AF-011, overspeed trip IMAFA-K01 on 4-24-90, identified the Root Cause of Failure as excessive amounts of condensation in the steam lines due to out-of-service steam traps. The EER recommends that with a trap identified as being out-of-service alternate actions to remove the moisture are required. These alternate actions will prevent the buildup of condensation in the main steam lines to the point that the steam driven Aux Feedwater Pump might trip on overspeed when trying to start.*

### **Proposed Correction Actions**

This EER should be revisited. We have installed numerous plant Mods since 1990 to enhance AFA-P01 availability. If the steam traps are no longer required for AFA-P01 OPERABILITY, this issue is resolved and we can remove the steam trap requirement from 40OP-9SG01. If the EER 90-AF-011 conclusion remains valid, we should provide AOP/EOP guidance for maintaining AFA OPERABILITY following an MSIS. CRDR 2719463 was written to address this issue.

Discussion with the EOP Procedure Owner confirmed that our EOPs do not consider the impact of AFA-P01 OPERABILITY following an MSIS. Our review confirmed that this impact is not addressed in 40AO-9ZZ17 "Inadvertent PPS-ESFAS Actuations" (Section 6.0, MSIS) either. I also discussed this condition with Carl Landstrom - SG system engineer, and Jim Moreland, STA. There appears to be three basic mitigating strategies - these are listed in what we believe to be the order of preference. Obviously, if AFA-P01 is already INOPERABLE, the strategies are no longer applicable.

- 1) Override and open SGA-UV1133 & SGA-UV1134 following an MSIS. This is not an immediate concern since moisture buildup occurs over several hours. This could be included in EOPs/AOPs such that this step is not necessary if AFA-P01 is already running. If AFA-P01 is started later, that step should consider instructions to close/ensure closed SGA-UV1133 & SGA-UV1134. Engineering should take a look at this recommendation to ensure that we're not excessively loading the condenser during LOCV or LOOP conditions. This approach would

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seem to be the simplest for the secondary board operator and should not have a significant impact on plant cool-down, condenser internals or induce any water-hammer.

- 2) Start AFA-P01 shortly after MSIS. When AF is required, the informal consensus is that most operators will first start AFB-P01 due to ease of operation. If this is the case, AFA-P01 could be started shortly afterward (after AF flow has already been established) to share some of the AF flow needs. The step should include a caution to align steam supply from the non-faulted/ruptured SG. AF-B could be left running to share AF flow or secured at the secondary operator/CRS' discretion. AF-A should probably be left running until SG pressure has dropped to the point where it no longer has enough enthalpy to adequately drive AFA-K01.
- 3) Stage HP hoses and vent rigs in an E-Plan locker in or near the MSSS building. Develop a Standard Appendix for steam trap blow-down. I believe this is an acceptable, (especially as an interim measure) but the least desirable, approach due to the potential industrial and radiological safety concerns, particularly while battling an event such as ESD or SGTR. It would also be an impact on AO and RP resources. These hoses/ vent rigs are still necessary to support steam trap isolation valve maintenance in modes 1-4.
- 4)

The last aspect is more philosophical. Addressing AFA-P01 OPERABILITY while still in an EOP is consistent with our current approach of only addressing those Tech Spec requirements that are necessary to mitigate the event. Addressing AFA-P01 early in an event reflects PVNGS' desire to maximize availability of our most important safety-related pump.

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