UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

September 10, 1992

NRC INFORMATION NOTICE 92-67: DEFICIENCY IN DESIGN MODIFICATIONS TO ADDRESS FAILURES OF HILLER ACTUATORS UPON A GRADUAL LOSS OF AIR PRESSURE

Addressees

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert addressees to a potentially significant problem pertaining to modifications made to address failures of Hiller valve actuators upon a gradual loss of air pressure, as discussed in NRC Information Notice (IN) 82-25, "Failures of Hiller Actuators upon Gradual Loss of Air Pressure." It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances

Valve assemblies for three Shearon Harris main feedwater preheater bypass isolation valves were specified, procured, and installed for Q Class application. The Anchor Darling Valve Company supplied the valves and the associated Hiller actuators.

On January 7, 1992, Carolina Power and Light Company discovered several components associated with the air supply to the actuators of the three main feedwater preheater bypass isolation valves were not qualified for a Q Class application. Specifically, the failure of the air pump in the non-Q Class, non-seismic instrument air supply to the valve actuator accumulator could prevent pressure switches upstream of the air pump from detecting slow leakage in the Q Class, seismic portion of the actuator air lines. The pressure switches were installed to ensure valve closure by sending an automatic close signal if the instrument air system pressure (upstream of the actuator air pump) dropped to 66 psig as discussed in IN 82-25.

The main feedwater preheater bypass isolation valves function as containment isolation valves upon receipt of a feedwater isolation signal. The function of the air pump is to raise the normal instrument air supply pressure from 70 to 100 psig to approximately 150 psig. If accumulator pressure drops from

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150 psig to 122 psig, the main feedwater preheater bypass isolation valve may not close within 10 seconds. If pressure drops to a value as low as 20 psig, it may not be sufficient to close the main feedwater preheater bypass isolation valve and keep it closed against the maximum differential pressure across the valve seat.

Upon discovery of this condition, Shearon Harris established a surveillance interval for verifying that the actuators' components were functioning properly and that the accumulators were fully pressurized. On January 12, 1992, non-Q components were replaced with suitable components and testing was completed satisfactorily.

On January 15, 1992, the Shearon Harris Safety Committee determined that the deficiency in the Hiller actuator for the main feedwater preheater bypass isolation valves was reportable under 10 CFR Part 21 (Attachment 1), because of the possibility that these valves might not be able to meet their safety-related function to close within 10 seconds of a feedwater isolation signal for containment isolation.

Other air-operated valves may be susceptible to similar failure mechanisms.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical contact: Patricia Campbell, NRR
(301) 504-1311

Attachments:
1. Carolina Power and Light Company
   Shearon Harris Nuclear Power Plant Part 21
2. List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
92-66	Access Denied to NRC Inspectors at Five Star Products, Inc. and Construction Products Research, Fairfield, Connecticut	09/01/92	All holders of OLs or CPs for nuclear power reactors and all recipients of NUREG-0040, "Licensee, Contractor and Vendor Inspection Status Report" (White Book).
92-65	Safety System Problems Caused by Modifications That Were Not Adequately Reviewed and Tested	09/03/92	All holders of OLs or CPs for nuclear power reactors.
92-64	Nozzle Ring Settings on Low Pressure Water-Relief Valves	08/28/92	All holders of OLs or CPs for nuclear power reactors.
92-63	Cracked Insulators in ASL Dry Type Transformers Manufactured by Westinghouse Electric Corporation	08/26/92	All holders of OLs or CPs for nuclear power reactors.
92-62	Emergency Response Information Requirements for Radioactive Material Shipments	08/24/92	All U.S. Nuclear Regulatory Commission licensees.
92-61	Loss of High Head Safety Injection	08/20/92	All holders of OLs or CPs for nuclear power reactors.
92-60	Valve Stem Failure Caused by Embrittlement	08/20/92	All holders of OLs or CPs for pressurized water reactors (PWRs).
92-59	Horizontally-Installed Motor-Operated Gate Valves	08/18/92	All holders of OLs or CPs for nuclear power reactors.
92-58	Uranium Hexafluoride Cylinders - Deviations in Coupling Welds	08/12/92	All Fuel Cycle Licensees.

OL = Operating License
CP = Construction Permit

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Document Name: 92-67.IN
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OGCB:DOEA:NRR NCampbell 08/ /92	*EMEB:DET:NRR PCampbell 08/17/92	*C/EMEB:DET:NRR JNorberg 08/17/92	*D/DET:NRR JRichardson 08/28/92	*RPB:ADM TechEd 08/11/92

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Document Name: LOSSAIR.IN
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			D/DOEA:NRR	C/OGCB:DOEA:NRR
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			08/ /92	08/ /92
OGCB:DOEA:NRR	*EMEB:DET:NRR	*C/EMEB:DET:NRR	D/DET:NRR	*RPB:ADM
NCampbell	PCampbell	JNorberg	JRichardson	TechEd
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Other air-operated valves may be susceptible to similar failure mechanisms addressed herein.

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OFFICE:	BC:OGCB:DOEA	D:DOEA
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