Omaha Public Power District

1623 HARNEY • OMAHA, NEBRASKA 68102 • TELEPHONE 536-4000 AREA CODE 402

May 29, 1979

Mr. Victor Stello, Jr., Director
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: Docket No. 50-285

Dear Mr. Stello:

In accordance with NRC Inspection and Enforcement Bulletin 79-01, dated February 8, 1979, the Omaha Public Power District gave 24-hour notice, by letter dated May 15, 1979, that certain safety-related electrical equipment installed at the Fort Calhoun Station had failed to meet environmental qualification criteria. This letter provides, by attachment, a detailed written report addressing this subject. The report clearly demonstrates that the health and safety of the public is not jeopardized by this situation.

Sincerely,

T. E. Short
Assistant General Manager

TES/KJM/BJH:jmm

Attach.

cc: Mr. Robert W. Reid, Chief
Operating Reactors Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. K. V. Seyfrit, Director
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

LeBoeuf, Lamb, Leiby & MacRae
1333 New Hampshire Avenue, Suite 1100
Washington, D. C. 20036

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Attachment

All Automatic Switch Company (ASCO) solenoid valves were identified in the Fort Calhoun Station as being unqualified for service in a LOCA environment. Of these, the 19 valves listed below have solenoid valves with plastic internals which could potentially be damaged in a LOCA environment such that valve repositioning could occur.

Valve No.	Drawing	Solenoid Normal State	Energize to:	Accident Position	Fail-Safe Position	Solenoid Model
PCV-742A	GHDR 11405-E-53	ND	Open	Closed	Closed	LB-8316B15
PCV-742C	GHDR 11405-E-53	ND	Open	Closed	Closed	LB-8316B15
HCV-2504A	GHDR 11405-E-59	ND	Open	Closed	Closed	8320A26
HCV-2506A	GHDR 11405-E-59	ND	Open	Closed	Closed	8320A26
HCV-2507A	GHDR 11405-E-59	ND	Open	Closed	Closed	8320A26
PCV-2909	GHDR 11405-E-42	ND	Open	Closed	Closed	8320A7
PCV-2929	GHDR 11405-E-42	ND	Open	Closed	Closed	8320A7
PCV-2949	GHDR 11405-E-42	ND	Open	Closed	Closed	8320A7
PCV-2969	GHDR 11405-E-42	ND	Open	Closed	Closed	8320A7
HCV-724A	GHDR 11405-E-53	ND	Close	Closed	Open	8320A42
HCV-724B	GHDR 11405-E-53	ND	Open	Open	Closed	8320A42
HCV-725A	GHDR 11405-E-53	ND	Close	Closed	Open	8320A42
HCV-725B	GHDR 11405-E-53	ND	Open	Open	Closed	8320A42
HCV-1107A	GHDR 11405-E-44	NE	Close	Open	Open	8320A8
HCV-1108A	GHDR 11405-E-44	NE	Close	Open	Open	8320A8

Attachment (Continued)

Valve No.	Drawing	Solenoid Normal State	Energize to:	Accident Position	Fail-Safe Position	Solenoid Model
HCV-881	GHDR 11405-E-49	NE	Close	Closed	Open	8320A102
HCV-882	GHDR 11405-E-49	NE	Close	Closed	Open	8320A102
HCV-883A	GHDR 11405-E-49	NE	Close	Closed	Open	8320A86V
HCV-884A	GHDR 11405-E-49	NE	Close	Closed	Open	8320V86V

Specifically, it is the manufacturer's opinion that at some time after the initiation of a LOCA, the radiation and high temperature may degrade the plastic internals of these solenoid valves, possibly resulting in repositioning of safety-related valves without a signal for repositioning, provided an air source is available for the valves. However, this does not affect the valves' ability to initially assume safe positioning. It should be noted that the remaining unqualified ASCO solenoid valves, not listed above, in the manufacturer's opinion, will go to and remain in the accident position throughout a LOCA and therefore undergo no repositioning.

In order to assure that the health and safety of the public is not jeopardized, and that continued operation is justified, the District has taken the following measures:

(1) New qualified solenoid valves will be ordered, and replacement of these valves will begin upon receipt and be completed during the 1980 refueling outage. A test program will be initiated, if necessary, to determine qualification of these new valves.

(2) The plant operators have been instructed to fail instrument air to containment during post-LOCA conditions which potentially cause solenoid failures. Failure of instrument air will ensure that these safety-related valves are maintained in their safe position. It is emphasized that failure of instrument air to containment will not jeopardize the ability to safely shut down the plant and maintain it in a safe shutdown condition.

(3) The manufacturer of the solenoid valve is of the opinion that all valves will shift to their accident position during the initial stages of the LOCA. It is not until some time after the initial stages of a LOCA that the combination of radiation and high temperature may degrade the plastic internals of these solenoid valves, possibly resulting in repositioning of the safety-related valves without a signal for repositioning, provided instrument air is available. To guard against this

undesired condition, the program of Step 2 (above) has been incorporated into plant procedures.

(4) For all those valves in the initial list which function as containment isolation valves, redundant valves have been supplied outside the containment for added protection against the consequences of a LOCA. For convenience, these redundant valves are listed below:

Valve No.	Redundant (Outside Containment) Valve
HCV-881	VA-280 (locked closed)
HCV-882	VA-289 (locked closed)
HCV-883A	HCV-883B
HCV-884A	HCV-884B
HCV-1107A	HCV-1107B
HCV-1108A	HCV-1108B
PCV-742A	PCV-742B these valves are presently failed closed as part of containment purge limitations
PCV-742C	PCV-742D
HCV-2504A	HCV-2504B
HCV-2506A	HCV-2506B
HCV-2507A	HCV-2507B
PCV-2909/2929/2949/2969	HCV-2983 and locked closed valve SI-185

The following gives a brief description of the functions of the 19 valves previously listed:

PCV-742A/C - Containment Purge Supply and Exhaust Valves: these valves are triggered by a CIAS signal to their accident, i.e., fail-safe position.

HCV-2504A - Reactor Coolant Sample Isolation Valve: this valve's control circuitry is triggered by a CIAS signal.

HCV-2056A/2507A - Steam Generator Blowdown Samples Lines: these valves are triggered to their accident/fail-safe position by a CIAS signal to the valves' control circuitry.

PCV-2909/2929/2949/2969 - Safety Injection Leakage Pressure Control Valves: these valves go to their accident/fail-safe position upon receipt of an SIAS signal.

HCV-724A/B
725A/B - Containment Charcoal Filter Dampers: these valves go to their accident position upon receipt of a VIAS signal. This allows the valves to align for the "charcoal filtering mode" during/after the accident.

HCV-1107A/
1108A - Steam Generator Auxiliary Feedwater Isolation Valves: these valves attain their opened accident position upon receipt of a CIAS signal.

HCV-881/882 - Containment Hydrogen Purge Fan Isolation Valves: these valves go to their accident position upon receipt of a CIAS signal to the control circuitry of these valves. These valves attain their fail-safe position upon solenoid de-energization or loss of air to the feeding solenoid valves.

HCV-883A/884A - Hydrogen Analyzer Isolation Valves: these valves go to their accident position upon receipt of a CIAS signal. These valves attain their fail-safe position upon solenoid de-energization or loss of air to the feeding solenoid valves.

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