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SUBJECT: Responds to NRC Bulletin 89-002 re Anchor-Darling swing check valves supplied w/internal retaining block studs of ASTM Spec A193, Grade B6, Type 410 stainless steel. Summary of insps of bolts/studs removed from subj valves encl.

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AEP:NRC:1054A

Donald C. Cook Nuclear Plant Units 1 and 2  
Docket Nos. 50-315 and 50-316  
License Nos. DPR-58 and DPR-74  
RESPONSE TO NRC BULLETIN NO. 89-02

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

Attn: T. E. Murley

March 28, 1991

Dear Dr. Murley:

In NRC Bulletin No. 89-02 dated July 19, 1989, the NRC requested licensees to disassemble and inspect all safety-related Anchor Darling Model S350W swing check valves supplied with internal retaining block studs of ASTM Specification A193, Grade B6, Type 410 stainless steel. Also, the design of safety-related check valves manufactured by companies other than Anchor Darling were to be reviewed to determine if similar designs and material selection had been used and, if so, to similarly inspect such valves. These inspections by disassembly were to be performed at the next refueling outage or scheduled outage of four weeks or longer beginning 90 days after the receipt of the bulletin (July 21, 1989 for Cook Nuclear Plant). This action has been completed and we are hereby responding to NRC Bulletin 89-02.

We had previously submitted a voluntary report (letter AEP:NRC:1054 dated October 28, 1988) concerning our initial findings of degradation of A193, Grade B6, Type 410 stainless steel retaining block studs in Anchor Darling Model S350W swing check valves installed in the emergency core cooling system in both units. Briefly, the report stated that studs in 4 of the 12 Unit 1 check valves and 10 of the 12 Unit 2 check valves had been replaced with the new A193, Grade B8, Type 304 stainless steel stud material, in accordance with the manufacturer's recommendation. Replacement of the studs in the remaining 10 Anchor Darling swing check valves that had 410 stainless steel studs was completed after receipt of metallurgical evaluations by Westinghouse and prior to the issuance of NRC Bulletin 89-02.

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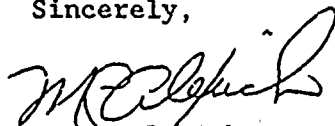
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In compliance with the requirements of the bulletin, a data base was developed for the 502 safety-related check valves at Cook Nuclear Plant. The original design and materials of these valves were also reviewed. Forty-seven of the valves were determined to have contained Type 410 stainless steel stud/bolt material. These were the 24 Anchor Darling Model S350W valves and 23 valves of similar design by other manufacturers, i.e., 1 Crane-Aloyco, 20 Velan and 2 A&M valves. As stated earlier, the bolting material replacement on the 24 Anchor Darling (12 in each unit) was completed prior to the receipt of NRC Bulletin 89-02. A summary of inspection results and actions taken on the remaining 23 valves (11 in Unit 1 and 12 in Unit 2) is provided in the attached table. All of these studs were also replaced with acceptable ASTM A193, Grade B8, Type 304 stainless steel studs during the 1990 refueling outages for Units 1 and 2.

We believe that the actions indicated above satisfy the requirements of NRC Bulletin 89-02. We therefore consider this letter to complete our response to NRC Bulletin 89-02.

This document has been prepared following Corporate procedures that incorporate a reasonable set of controls to ensure its accuracy and completeness prior to signature by the undersigned.

Sincerely,



M. P. Alexich  
Vice President

ldp

Attachment

cc: D. H. Williams, Jr.  
A. A. Blind  
J. R. Padgett  
G. Charnoff  
A. B. Davis - Region III  
NRC Resident Inspector - Bridgman  
NFEM Section Chief

Attachment to AEP:NRC:1054A

Summary of Inspections of Check Valves

Summary of Inspections of Type 410 Stainless Steel Bolts/Studs  
Removed from Safety-Related Check Valves

Unit 1

<u>Valve</u>	<u>Manufacturer</u>	<u>Inspection Method</u>	<u>Remarks</u> <sup>(1)</sup>
1-CS-523-1	Velan	None	Bolt/stud inadvertently discarded after decontamination <sup>(2)</sup>
1-CS-523-2	Velan	None	Bolt/stud inadvertently discarded after decontamination <sup>(2)</sup>
1-CS-523-3	Velan	None	Bolt/stud inadvertently discarded after decontamination <sup>(2)</sup>
1-CS-523-4	Velan	None	Bolt/stud inadvertently discarded after decontamination <sup>(2)</sup>
1-DF-108-C	Velan	VT-1	Acceptable <sup>(3)</sup>
1-DF-109-C	Velan	VT-1	Acceptable <sup>(3)</sup>
1-DF-114-A	Velan	VT-1	Acceptable <sup>(3)</sup>
1-DF-115-A	Velan	VT-1	Acceptable <sup>(3)</sup>
1-FW-153	Velan	VT-1	Acceptable. It was not established that the studs were Type 410 <sup>(4)</sup>
1-FW-160	Velan	VT-1	Acceptable. It was not established that the studs were Type 410 <sup>(4)</sup>
1-SI-148	Crane-Aloyco	None	Bolt/stud inadvertently discarded after decontamination <sup>(2)</sup>

Notes

- (1) All Type 410 stainless steel bolt/stud material from the above 11 valves was discarded.
- (2) Check valve disassembly visual examination reports, filed as part of the ISI program, indicated no adverse conditions observed.
- (3) No indications of degradation were found during inspections, although some studs were damaged upon removal.

Legend

VT - Visual examination

Summary of Inspections of Type 410 Stainless Steel Bolts/Studs  
Removed from Safety-Related Check Valves (Continued)

<u>Unit 2</u>			
<u>Valve</u>	<u>Manufacturer</u>	<u>Inspection Method</u>	<u>Remarks</u> <sup>(1)</sup>
2-CS-523-1	Velan	UT, Visual	Acceptable, threads damaged, inadvertently upon removal <sup>(4)</sup>
2-CS-523-2	Velan	None	Bolt/stud inadvertently discarded after decontamination <sup>(3)</sup>
2-CS-523-3	Velan	UT	Acceptable <sup>(4)</sup>
2-CS-523-4	Velan	UT, Visual	Acceptable <sup>(2)(4)</sup>
2-DF-114-C	Velan	VT	Acceptable <sup>(4)</sup>
2-DF-115-C	Velan	VT	Acceptable <sup>(4)</sup>
2-DF-108-A	Velan	VT-1, PT	Acceptable <sup>(4)</sup>
2-DF-109-A	Velan	VT-1, PT	Acceptable <sup>(4)</sup>
2-FW-153	Velan	VT-1	Acceptable. It was not established that the studs were Type 410 <sup>(4)</sup>
2-FW-160	Velan	VT-1	Acceptable. It was not established that the studs were Type 410 <sup>(4)</sup>
2-CS-321	A&M	None	Bolt/stud inadvertently discarded after decontamination <sup>(3)</sup>
2-CS-321 (spare)	A&M	None	Inspection waived; valve never in service <sup>(3)</sup>

Notes

- (1) All Type 410 stainless steel bolt/stud material from the above 12 valves was discarded.
- (2) Bolt was found to be 1/8" short.
- (3) Check valve disassembly visual examination reports, filed as part of the ISI program, indicated no adverse conditions observed.
- (4) No indications of degradation were found during inspection, although some studs were damaged upon removal.

Legend

VT - Visual Examination  
UT - Ultrasonic Testing

PT - Dye Penetrant