



February 27, 1991

ICAN029105

U. S. Nuclear Regulatory Commission
Document Control Desk
Mail Station P1-137
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
NRC Bulletin No. 89-02
Stress Corrosion of High-Hardness Type 410
Stainless Steel Internal Preloaded Bolting
in Anchor Darling Model S350W Swing Check
Valves or Valves of Similar Design

Gentlemen:

NRC Bulletin 89-02, "Stress Corrosion Cracking of High-Hardness Type 410 Stainless Steel Internal Preloaded Bolting Material in Anchor Darling Model S350W Swing Check Valves or Valves of Similar Design", addresses hardness of the bolting material of certain types of swing check valves.

The Bulletin requested the licensee 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. The licensee was also requested to review the design of other safety-related check valves to determine if similar designs and material selection to the Anchor Darling valves were used. If so, such valves were to be similarly inspected. The Bulletin provided information on how the disassembly and inspection should be performed. The inspections were required to be performed at the next refueling outage, or outage of sufficient length (four weeks or longer) that begins 90 days after receipt of the bulletin.

The Bulletin listed the following reporting requirements:

1. If the licensee does not have Anchor Darling valves subject to this bulletin or valves of similar design with the bolt material, inform the NRC of these facts.

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2. If the licensee has swing check valves subject to the bulletin, a letter to the NRC shall be submitted to the NRC within 60 days after completing the inspection. This letter shall state the number of valves inspected and the number of valves found to have service induced cracking of the bolting. The bulletin provided a listing of the documentation of the valve inspections required to be maintained by the licensee.
3. If the licensee was unable to meet the schedules outlined in the first two reporting requirements, the licensee is to provide technical justification for the delay and an alternative schedule.

The purpose of this letter is to provide the information requested in reporting requirement 2 for ANO-1. The response to this bulletin for ANO-2 was transmitted to the Staff in letter 2CAN039009, dated March 5, 1990.

A review was performed by Entergy Operations to identify safety-related Anchor Darling Model S350W valves supplied with internal retaining block studs of ASTM specification A-193 Grade B6 Type 410 stainless steel in use at ANO-1. It was determined that there were none. There were, however, ten safety-related valves of a similar design in use. These valves were manufactured by Velan. The valves include:

- Core Flood Tank Discharge Valves CF-1A and CF-1B (P&ID M-230)
- Decay Heat Removal Pump Discharge Valves DH-13A and DH-13B (P&ID M-230)
- LPI RX Valves DH-14A and DH-14B (P&ID M-230)
- HPI Line Valves MU-34A, MU-34B, MU-34C, and MU-34D (P&ID M-230)

The design of these valves is similar in that the disc/hinge assembly is mounted to the body utilizing a retaining block and studs composed of 410 stainless steel.

During 1R9, Entergy Operations replaced the 410 stainless steel block studs with ASTM A-193, Grade B8 stainless steel in the valves listed. The replacement material used was the material listed in Velan Service Bulletin #SB-101. It should be noted that no Rockwell hardness tests were performed on the replacement bolting because the replacement material was specifically approved by the valve manufacturer.

During the disassembly of the valves, none of the existing bolts were found to be broken. A visual inspection was also performed on the parts that were removed and no indication of cracking was found. A failure analysis was not performed on the replaced material since no evidence of failure was found during the inspections.

Several other Velan valves in ANO-1 had been identified previously by Entergy Operations that required replacement of the valve internals. Bulletin 89-02 is not applicable to these additional valves in that they were not of a similar design; however, it was determined that it would be prudent to replace the internals of these valves with ASTM A-193, Grade B8 material also. These valves include:

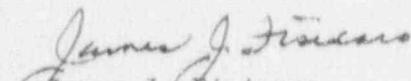
- Steam Generator Supply Valves FW-13A and FW-13B (P&ID M-204)
- Treated Waste Pump Valve CZ-52A (P&ID M-214)
- Quench Tank Transfer Pump Valve CZ-5 (P&ID M-230)
- Reactor Building Condensate Supply Valve CS-26 (P&ID M-230)
- Waste Gas Surge Tank Valve GZ-4 (P&ID M-215)
- Makeup Pump Discharge Valves MU-19A, MU-19B, and MU-19C (P&ID M-231)
- Waste Gas to Reactor Coolant System Fill Line Valve CZ-46 (P&ID M-231)
- Condensate to Batch Valve CS-34 (P&ID M-231)
- Spent Fuel Filter Out to Decay Heat Valve SF-21 (P&ID M-232)
- CRD Cooling Water Pump Discharge Valves ICW-28A and ICW-28B (P&ID M-234)

All but four of these valves were inspected and the internals replaced during IR9. The four valves not inspected are FW-13A, FW-13B, GZ-4, and SF-21. These valves will be inspected and internals replaced during the next refueling outage (IR10).

Of the valves inspected, no indication of cracking was found in the parts being replaced. No broken bolts were found in these valves either. Since there were no indications of failure in the parts replaced, a failure analysis of the parts was not performed.

This letter is being sent under oath as requested and completes Entergy Operations response to NRC Bulletin 89-02 for ANO. Should you have any questions regarding this issue, please contact me.

Very truly yours,


James J. Fisicaro
Manager, Licensing

JJF:RWC:sgw
Attachment

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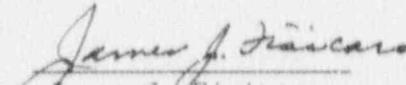
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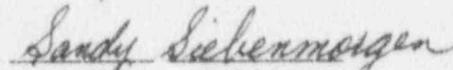
STATE OF ARKANSAS)
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COUNTY OF LOGAN)

SS

I, James J. Fisicaro, being duly sworn, subscribe to and say that I am Manager, Licensing for Entergy Operations, Inc. at ANO; that I have full authority to execute this oath; that I have read the document numbered ICAN029105 and know the contents thereof; and that to the best of my knowledge, information and belief the statements in it are true.


James J. Fisicaro

SUBSCRIBED AND SWORN TO me, a Notary Public in and for the County and State above named, this 27th day of February, 1991.


Notary Public

My Commission Expires:

May 11, 2000