



Entergy Operations

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March 28, 1991

1CAN039101

U. S. Nuclear Regulatory Commission
Document Control Desk
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Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
NRC Bulletin 88-11 - Pressurizer
Surge Line Thermal Stratification
(TAC No. 72108)

Gentlemen:

By letter dated December 20, 1988 (WCNA128827), the NRC issued Bulletin 88-11 "Pressurizer Surge Line Thermal Stratification". Action 1.d of the Bulletin requested the licensees to update their stress and fatigue analyses to ensure compliance with applicable Code requirements, incorporating any observations from the inspections required by other Bulletin actions. The analysis should be completed no later than two years after receipt of the Bulletin. The Bulletin also required the licensees submit a letter 30 days after the completion of the Action 1.d. This letter is to notify the NRC that the requested actions have been performed and that the results of the requested actions are available for inspection.

In letter 1CAN019111, dated January 16, 1991, Entergy Operations requested an additional 30 days to submit the required notification to the NRC that the requested actions have been completed. This additional time was required to complete additional reviews associated with the Babcock & Wilcox Owners Group's (BWOG) final report for this item. The purpose of this letter is to notify the NRC of actions completed.

The BWOG submitted the "Final Submittal for Nuclear Regulatory Commission Bulletin 88-11 'Pressurizer Surge Line Thermal Stratification'" (BAW-2127) on December 31, 1990. This submittal satisfied the intent of Action 1.d of the Bulletin. This report concluded that the lowered loop surge line (which includes ANO-1's surge line) can meet their 40-year design life. Although all BWOG's analytical work is completed, it should be noted that the certified stress reports and the updated functional specifications have not been issued. Issuance of these reports is considered a long-term follow-up action and is currently scheduled to be completed in 1991. Entergy Operations will track the completion of these reports.

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Section 8, "Bases for the BWOOG Analysis - For Plant Specific Application", of BAW-2127 identified several conditions on which the thermal stratification fatigue stress analysis of the surge line and the generation of the revised Design Basis transients were based on. These conditions must be addressed to insure the applicability of the generic results to each specific plant.

The thermal stratification fatigue stress analysis was based on:

- No interference of the surge line with any other structure,
- Surge line movement within the travel range of each snubber,
- Surge line movement within the travel range of each hanger, and
- Branch moments at the surge line drain nozzle connection within their respective maximum allowables (for Deadweight, Operating Basis Earthquake and thermal stratification).

The generation of the revised Design Basis transients (for future events) was based on the incorporation of operational guidelines which:

- Limit the pressurizer to RCS temperature difference during plant heatups and cooldowns (imposed with pressure/temperature limits), and
- Prevent surveillance tests that cause rapid additions of water to the RCS from being performed with a pressurizer to RCS temperature difference greater than 220° F.

A discussion of each of the conditions for ANO-1 is provided below.

The issue of interference with other structures was resolved in the walkdowns performed in response to Action 1.a of the Bulletin. The walkdowns found no structures which may interfere with the movement of the surge line.

Surge line displacements have been compared to the travel range of each of the three snubbers on the ANO-1 surge line. In each case, it was determined that the snubbers have sufficient travel range available to not restrict the piping thermal movement under any known operating condition, including movements due to thermal stratification. A review of the snubber drawings showed no indication that lugs have been added to the surge line as part of the pipe support design. The ANO-1 snubbers are located such that each snubber acts perpendicular to the piping to which it is attached, making the use of lugs to keep the clamp in place unnecessary.

The ANO-1 surge line is suspended from the pressurizer and RCS hot leg nozzles and has no intermediate pipe supports except for the snubbers discussed above. This eliminates the hanger travel concerns for ANO-1.

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The surge line drain was reanalyzed to incorporate the new thermal stratification loadcase as well as the latest as-built information obtained from the Isometric Project walkdowns. Thermal (including thermal stratification) loads meet the B&W allowables. It was determined that the combination of deadweight and Operating Bases Earthquake loads slightly exceeded the allowables originally supplied by B&W. The higher loads are currently being evaluated by B&W for incorporation into the analyses. The work necessary to revise allowables to encompass these higher loads will be completed by April 12, 1991.

Due to the large movements associated with the thermal stratification condition, it was determined that the two small bore pipe supports on the surge line drain are more highly loaded than was assumed in the original design. Analyses of these two supports are currently underway. The following preliminary conclusions, however, have been reached:

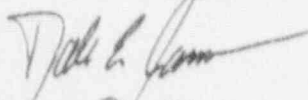
- One of the pipe supports will be shown to meet all applicable Code allowables.
- It is believed that the second pipe support will be shown to meet all applicable Code allowables and will definitely meet operability criteria. If the support can not be shown to meet all Code allowables, then a modification package will be developed for implementation at the next refueling outage.

These analyses will be completed by April 12, 1991.

ANO-1 will incorporate the operational and surveillance guidelines into the appropriate procedures by March 29, 1991.

Based upon the discussions above, the results of BAW-2127 are applicable to ANO-1. This letter is being sent under oath as requested. Should you have any questions regarding this issue, please contact me.

Very truly yours,


James J. Fisicaro
Manager, Licensing

JJF:RWC:sgw

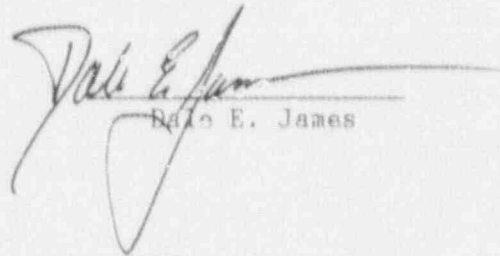
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STATE OF ARKANSAS)
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COUNTY OF LOGAN)

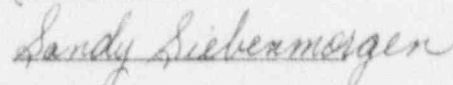
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OATH

I, Dale E. James, being duly sworn, subscribe to and say that I am Supervisor, Licensing for Entergy Operations, Inc. at ANO; that I have full authority to execute this oath; that I have read the document numbered 1CAN039101 and know the contents thereof; and that to the best of my knowledge, information and belief the statements in it are true.


Dale E. James

SUBSCRIBED AND SWORN TO me, a Notary Public in and for the County and State above named, this 28th day of March, 1991.


Notary Public

My Commission Expires:

May 11, 2000