

S. Hanauer



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUL 11 1979

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MEMORANDUM FOR: J. Strosnider, Task Manager, A-3, A-4 and A-5, DOR
FROM: J. Zwolinski, Containment Systems Branch, DSS
SUBJECT: CONTAINMENT RESPONSE TO MSLB ASSUMING STEAM GENERATOR
TUBE FAILURES

Following internal staff discussions and receipt of the subsequent memo dated June 29, 1979 on TAP A-3, "Westinghouse Steam Generator Tube Leakage" in which a request was made to investigate the consequences of steam generator tube failures coincident with a main steam line break, the following data have been generated.

Westinghouse PWR With 0.908 Square Foot MSLB

Number of Tubes Ruptured Assuming 125/gal/min Flow per Tube	Resulting Peak P (psia) @ 625 sec	P (psia) @ 1800 sec
1	50	29
10	52	32
20	54	35
50	58	45

Generally, based on the study performed, one can interpret the results as showing that in all cases the containment pressure response does increase as the number of tube failures increases.

A prior analysis of a related problem had been performed by the Containment Systems Branch. This prior analysis, "Acceptability of Non-Safety Grade Equipment in Mitigating a Main Steam Line Break Accident Inside Containment," from F. Eltawila to R. Tedesco, dated January 12, 1977, was found to provide additional insight. Specifically, it was reported that a main steam line break analysis had been performed assuming that the entire energy inventory of the primary and secondary systems was available for release to the containment. The principal purpose of that analysis was to bound the containment pressure response to a main steam line break accident. It was

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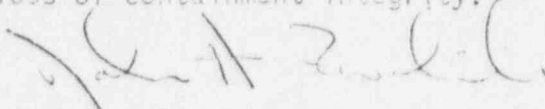
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reported that for all the cases considered; i.e., Westinghouse 3 & 4 loop plants and a typical CE 2 loop plant, the containment design pressure would be exceeded by a factor of less than two. The maximum allowable containment pressure, for either a steel vessel or a reinforced concrete structure, based on the ultimate strength of steel is approximately 2.75 times the containment design pressure. It was, therefore, concluded that the consequences of such a hypothetical accident would not include the loss of containment structural integrity.

We conclude, therefore, that steam generator tube ruptures coincident with a MSLB accident would not lead to a loss of containment integrity.


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