

**Detroit
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May 26, 1983
EF2 - 62,805

Director of Nuclear Reactor Regulation
Attention: Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Youngblood:

Reference: (1) Enrico Fermi Atomic Power Plant, Unit 2
NRC Docket No. 50-341

(2) Detroit Edison to NRC letter, "Low-Low
Setpoint SRV Actuation Logic and Lowered
MSIV Closure Setpoint", EF2-61,981,
March 16, 1983

(3) GE to NRC letter, "Low-low Set Logic/
Lowered MSIV for MKI Plants",
MFN-176-82, November 19, 1982

Subject: Further Information on Fermi 2 Low-Low Set
Design and Analysis

The reference (2) letter supplied plant unique schematics of the Fermi 2 low-low setpoint actuation logic (LLS) and appropriate applicability statements and references to the General Electric safety evaluation of the generic design of that logic (reference [3]). Per a phone conversation with Mr. Byron Siegel of Operating Reactors Branch 2 (Project Manager of the MKI containment review activities), additional information was requested as follows:

1. Does the Fermi 2 LLS design use ADS or non-ADS valves?

Response: The Fermi 2 low-low set actuation logic affects only Safety Relief Valves (SRV's) which do not include the Automatic Depressurization Function.

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Mr. B. J. Youngblood
May 26, 1983
EF2 - 62,805
Page 2

2. What is the limiting transient for Fermi 2 and what effect does LLS have on it?

Response: The limiting transients with respect to the minimum critical power ratio for Fermi 2 are Rod Withdrawal Error (RWE) at Power and Turbine Trip Without Bypass (TTWB), depending on the scram speed. (See Fig. 15B.0-6 of the Fermi 2 FSAR.) RWE is a non-pressurization type event and is thus unaffected by a change in SRV actuation logic. TTWB is a pressurization type event; however, the results of the existing transient analysis remain unaffected because the peak pressure is affected only by the initial opening of the SRV (unaffected by LLS). In addition, positive reactivity addition is turned around by reactor scram, which is initiated by turbine stop valve closure, which is in advance of the pressure increase (and thus is also unaffected by LLS).

3. How much does LLS extend the time between initial and subsequent actuations?

Response: The low-low setpoint actuation logic is designed to delay the time for a subsequent SRV actuation due to an increasing pressure transient. The delay allows the SRV discharge line water leg to return to its normal level prior to a subsequent actuation. For Fermi 2, the amount of time required for this is dependent on the accident and/or load case conditions assumed. The load cases cover the spectrum from normal anticipated operational transients causing an SRV to open, to a variety of small break LOCA events (large break events do not lead to SRV actuation). For the operational transient condition, 4.01 seconds is conservatively required for the water leg to return to normal. For the small break conditions, 6.92 seconds is required. The time available for each of the above conditions is discussed below:

Mr. B. J. Youngblood
May 26, 1983
EF2 - 62,805
Page 3

Operational Transient Condition

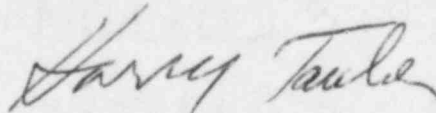
The limiting operational transient for subsequent SRV actuation is a fast MSIV closure. Analysis shows that without LLS, approximately 4 seconds will elapse between initial and subsequent actuation. With LLS installed, no early subsequent actuations occur. If one of the LLS SRV's is assumed to fail, 10.1 seconds elapses before the second actuation. This is well in excess of the 4.01 seconds required to return the SRV discharge line water leg to its normal level.

Small Break Conditions

The limiting event for small break conditions which determines the minimum time for a subsequent actuation is the asymptotic small break (zero break) with loss of offsite power since it creates the condition of fastest repressurization. Without LLS, 7.5 seconds elapses before the second actuation. With LLS, even if one of the LLS SRV's should fail, 33 seconds elapses between actuations. This is well in excess of the 6.92 seconds required to return the SRV discharge line water leg to its normal level.

The above should provide the additional information you require for you to complete your review. If you have any more questions, please contact Mr. Larry E. Schuerman, at (313) 586-4207.

Sincerely,



cc: Mr. P. Byron
Mr. D. Lynch
Mr. B. Siegel