



February 4, 1986
VP-86-0007

Director of Nuclear Reactor Regulation
Ms. Elinor G. Adensam, Director
Project Directorate No. 3
Division of BWR Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

- Reference: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
- 2) Detroit Edison to NRC Letter, "Request for
Amendment to Fermi 2 Technical Specifica-
tions Regarding the Source Range Monitor
Downscale Rod Block Setpoint", VP-85-0236,
dated December 23, 1985

Subject: Supplemental Information for Requested SRM
Setpoint Technical Specification Amendment

Detroit Edison submitted a request for an amendment to
Fermi 2 Technical Specifications 3/4.3.6, 3/4.3.7.6 and
3/4.9.2 via Reference 2. Subsequent conversations with
NRC-NRR staff have identified four items requiring
clarification or revision. The following provides the
requested information.

1. Revision to 3/4.9.2

Detroit Edison has agreed to modify the wording of
Technical Specification 3/4.9.2, "Refueling
Operations/Instrumentation", to clarify the intent of
the revision provided in Reference 2. Attachment 1
provides the modified wording of the footnote which
supersedes the Reference 2 revision to Technical
Specifications page 3/4 9-4.

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2. Verification of Signal-to-Noise Ratio

Detroit Edison confirms that operational procedures require that within 8 hours prior to reactor startup, each SRM is determined to be operable by either: 1) verifying the SRM reads $>3\text{cps}$ and $<10^5\text{ cps}$; or 2) with reading between 3 cps and 0.7 cps, the signal to noise ratio is known to be $\geq 2:1$. (Subsequent to the approval of the requested Technical Specification revision, this procedure will be modified, as necessary, to reflect a low setpoint of 0.3 cps.)

3. Control Rod Withdrawal Process

A concern was identified relative to the potential for challenging the Reactor Protection System (RPS) as a result of initiating reactor startup from the revised downscale setpoint of 0.3 cps.

The Fermi 2 reactor startup program provides assurance that this will be unlikely, and that criticality will be attained in a controlled manner. The procedure governing control rod withdrawals during the approach to critical requires a minimum of three seconds wait between rod withdrawal steps (after the settle light extinguishes). Whenever the SRM readings are less than 3 cps an additional one minute wait will be required if a period alarm is encountered. Large reactivity additions in any step are prevented by a combination of the hardwired Rod Sequence Control System (RSCS) for all rod withdrawals up to the low power setpoint and the Reduced Notch Worth Procedure (RNWP) incorporated in the rod pull sheets for rod groups 3 and 4 where initial criticality has been demonstrated to occur, and on up to the low power setpoint.

The SRMs are verified to be providing accurate readings prior to startup (as reflected in Item 2 above) and procedures require the operator to both add reactivity slowly and observe the SRM readings.

4. Summary of Signal-to-Noise Ratio Test

Reference 2 indicated that an in-situ test had been performed with the Fermi 2 SRMs to verify both the ability to read 0.1 cps and the presence of a signal-to-noise ratio ≥ 2 at 0.3 cps. A brief description of this test follows.

The channel B SRM was chosen for this test since it was judged to have reflected the most "noise" during its operating history. SRM B was fully withdrawn from the core, after which a voltage meter was connected to it at local output plugs. Approximately two minutes after SRM B had reached the "full-out" position, the Log Count Rate Meter indicated 0.1 cps, and the voltage meter read 0.5 VDC. After an additional five minutes the Log Count Rate Meter stabilized at below 0.1 cps, while the voltage meter indicated a -1.0 VDC. Because the Log Count Rate Meter had been previously calibrated at +10 VDC full scale (7 decades), the bottom reading was 1.5 VDC below the 0.1 cps reading (corresponding to about a full decade in cps)

Therefore, it was verified that noise within the SRM system provides feedback much less than the equivalent of 0.1 cps and that a count rate of 0.1 cps can be read clearly. In addition, as the downscale setpoint may be reduced to 0.3 cps, the signal-to-noise ratio at this lower setpoint will be $\geq 2:1$.

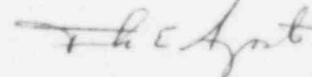
Reference 2 above had a typographical error on Page 4 of 4 in Attachment 1. The first sentence in the first paragraph should read, "Reduction in SRM rod block setpoints to 0.3 cps has been reviewed and found acceptable by the NRC in a prior case", instead of "Reduction in SRM rod block setpoints to 0.7 cps has been reviewed and found acceptable by the NRC in a prior case".

Detroit Edison appreciates the prompt review provided on Reference 2. Based on the current SRM count rate, we estimate that the antimony-beryllium source strength may be insufficient to maintain 0.7 cps beyond March 1, 1986.

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Please contact Mr. R. L. Woolley at (313) 586-4211 if you have any further questions concerning this matter.

Sincerely,



F. E. Agosti
Vice President
Nuclear Operations

With attachment

cc: Mr. P. M. Byron
Mr. M. D. Lynch
Mr. L. E. Phillips
Mr. H. J. Richings