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December 20, 1982
5211-82-301

Office of Nuclear Reactor Regulation
Attn: J. F. Stolz, Chief
Operating Reactor Branch No. 4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Emergency Feedwater System - Seismic

This letter is in response to the Technical Evaluation Report (TER) for TMI-1 Seismic Qualification of Emergency Feedwater System contained in your letter of November 16, 1982. We have enclosed responses to the issues addressed in that TER.

As suggested in your letter, we have performed a supplemental walkdown of the portions of the EFW system you have described as non-seismic. The results are included in the enclosure.

In accordance with Generic Letter 81-14 and our replies, we have not described an alternate decay heat removal system since it is our position that with the minor modification noted in our responses, at restart the existing EFW system will be able to perform its safety function after the occurrence of earthquakes up to and including the SSE. Longer term upgrades that are scheduled for the first refueling after restart will further simplify the plant response to seismic events and reduce the potential for implant fluid spills. Without regard to the foregoing, we note that as discussed in the December 14, 1981 ASLB Partial Initial Decision, HPI cooling which uses only safety grade equipment can serve as an alternate decay heat removal system in the event both EFW and main feedwater systems are lost.

With completion of the actions addressed in this letter and our previous letters on this subject, we have completed our review of the seismic capability of the

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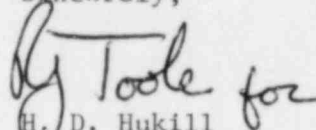
MR. J. F. Stolz

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EFW system. Nevertheless, should you identify further questions or deficiencies regarding the EFW system please let us know promptly, since it is our intention to complete all identified long term modifications to the system by completion of the next refueling outage.

Sincerely,


H. D. Hukill
Director, TMI-1

HDH:EGW:vjf

cc: R. Jacobs

TER Item 1

Piping (a) "The portion of the recirculation lines for the emergency feedwater pump between manual isolation valves (EF-V 20 A/B and EF-V 22) and the condensate storage tank (CST) "B" were not seismically designed."

Response

The flow through a failed recirculation line would not present a loss of safety function. It would only create an inplant spill. (See also TER ref. 7 Enclosure 2). Thus, completion of modifications during cycle 6 refueling is warranted.

TER Item 2

Piping (b) "...Hence the condenser hotwell supply lines will be isolated when the water level of the condensate storage tank reaches the technical specification limit."

Response

The existing condensate storage tank level instrumentation and alarm are not seismic but will be upgraded to safety grade during the Cycle 6 refueling outage. The level signals for the low level and low low level alarms are from the same transmitter which will be replaced by a qualified instrument. At restart the operator will isolate the EFW system by closing COV 111 A/B and COV-14 A/B whenever a tank reached the tech spec limit following any EFW actuation; and during the interim period before the long term mods are complete, following any recognizable seismic event.

TER Item 3

Piping (c) "Based on the sketch submitted by the licensee, not all connected branch lines from the AFW System are seismic class I beyond the first valve and up to a point of three orthogonal restraints."

Response

A walkdown of the branch lines has been performed and the connection with the following valves has been judged to be seismically adequate:

EFV-17	EFV-44
EFV-18	COV-27A/B
EFV-23	COV-128A/B
EFV-24	COV-129A/B
EFV-25	COV-130A/B
EFV-26A/B	COV-131A/B
EFV-27A/B	COV-132A/B, Isolated when COV-14A/B shut by operator
EFV-28A/B	COV-133A/B action (See Response to Item 2).
EFV-29	COV-134A/B
EFV-42A/B	EFW Bearing Cooling Lines
EFV-43A/B	

TER Item 4

Piping (d) "The instrument air supply line from valve IA-V27 to the AFW system is not seismically qualified."

Response

Although the instrument air supply line from valve IA-V27 to the EFW system is not seismically qualified check valves qualified for SSE conditions are provided to maintain the integrity of the Seismic Class I two hour air backup supply (bottled) for EFW 30 A/B; EFV 8 A, B, C; MSV 6; and MSV 4 A/B. In accordance with figure 3 of our letter of July 7, 1982, the following check valves are provided and qualified for SSE.

IAV 1433	IAV 1451	IAV 1445
1431	1645	1448
1655	1460	1446
1658	1458	1651
1656	1647	1636
1663	1643	1634
1437	1641	1649
1439	1455	1461
1660	1457	1463
1661	1653	1637
1449	1443	1639
1454	1452	1628 A/B

TER Item 5

Power Supplies a, b, c, "... we conclude that the present level of seismic capability of power supplies is less than OBE, but it will be equivalent to SSE upon completion of the planned modification."

Response

The failure of the power supplies noted will not prevent the EFW system from initially performing its safety function. Adequate time exists for manual action to be taken to preserve minimum CST inventory. (see TER ref. 7). The completion of long term mods during Cycle 6 refueling is warranted.

TER Item 6

Initiation/Control Systems - "Flow switches and control circuitry of recirculation flow control valves EFV 8 A, B, and C."

Response

The recirculation flow control valves fail open on loss of control signal. This does not result in a loss of safety function (see response to Item 1). GPUN will upgrade the controls for the emergency feedwater pump recirculation valves EF-V-8 A/B/C to safety grade and modify the recirculation valve circuitry to improve system operation at low flow conditions.

TER Item 7

Initiation/Control Systems - "Cable routing to motor operators for main steam supply isolation valves to the turbine driven pump (MS-V-2 A&B) and for the main steam bypass to the condenser valves (MS-V-8 A&B).

Response

GPUN has evaluated the seismic portion of the electrical system associated with the emergency feedwater turbine driven pump. In accordance with the analysis provided in the TMI-1 Restart Report 8.3.9 and TMI-1 FSAR 14.1.2.9, failure of the main steam isolation valves to close would result in a blow-down of both steam generators. Such a transient can be sustained by the unit as described in the FSAR. The high energy piping, valves and other mechanical components of the EFW turbine driven pump are required to be seismic to prevent seismically induced damage to the motor driven pumps. Therefore, specific operation of these valves is not required to mitigate the consequences of a seismic event.

TER Item 8

Initiation/Control Systems - "Solenoid valves and limit switch which control the valves (MS-V-13A and B) for providing the main steam to turbine."

Response

See Response to Item 7.

TER Item 9

Initiation/Control Systems - "Cable routing of motor operators for main steam isolation valves MS-V1A, B, C & D."

Response

See Response to Item 7.

TER Item 10

Structures - The Turbine Building is seismic Class II and with some stiffening it would withstand OBE.

Response

The Turbine Building is a Class II building according to the building codes not seismic Class II. Nevertheless, the components associated with EFW system performance which are located in the Turbine Building could fail without preventing the completion of the EFW safety function. Therefore, the Turbine Building does not require seismic upgrading.