

METROPOLITAN EDISON COMPANY  
JERSEY CENTRAL POWER AND LIGHT COMPANY

AND

PENNSYLVANIA ELECTRIC COMPANY  
THREE MILE ISLAND NUCLEAR STATION, UNIT 1

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Operating License No. DPR-50  
Docket No. 50-289  
Technical Specification Change Request No. 217

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This Technical Specification Change Request is submitted in support of Licensee's request to change Appendix A to Operating License No. DPR-50 for Three Mile Island Nuclear Station, Unit 1. As part of this request, proposed replacement pages for Appendix A are also included.

GPU NUCLEAR CORPORATION

BY:

*J. J. [Signature]*  
Vice President and Director, TMI-1

Sworn and subscribed before me this  
19<sup>th</sup> day of June, 1992.

*Erin M. Flowers*  
Notary Public

Notarial Seal  
Erin M. Flowers, Notary Public  
Londonderry Twp., Dauphin County  
My Commission Expires Sept. 11, 1993

Member, Pennsylvania Association of Notaries

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I. TECHNICAL SPECIFICATION CHANGE REQUEST (TSCR) NO. 217

GPUN requests that the following changed replacement page be inserted into the existing Technical Specification:

Revised page: 3-63

This page is attached to this change request.

II. REASON FOR CHANGE

This TSCR requests a temporary change to Technical Specification 3.16 to exclude Reactor Coolant Pump (RCP) Snubber RC-U-003 from the operability requirements applicable to safety related snubbers. This change is to be in effect during the current operating cycle until inspection and repair of Snubber RC-U-003 and/or its hydraulic fluid supply tubing can be completed during the earliest outage of opportunity or refueling outage 10R, whichever occurs first.

III. SAFETY EVALUATION JUSTIFYING CHANGE

The safety function of the RCP snubbers is to effectively restrain design basis seismic forces to ensure that seismic loads and stresses on the RCP and RCS piping do not rupture the reactor coolant pressure boundary (RCPB). Operability of the RCP is not required during or after a seismic event. Therefore, RCP operability need not be considered. Primary coolant pump support systems have been analyzed for guillotine breaks or longitudinal splits of pump suction or discharge piping at any location between the steam generator and reactor vessel.

An engineering analysis has been performed to evaluate the effect of RCP Snubber RC-U-003 inoperability on the RCP and RCS piping for the remainder of Cycle 9 operation. This analysis was performed for the affected RCS loop and assumed Snubber RC-U-003 is ineffective in restraining seismic forces. The analysis shows that without this snubber, the maximum pipe primary stress is approximately 4% over the design basis allowable stress of 1.8 Sm for operating pressure plus the maximum hypothetical earthquake (MHE) load (Zero Period Acceleration (ZPA) = 0.12 g) using USAS B31.7 Piping Code, February, 1968 through June, 1968 errata. The analysis also shows that the maximum pipe primary stress is within the design basis allowable stress of 1.5 Sm for design pressure plus the design earthquake load (ZPA = 0.06g).

An evaluation using the 1986 ASME Code shows stress levels well below the Code allowable of 3.0 Sm. Although the 1986 ASME Code criteria is not the current design basis for the TMI-1 RCS, this assessment provides a more realistic evaluation of the actual seismic load bearing capacity of the RCPs and the RCS for TMI-1.

Reconciling the RCS to the 1986 ASME Code Section III is a longer term option and is not being pursued here. Relief is only needed on a temporary basis because the Snubber's fluid leakage will be rectified by or during the 10R refueling outage. Reconciliation to the 1986 Code in the short term would not be required.

The rigid restraint system of the affected RCP is capable of withstanding LOCA loads introduced into the pump. With the snubber inoperable, the snubber would simply pass through, and likely mildly dampen, the seismic loads experienced by the RCS Cold Leg Piping. Should a seismic event occur, the possibility for damage to the potentially fluidless snubber will be negligible because the motion would also be partially restrained by the rigid LOCA restraints; the snubber would not become a missile or debris.

There will be no effect on the thermal response of the RCS piping because the inoperable snubber will not impose additional thermal loads on the RCS piping or restrain the piping during thermal expansion or contraction. In addition, potential inoperability of this snubber is based upon a theoretical loss of fluid whose absence would not allow lock-up of the snubber to occur. Therefore, the only change in snubber function during a thermal expansion or contraction will be a slight increase in drag forces which would be negligible considering the thermal expansion forces resulting from piping the size of the RCS cold leg pipe.

As documented in the TMI-1 FSAR, Section 2.8.1, the current seismicity analysis indicates that Pennsylvania is relatively inactive seismically. This is based upon 200 years of historical data and 40 years of instrumented data. The conservative estimate of the maximum earthquake intensity to be expected at the site is a low intensity VI on the Modified Mercalli scale. This corresponds to a ground acceleration of 0.04g. The plant design earthquake (DE) is conservatively based on a basic ground motion of 0.06g. The MHE is 2 x design earthquake (0.12g). Accordingly, the probability of a DE event is low and the probability of an MHE event is even more remote, based on seismic history of the area.

In summary, structural analysis in accordance with the USAS B31.7 demonstrates that, with RC-U-003 inoperable, 1) during the maximum hypothetical earthquake, the functional integrity of RCS components and the reactor coolant pressure boundary is maintained and 2) during a design basis LOCA, a secondary break of the RCPB would not occur. In practical terms this means that under conditions of the maximum loads for which the plant must be analyzed, the only potential damage predicted would be that possibly some local deformation could occur. Therefore, even when analyzed to a very conservative code, the analysis shows that the maximum stresses would not cause a break in the reactor coolant pressure boundary.

Under the current conditions, GPU Nuclear intends to maintain snubber RC-U-003 operable throughout Cycle 9 operation. If operability of this snubber cannot be maintained until the next outage of opportunity, an amendment authorizing this change request would be needed to avoid shutting down the plant after the 72 hour allowable outage time provided by TS 3.16.1. In accordance with our existing evaluation, a shutdown and inspection would only be required in the event of a confirmed earthquake affecting the TMI-1 site. To avoid the need for an unnecessary shutdown and inspection of the RCS, additional calculations by B&W will be needed to define the ground motion that can be tolerated without a subsequent inspection, assuming that snubber RC-U-003 is inoperable. GPU Nuclear does not intend to proceed with the additional calculations at this time. If snubber RC-U-003 remains operable throughout the cycle, the additional calculations will not be needed. If operation in accordance with this TSCR is necessary with RC-U-003 inoperable, GPU Nuclear will determine whether to complete the additional calculations described above or continue to operate with a requirement to shut down and inspect the RCS following an earthquake.

#### IV. NO SIGNIFICANT HAZARDS CONSIDERATIONS

GPUN has determined that this Technical Specification Change Request involves no significant hazards consideration as defined by the NRC in 10 CFR 50.92.

1. The inoperability of Snubber RC-U-003 does not involve a significant increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR. The accident or malfunction related to this change is the occurrence of the maximum hypothetical earthquake or the design basis LOCA. Inoperability of these snubbers is unrelated to the possibility of occurrence of these postulated design basis events. Seismic design and mounting of these snubbers ensures that other safety related equipment will not be adversely effected. The structural analysis referenced above, which considers original design basis criteria as well as ASME 1986 Code criteria, demonstrates that the consequences of the postulated maximum hypothetical earthquake or design basis LOCA, and applicable loading combinations are not increased.
2. The inoperability of Snubber RC-U-003 does not create a possibility for an accident or malfunction of a different type than any previously identified in the SAR. Under normal operating conditions including heatup and cooldown thermal transients, these snubbers do not perform a safety-related function. The structural analysis referenced above, which considers original design basis criteria as well as ASME 1986 Code criteria, demonstrates that the RCS components and RCPB functional integrity is maintained during a maximum hypothetical earthquake and that the integrity of the remainder of the RCPB is maintained during design basis LOCA loads such that a secondary break of the RCPB would not occur. The snubbers are seismically designed and mounted which precludes interaction with other safety related equipment.

3. The inoperability of Snubber RC-U-003 does not involve a significant reduction in the margin of safety. Technical Specification Section 3.16 and 4.17 apply to all safety-related snubbers and requires each snubber to be operable whenever the system protected by the snubber is required to be operable. The intent of this Technical Specification, as defined in Technical Specification 3.16 Bases, is to ensure that the probability of structural damage to piping as a result of dynamic loads occurring from an earthquake or severe transient, or thermal motion, is not increased. The structural analysis referenced above demonstrates that the reactor coolant pumps and piping in this particular portion of TMI-1's system are capable of withstanding maximum hypothetical earthquake loads, design basis LOCA loads, and applicable loading combinations, without Snubber RC-U-003 operability.

V. IMPLEMENTATION

This TSCR is being submitted for NRC review and approval without priority at this time based on our intent to maintain RCP Snubber RC-U-003 operable until the next outage. However, GPU Nuclear will notify the NRC immediately if it becomes necessary to expedite issuance of the amendment approving this change.

This is a temporary change request covering the period of Cycle 9 operation until Snubber RC-U-003 can be inspected and repaired during the earliest outage of opportunity or refueling outage 10R, whichever occurs first.

It is requested that the amendment authorizing this TSCR be effective upon issuance.