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U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
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Gentlemen:

Three Mile Island Nuclear Generating Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Conformance to Regulatory Guide 1.97  
Steam Generator Pressure Instrumentation Range

This letter documents a recently identified deviation from the requirements of Regulatory Guide 1.97 for steam generator pressure instrumentation range.

NRC Region I conducted an inspection from May 7 to May 11, 1990, to review the TMI-1 implementation program for Regulatory Guide 1.97 requirements. During this inspection it was identified that the steam generator pressure instrumentation range provided did not fully comply with the requirements of Regulatory Guide 1.97. Regulatory Guide 1.97 specifies a Category 2 instrument with a range of 0 psig to 20% above the lowest safety valve setting for this parameter. TMI-1 steam generator pressure instrumentation is Category 1 and has a range of 0-1200 psig, which is approximately 0 psig to 15% above the lowest safety valve setting. This instrument range was not identified as a deviation in the TMI-1 Evaluation of Compliance with Regulatory Guide 1.97 Requirements (GPUN letter 5211-86-2097, dated June 5, 1986).

TMI-1 has an indication of main steam pressure at the turbine as well as at the outlet of the steam generators. These pressure indications are provided in the control room. The steam generator outlet pressures are typically measured over the range from 0-1200 psig. The NRC recommendation is for the range to be 20% above the lowest safety valve setting. Since the lowest safety valve is set at 1040 psig, the range would have to be on the order of 1250 psig to meet the NRC's recommendation. The following discussion is provided to justify that the existing range of 0-1200 psig is sufficient.

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Accident analyses performed for Midland indicate that for both the loss of external load transient and loss of all non-emergency AC power transient, the maximum steam pressure is 180 psi above the initial controlling steam pressure of 885 psig. The resulting steam pressures at the steam generator outlet are typically 20-30 psi higher than at the turbine. This results in a maximum expected steam generator outlet pressure of 1085 to 1095 psig. The loss of electric load transient presented in the TMI-1 FSAR Chapter 14 does not analyze resulting steam pressures. However, the expected response is similar to the Midland FSAR accident analyses described above. The initial controlling steam pressure for TMI-1 is 895 psig at the turbine which results in maximum expected outlet pressures of 1095 to 1105 psig. Normal TMI-1 post-trip steam pressures have been in the range of approximately 1060 psig to 1080 psig.

The main steam lines are provided with safety relief valves, atmospheric dump valves (ADV) and turbine bypass valves (TBV) to prevent overpressurization of the lines, in accordance with ASME Code Section III requirements. Operability of the main steam safety valves ensures that the secondary system pressure will be limited to within code allowable pressure during the most severe anticipated system operating transient. The highest main steam safety valve setpoint is 5% above design. With a 3% accumulation to achieve full lift and full flow, the maximum pressure while the main steam safety valves are relieving will be 8% above the design pressure (1050 psig) which is less than 10% above the design pressure, as specified by the ASME Code. This range is well within the indicated and accurate range for the TMI-1 steam generator pressure instrumentation. TMI-1 valve settings are indicated in the TMI-1 FSAR Section 10.7.4

TMI-1 has approximately 22% excess steam relief capacity when the plant is operating at 100% Full Power and all main steam safety valves are operable (without credit for the ADVs or TBVs). TMI-1 also has a main steam safety valve Technical Specification which limits the maximum allowable reactor power and thus steam flow, based on main steam safety valve operability. This will maintain that excess relief capacity.

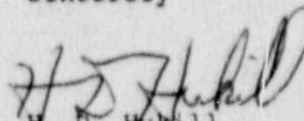
Therefore, based on the fact that the highest safety valve setting is approximately 1092 psig, the steam relief capacity is approximately 22% above the expected steam flow rate, and the most limiting analysis indicates a maximum steam pressure of about 1105 psig, it is concluded that the existing range of 0-1200 psig is sufficient.

In addition, the TMI-1 steam generator pressure instrumentation is Category 1 for TMI-1 and the pressure transmitters (PT-950, 951) are environmentally qualified.

The justification for this deviation from the instrument range requirements of Regulatory Guide 1.97, as described above, is consistent with the B&W Owner's Group Task Force evaluation of Regulatory Guide 1.97 variables as adopted by other B&W plants.

If additional information is needed, please contact us.

Sincerely



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Vice President and Director, TMI-1

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