Consumers Power
POWERING MICHIGAN'S PROGRESS
Palisades Nuclear Plant: 27780 Blue Star Memorial Highway, Covert, MI 49043

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Nuclear Regulatory Commission
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DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT - TECHNICAL SPECIFICATIONS CHANGE REQUEST - OVERPRESSURE PROTECTION - REVISED PAGES.

Enclosed is a revision to our April 15, 1992 proposed Technical Specifications pages which incorporate GL 90-06 requirements, as requested by your October 26, 1992 letter, from Armando Masciantonio to Gerald B. Slade.

The proposed Technical Specifications pages incorporate a 24 hour Allowed Outage Time (AOT) for operation with one PORV flow path inoperable when the Primary Coolant System is in a solid water condition, and a requirement to test cycle each PORV prior to each instance when it is relied upon for LTOP protection (unless tested within the previous 92 days).

The proposed pages do not, however, specify that the PORVs be test cycled in Modes 3 or 4. Such a blanket requirement, as contained in the model Technical Specifications of GL 90-06 and as repeated in your October 26, 1992 letter, would prevent a plant from starting up if the PORVs had been subjected to maintenance while in Cold Shutdown. Such maintenance would require completion of required surveillance testing prior to declaring the PORVs to be operable. Requiring the test cycling to be completed while in Mode 3 or 4 would mean that such testing could not be accomplished without heating up and, of course, such a heatup would be prohibited until the testing had been completed.

Since the GL 90-06 model Technical Specifications' implementation of the Surveillance Requirement is impractical, our proposed pages require that the valves be tested prior to each entry into conditions where the PORVs are required for LTOP, and at least once each 18 months. This would require the valves to be tested in Mode 3 during each cooldown, but would allow a heatup based on a cold test. We believe that this proposed requirement meets the intent of the Generic Letter.

In addition, the proposed pages do not specify a 72 hour AOT for an inoperable PORV when the plant is operating (where the safety analyses take no credit for operation of the PORVs) and a 7 day AOT for an inoperable PORV at low temperature (when the plant is relying on these valves for LTOP). Instead we specify the same AOT, 7 days, for both, more due to a desire for consistent required actions than due to a notion of similar risk impacts.

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In your letter of October 21, 1992, you request that we "discuss how PORV stroke testing provides assurance that the PORVs will perform all necessary safety functions adequately at the required system operating conditions." We provide a very brief discussion of such testing as related to PORVs:

> It is common practice to assume that if a piece of equipment is tested periodically, that degradation and wear will be noticeable prior to the occurrence of total failure and that potential failures due to improper support system alignment or improper maintenance will be detected prior to reliance on the equipment for a safety function. The frequency at which such testing should be performed should be chosen to be sufficient to detect progressive failures, but not so frequent as to degrade the equipment solely due to testing. Such a balance is difficult to determine analytically, and most test frequencies are arbitrary, based on the viewpoint and experience of the person making the determination.
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> Such testing might fail to detect potential failures which are caused by particular operating conditions if the testing is always conducted under other conditions. Therefore it is desirable to conduct as much testing as practical at the conditions under which the safety function will be required. An additional rule for such testing is that the testing must have been completed both within the specified interval, and after any maintenance which could invalidate prior tests, before entering the conditions where the tested equipment is relied upon for its safety function.
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> For example, periodic test cycling of the PORVs should be completed under those conditions when the valves may be required to provide a safety function. Since these valves could be required either when the system was cold or hot, they should be tested, where practical, in both the cold and the hot condition. If, for instance, the valves were always tested when the system was hot, a potential failure, which would cause the valves to malfunction when they were cold, could go undetected. In addition, periodic test cycling should be completed prior to placing reliance on the PORVs if either the test interval has expired, or if maintenance has been performed on the valves since the last test. If the PORVs are test cycled with the system cold prior to reliance upon them during a heatup, and hot prior to reliance upon them during a cool down, potential failures occurring only when cold, or only when hot, are quite likely to be detected.
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> PORV stroke testing, and other periodic testing, does not preclude the possibility of failures, but does provide assurance, above that available without such testing, that will perform all necessary safety functions adequately at the required system operation conditions.

In your letter of October 21, 1992, you also request that we "identify a pressurizer level which provides a level of protection against cold overpressurization comparable to that provided by the nitrogen bubble in B&W facilities."

The 57% level specified for taking credit for a bubble in the pressurizer provides a steam space of approximately 700 cubic feet, out of a total pressurizer volume of 1500 cubic feet, to absorb the additional coolant mass from a pump start or temperature increase. This volume is essentially the same volume as would be available during full power operation. The analysis is based on full power operation where the specified volume is adequate to absorb the increased PCS water volume caused by a turbine trip unaccompanied by a reactor trip (although a reactor trip is assumed to occur soon after the turbine trip due to the PCS pressure increase.) The creation of a pressurizer steam bubble, at Palisades, during heat up and the filling of the pressurizer on cooldown do not coincide, exactly, with Mode changes nor with the entry into the conditions which require LTOP protection. The bubble is created, during heatup after the PCS temperature reaches 350°F, and the pressurizer is filled, during cooldown, after shutdown cooling is placed in service, below 300°F. LTOP is required when the PCS is below 430°F.

Specifying a 24 hour AOT when there is less steam space than required for full power operation and a 7 day AOT when that steam space is available should meet the intent of the generic letter and, while not identical to, is comparable to the protection provided by the B&W nitrogen bubble.

These revisions do not alter the conclusions of the No Significant Hazards analysis contained in our April 15, 1992 letter.

Gerald B Slade
General Manager

CC Administrator, Region III, USNRC
Resident Inspector, Palisades

Attachment