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April 19, 1985

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Director, Office of Nuclear Reactor Regulation
Attention: Mr. J. A. Zwolinski, Chief
Operating Reactors Branch No. 5
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket 50-206
Generic Item B-24, Containment Purging/Venting
During Normal Operations
San Onofre Nuclear Generating Station
Unit 1

Reference: Letter from J. A. Zwolinski, NRC, to K. P. Baskin, SCE,
dated November 2, 1984

In two letters dated March 27, 1984, SCE provided to the NRC information relating to the use of the containment vent system at SONGS 1. Notwithstanding the NRC interim position that containment venting should be limited to an annual time commensurate with safety-related requirements, we provided a rationale for allowing unlimited venting during operation. The reference letter indicated the staff has evaluated this rationale for unlimited venting and maintains their position that venting should be limited, or further justification must be provided that continuous venting is required for plant safety. The staff safety evaluation for containment vent valve operation provides some guidance on the factors that should be included in such justification. The staff recommends that the following areas be addressed in detail:

1. A description of the adverse effects on the safety of the plant due to operation during periods of higher than atmospheric pressure inside containment.

Response: This issue is still under evaluation at this time. A description of the adverse effects on plant safety will be forwarded to you at the completion of our efforts.

2. A quantification of the pressurization rate inside the containment when the 6-inch vent system is closed, and how long it takes to equalize the containment pressure with atmospheric pressure once the vent valves are opened. This can be achieved by cycling the vent system open and closed during normal plant operation.

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Response: Isolating the vent system will result in a steady increase in containment pressure, primarily due to instrument air leakage and bleed-off. Calculations based on experimental data obtained by cycling the vent system open and closed during normal plant operations indicate that when isolating the vent system at its normal operating pressure of about -0.04 psig, containment pressure will increase to the Technical Specification Limit of 0.4 psig in approximately 14 hours. The vent system would then have to be opened for a 1-2 hour period to relieve the accumulated pressure. Assuming a 2 hour period for pressure reduction, on an annual basis, approximately 1100 hours of purging would be required to prevent exceeding the Technical Specification limit for containment pressure.

If the containment is taken to the lowest pressure obtainable, a vacuum of -0.3 psig, containment pressure will increase to atmospheric pressure in approximately 11 hours. This would require approximately 1350 hours of purging annually assuming a 2 hour period is required for pressure reduction.

If the containment pressure is allowed to rise to the Technical Specification Limit of 0.4 psig from the most negative pressure obtainable of -0.3 psig, purging would be required after approximately 25 hours. This would require approximately 650 hours of purging annually assuming a 2 hour period is required for pressure reduction.

3. An identification of the sources of air leakage into containment and the costs associated with eliminating these sources.

Response: Six penetrations have been identified which provide a pneumatic pressure source to containment:

1. Instrument Air
2. Service Air
3. Nitrogen to RCS Drain Tank
4. Nitrogen to PORV's
5. Nitrogen to Test Header
6. Hydrogen Monitor Calibration Gas (Nitrogen)

Of these, Items 2, 5 and 6 are secured during plant operation. Items 3 and 4 are required for plant operation, but are expected to have minimal leakage.

Item 1 supplies pneumatically actuated valves that relieve to local atmosphere inside containment. As stated in response to Item 2, the increase in containment pressure is due primarily to instrument air leakage and bleedoff. The normal flow into containment from this line is approximately 20 to 30 SCFM. The cost associated with modifying the valves inside containment to eliminate or decrease instrument air leakage and bleedoff is currently being developed. These cost estimates will be provided to you when they are completed.

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4. A detailed description of the effects frequent cycling of the vent valves would have on the safety function of these valves and the possible increase in maintenance costs.

Response: The primary safety concern associated with frequent cycling of the vent valves is the unnecessary degradation of performance and reliability of the valve seating surface. This type of degradation will increase the possibility of inadequate valve seating when the valves are required to isolate. Thus, excessive leakage may occur during periodic leak testing which will increase the possibility of otherwise unnecessary plant shutdown. Under the worst circumstances, inadequate valve seating prior to a LOCA may result in radioactive releases in excess of 10 CFR 100 limits. A study of the effects of frequent cycling of the vent valves is being conducted. The results of this study will provide more detail of these effects and include estimates of the possible increase in maintenance costs. This information will be provided to you upon completion of the study.

Frequent cycling of the containment vent valves imposes several unnecessary burdens on plant operation. As mentioned earlier, cycling of the vent valves would occur on a daily basis. In addition to the resultant degradation of the valve seating surface discussed in response to Item 4, frequent cycling imposes a need for operator awareness and actions for initiating, terminating, and maintaining vent operations. Further, the administration of the associated documentation adds to the already heavy burden placed on plant operators and takes their attention away from the normal plant operational requirements. Based on these considerations, limiting the use of the vent system imposes only adverse effects on plant operation. In support of this position, the additional information discussed in response to the above items will be completed and forwarded to you by July 31, 1985.

If you have any questions or require additional information, please let me know.

Very truly yours,

M. O. Meedy