

PALISADES
IPSAR SECTION 4.28
VENTILATION SYSTEMS

I. INTRODUCTION

In the Integrated Plant Safety Assessment Report for Palisades (NUREG-0820, Section 4.28), the staff identified a concern related to a loss of ventilation event for several areas housing safety related equipment. By letter dated November 1, 1982 (Reference 3), the licensee, Consumers Power Company (CPCo), provided an assessment of the outstanding issues from the topic evaluation. These items are discussed below.

II. EVALUATION

A. Ventilation of Auxiliary Feedwater Pump Room (4.28.1)

Ventilation air is normally supplied to the Auxiliary Feed Pump Room by Unit 9 of the Turbine Area Ventilation System and exhausted back to the main turbine building space via an exhaust duct located in the ceiling of the Auxiliary Feed Pump Room. A duct failure or loss of normal station power would result in the loss of ventilation of this room. Such an event could potentially cause the failure of both auxiliary feedwater pumps to perform as required due to over thermal conditions. The licensee committed to demonstrate, by either test or analysis, the operability of the auxiliary feedwater pumps with loss of ventilation concurrent with the need for auxiliary feedwater pump operation.

In a letter dated November 1, 1982 (Reference 3), the licensee submitted the results of its evaluation which concluded that the maximum temperature that could be expected in this room as a result of a loss of ventilation would be 160°F. This temperature condition will be included in the licensee's ongoing evaluation of the environmental qualification of electrical equipment, as it applies to the auxiliary feedwater pumps.

Based on the above information, the staff considers this issue completed for the purpose and objective of the SEP. The qualification of this equipment will be resolved together with other electrical equipment in accordance with 10 CFR 50.49.

B. Ventilation of Cable-Spreading, Switchgear and Battery Room (4.28.2)

The cable-spreading, switchgear and battery rooms are considered essential because they house the reactor protection and control system, the instrumentation for shutdown and cooldown, the emergency power (ac and dc), and control power for safe shutdown systems, all of which are important to plant safety. However, the ventilation system which services these areas is neither safety grade nor is it

supplied by emergency power. The licensee committed to demonstrate that the equipment serviced in these areas would not be adversely affected by lack of ventilation during loss of offsite power and/or a safe shutdown earthquake or provide any necessary system modifications.

To resolve this issue, the licensee tested the effects of loss of ventilation event for each of these areas, with the exception of the battery room. The redundant battery room exhaust fans were recently connected to separate safety-related motor control centers and, therefore, at least one fan would be operational on loss of offsite power.

The following represents the results of the licensee's tests and the staff's evaluation.

- . The two switchgear rooms 1C and 1D can withstand a loss of ventilation for long periods of time without a significant increase in temperature, because there are no appreciable heat sources located within these rooms. Based on this information, the staff considers this issue resolved.
- . The cable-spreading room can withstand a loss of ventilation for up to six hours, before exceeding the upper design limit of 104°F. In addition, high room temperature is annunciated in the control room. The operator is instructed by procedure to start fan V-47 when the high room temperature alarms. Fan V-47 is capable of being connected to emergency power sources. Based on this information, the staff considers this issue resolved.
- . The inverter cabinets, charger cabinets and auxiliary feedwater junction boxes J-569 and J-570 require forced air cooling even during periods of normal room ventilation as well as during periods when ventilation is not available. To correct this situation, the licensee has committed to add fans for this equipment to ensure adequate ventilation for an event causing a loss of room ventilation. The staff finds this commitment acceptable and considers the issue resolved.

III. CONCLUSION

Based on the results of the licensee's loss-of-ventilation tests and proposed modifications described above, the staff considers the issues identified in Section 4.28 of the Palisades IPSAR resolved.

IV. REFERENCES

1. Letter to D. Hoffman (CPCo) from T. Wambach (NRC), Subject: Draft Evaluation Report of SEP Topic IX-5, Ventilation Systems for Palisades Plant.

2. Integrated Plant Safety Assessment Report - Palisades Plant, NUREG-0820, dated October 1982.
3. Letter to D. M. Crutchfield (NRC) from K. Toner (CPCo), Subject: Palisades Plant HVAC SEP Topic IX-5, Ventilation Systems Submittal of Test Results, dated November 1, 1982.