

ELECTRICAL POWER SYSTEMS

BASES

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Bypassing motor operated valves thermal overload protection ensures that the thermal overload protection will not prevent safety related valves from performing their function. For motor operated valves with spring return-to-center control switches, the thermal overload is bypassed by the automatic control signals associated with the Class 1E valves. For Class 1E motor operated valves with maintained contact control switches, the thermal overloads do not interrupt the valve motor power circuit, but they alarm on an overload condition in the control room. The Surveillance Requirements for demonstrating the bypassing of the thermal overload protection continuously are met by functionally testing the automatic operation of the motor operated valve and ensuring that the motor thermal overload protection design does not change and is in accordance with Regulatory Guide 1.106 "Thermal Overload Protection for Electric Motors on Motor Operated Valves", Revision 1, March 1977.

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ELECTRICAL POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

The parameters in Table 4.8.2.1-1 are based on the manufacturer's recommendation. These parameters assure the OPERABILITY and capability of the battery to perform its design function.

The Category A and B limits are specified for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. Parameters within the Category A and B limits are characteristic of a fully charged cell. The limits for the float voltage and specific gravity for each connected cell and the average specific gravity of all of the connected cells ensures the OPERABILITY and capability of the battery.

The Category B allowable value for electrolyte level provides assurance that the plates are covered and adequate electron transfer will occur between the plates. The allowable value for cell voltage provides assurance that the cell is not discharged and the battery is capable of performing its design function. The allowable value for specific gravity for an individual cell provides assurance that the overall capability of the battery will be maintained within acceptable limits. The allowable value for the average specific gravity of all the cells ensures that the decrease in rating will be less than the safety margin provided in the battery sizing.

With parameters of one or more cells, in one or more batteries, not within limits (i.e., Category A limits not met or Category B limits not met, or Category A and B limits not met) but within the Category B allowable value specified in Table 4.8.2.1-1, operation is permitted for seven (7) days. Verification that the Category B allowable values are met, provides assurance that during the time needed to restore the parameters to the Category A and B limits, the battery is still capable of performing its' intended function. For indication outside Category A, a period of 24 hours is allowed to complete the requirement because specific gravity measurements must be taken for each connected cell. The specific gravity Category A limit and the Category B allowable value for each connected cell and the average of all connected cells is modified by Note 6. This note allows the use of charging current to verify the battery's state of charge. Charging current stability at a low rate is an indication that the battery is fully charged. This method provides a reliable measure of the battery's state of charge.

Continued operation is only permitted for seven (7) days before the battery cell parameters must be restored to within Category A and B limits. Taking into consideration that, while battery capacity may be degraded, sufficient capacity exists, based on meeting the Category B allowable values, to perform the intended function and to allow time to restore the battery cell to its normal limits. When any battery parameter for each connected cell is outside the Category B allowable value, sufficient capacity to supply the maximum load requirement is not assured and the corresponding dc electrical power subsystem (i.e., battery) must be declared inoperable.

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