

COMMENTS ON DRAFT REGULATORY GUIDE DG-1077
SUBMITTED BY ENGINEERING, PLANNING & MANAGEMENT INC.

The following is being submitted by EPM, Inc. in response to NRC solicitation for public comment:

1. Reference DG-1077, Page 5 - Guidance related to the location categories is not clear:

- 66FR51479
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(6)
- a.) Please confirm that the Category Location assigned to a component is based on the environmental parameter having the harshest conditions where Category A is the most severe and Category C is the least severe. For example, if the equipment in a location where radiation meets Category C conditions, temperature meets Category A conditions and humidity meets Category B conditions, the assumption is that Category A is assigned.
- b.) Is it intended that a single Category Location be assigned to any plant environmental zone containing microprocessor equipment? In most cases, the Category Location definition is solely based on environmental conditions that can be associated with a specific environmental zone in the plant. However, in the case of temperature as applied to Category B Locations, one of the two conditions (i.e. accident service environment does not exceed 90% of the manufacturer's maximum rated operating temperature) is dependent upon the rating of the equipment. As a result, application of the Category Location becomes at least partially dependent upon equipment design. Therefore, various equipment / microprocessors with different maximum operating temperatures in the same environmental zone could have different Category Locations with respect to temperature.
- c.) Where an environmental parameter (i.e., temperature or humidity) has been defined by **more than a single condition**, such as normal versus accident environment as described in Category B & C, it is uncertain which category should be selected when **only one** of the conditions is satisfied. Typically, the draft guide has indicated that both conditions must be satisfied (i.e., use of the word AND), however, it does not provide guidance for those instances where only one of the conditions is satisfied. For example, the conditions identified for temperature associated with Category B Locations identifies (1) a normal service environment not exceeding 38°C (100°F) **and** (2) an accident service environment not exceeding 90% of the manufacturer's maximum rated operating temperature. If the plant's normal operating temperature was below 38°C, however, the maximum accident temperature exceeded 90% of the manufacturer's maximum rated operating temperature, which of the location categories is applicable? It is obvious that the

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conditions do not meet the Category B location definition, however, it is not clear whether the draft guide considers this a Category A location.

- d.) In the case of humidity, the conditions defined for both Category B and Category C Locations are identical. What criteria should be used to determine which Category is appropriate?
2. Reference Item 2 under section "C. Regulatory Position", Page 6 describing the position on EMI/RFI susceptibility:

IEEE Standard C37.90.1-1989 "Surge Withstand Capability Tests for Protective Relays and Relay Systems" contains specific guidance on performance of EMI type testing including systems containing microprocessors. Does NRC consider the test process identified in this standard to be acceptable as part of qualification testing?

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