Mitigating Strategies ISG & NEI 12-06 Review

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May 15, 2012

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SFP Strategies

NEI 12-06 refers back to the NEI 06-12 strategies implicitly in the makeup portion and explicitly in the spray portion. It should be noted that Fire Protection Ring Headers may not be credited for these strategies or elsewhere unless they meet the NEI 12-06 Appendix A definition of “robust.”

SFP Makeup

With respect to SFP makeup strategy flow rates, all operating licensees have established and NRC has approved and verified by inspection such strategies using hoses on the pool deck/floor capable of providing a minimum flow rate of 500 gpm. This minimum flow rate should be carried forward to NEI 12-06 for consistency.

Different flow rates may be appropriate for the SFP makeup via connection to the SFP cooling piping.

SFP Spray

With respect to SFP spray strategy flow rates, the phrase “minimum 200 gpm consistent with NEI 06-12” should be understood to include “per unit” for shared SFPs and the allowance to either demonstrate the capability to deliver that flow rate to the pool or 250 gpm per unit to the spray nozzle to provide an allowance for overspray.

Flood Protection

The Section 6.2.3.1 provision for site flood analysis should include an evaluation of flood analyses for adjacent licensed sites, early site permits and/or combined license applications. For example, Hope Creek Generating Station should consider analyses for Salem Nuclear Generating Station.

Equipment Quality Attributes

In order to avoid creation of a new grade of quality assurance standards and encourage reliance on existing consensus standards, the following wording is proposed:

Licensees must maintain a program that provides assurance that the equipment used to meet the requirements of Order EA-12-049 and not already covered by existing Quality Assurance requirements in Appendix B or R of 10 CFR Part 50 is tested, maintained and operated so that they will function as intended. This equipment must be implemented so that it does not degrade the existing safety-related systems. This accomplished by making the non-safety equipment as independent as practicable from existing safety-related systems.

Equipment Quality Attributes, cont.

Licensees shall control those commercial items that are commonly procured for use in fire protection, such as fire hoses, spray nozzles, fire pumper trucks, and temporary fire pumps, using the fire protection QA program. Quality of the equipment being maintained shall be understood to be with respect to the associated strategies, rather than with respect to fire protection, as would literally be required by Regulatory Guide 1.189, “Fire Protection for Nuclear Power Plants,” Revision 2, Section C.4 of Branch Technical Position (BTP) CMEB 9.5-1, Revision 2, in the review and acceptance of approved Fire Protection Plans for plants licensed after January 1, 1979, or BTP APCSB 9.5-1, its Appendix A, and Generic Letter 77-02 for plants licensed before January 1, 1979.

Equipment Quality Attributes, cont.

Licensees may include other equipment used to meet the requirements of Order EA-12-049 in the Appendix B or fire protection QA programs or in a separate program implementing activities similar to those of Regulatory Guide 1.155, “Station Blackout,” Appendix A, “Quality Assurance Guidance for Non-safety Systems and Equipment,” as appropriate.

Cooperative Research Program: Battery Coping Capability and Extended SBO Events

On 4/4/2012 an addendum to the Memorandum of Understanding was executed between the NRC's Office of Nuclear Regulatory Research, the Electric Power Research Institute, and the Department of Energy to participate in the extended battery operation study.

This study will evaluate a typical commercial nuclear power plant batteries' response to SBO events outside the scope of the current SBO rule (i.e., extended SBO events).

Brookhaven National Lab will test batteries to the modified SBO profiles to demonstrate the capability of station batteries for an extended duration (i.e., beyond 4 hours).

Cooperative Research Program: Battery Coping Capability and Extended SBO Events

Looking for industry assistance in obtaining realistic extended SBO profiles.

Develop and provide guidance to extend battery performance during a prolonged SBO event.

Gain an improved understanding of station battery performance under select extended SBO load profiles and publish results via a NUREG/CR.

Flooding Level

NEI 12-06 Section F.6 states:

The first step is to assess whether a site has a large margin between the AP1000 design basis flooding level (100' elevation) and the site specific design basis flooding level. If there is a margin of [5 feet] or more (large margin) then consideration of a beyond design basis flooding event is not required.

The staff will like to get clarification on the technical basis for the flooding level margin of 5 feet.

Mitigation Strategy / Electrical Connections

NEI 12-06 Section 2.1 states:

While initial approaches to FLEX strategies will take no credit for installed ac power supplies, longer term strategies may be developed to prolong Phase 1 coping strategies that will allow greater reliance on permanently installed, bunkered or hardened ac power supplies that are adequately protected from external events.

The staff would like to get clarification on the implementation of a FLEX approach that allows for portable equipment to be used as part of the mitigating strategy.

Adequate Protection

NEI 12-06 Table 1-2 states:

The design bases of AP1000 COL includes passive design features that provide core, containment and SFP cooling capability for 72 hours, without reliance on alternating current (ac) power.

The AP1000 design also includes equipment to maintain required safety functions in the long term (beyond 72 hours to 7 days)…

Staff would like clarification on the level of protection for the vital chargers and inverters.