PMVogtleCOLPEm Resource

From: Simms, Tanya
Sent: Friday, March 19, 2010 9:17 AM
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Cc: PMVogtleCOLPEm Resource; Joshi, Ravindra
Subject: Draft RAI 4525 Related SRP Section 8.2 for Vogtle Units 3 and 4
Attachments: RAI 4525 draft.pdf

To All,

Attached is Draft RAI 4525 related to SRP Section 8.2 for Vogtle Units 3 and 4. Please contact me if you desire a phone conference regarding this RAI. If no response is heard by close of business March 23, 2010, the final RAI will be issued.

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Request for Additional Information No. 4525 Revision 0
Southern Nuclear Operating Co.
Docket No. 52-0025 and 52-0026
SRP Section: 08.02 - Offsite Power System
Application Section: 08.02

QUESTION from Electrical Engineering Branch (EEB)

08.02-***

RAI-SRP 08.02-14

Describe the inspection, testing and monitoring program to detect degradation of inaccessible or underground control and power cables that support equipment and other systems that are within the scope of 10 CFR 50.65. The description should include the frequency of testing and inspection. Guidance on the selection of electric cable condition monitoring can be found in Sections 3 and 4.5 of NUREG/CR-7000.

The design criteria for nuclear plant systems, structures, and components, which include electric power cables and instrumentation and controls cables, are given in Appendix A to 10 CFR 50. More specifically, as related to the safety functions of electric cables, 10 CFR 50, Appendix A, General Design Criterion 4, "Environmental and Dynamic Effects Design bases," states that "structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation." 10 CFR 50.65 (a)(1) states that, "Each holder of a license to operate a nuclear plant …shall monitor the performance or condition of structures, systems, or components…in a manner sufficient to provide reasonable assurance that such structures , systems, and components…are capable of fulfilling their intended functions." Standard Review Plan Section 8.2III.L, states, "Operating experience has shown that undetected degradation of underground …could result in multiple equipment failures. Underground or inaccessible power and control cable runs that are susceptible to protracted exposure to wetted environments or submergence … should be reviewed. Additionally, Generic Letter 2007-01, "Inaccessible or Underground Power Cable Failures That Disable Accident Mitigation Systems or Cause Plant Transients," identifies instances where cable insulation degradation due to continuous wetting or submergence could affect multiple underground cable circuits at a plant site.

Cables failures have a variety of causes: manufacturing defects, damaged cause by shipping and installation and exposure to electrical transients or abnormal environmental conditions during operation. Electrical cables in nuclear power plants are usually located in dry environment, but some cables are exposed to wetted environments or submergence in inaccessible locations such as buried conduits, cable trenches, cable troughs, underground duct banks, underground vaults, and direct buried installations.

Other Design Centers such as ESBWR (8.3.3.2), and EPR (Table 1.8-2, item 8.3-2) have identified cable monitoring as Combine Operating License (COL) action item for COL applicants to describe their inspection, testing and monitoring program to detect the degradation of inaccessible or underground cables that support diesel generators, offsite power, essential service water system that are within the scope of 10 CFR 50.65.