## NRR-PMDAPEm Resource

**From:** Brown, Timothy D [Timothy.Brown@duke-energy.com]
**Sent:** Tuesday, April 29, 2014 4:27 PM
**To:** Hall, Randy; Guzman, Richard
**Cc:** Baxter, David A
**Subject:** PSW Commitments

To all:

Some of your electrical technical reviewers questioned whether the commitments listed in our 7/11/2012 RAI response had been completed. Below is our response to that question:

1. Establish program to implement periodic condition inspection of the cable trenches, duct banks, manholes, and drainage systems associated with the Keowee to PSW building underground paths.

   Response: Model Work order 2103098 was created for the periodic inspections per Maintenance Procedure MP/0/B/2002/002, "Protected Service Water (PSW) Underground Cable Duct Bank – Drainage System Inspection." Due date for the first inspection is 10/01/14. Note that the Keowee Underground Trench is currently inspected by MP/0/B/2002/001, "Inspection of the Keowee Underground Cable Trench Drainage System." This completes the commitment.

2. Include the Keowee to PSW underground path cables in the Oconee Cable Aging Management Program.

   Response: The Oconee Nuclear Station Insulated Cables and Aging Management Program has been revised to include the PSW cables in the scope of cables to be inspected every ten years, similar to other existing inaccessible medium voltage cables present in the plant (per License Renewal). This completes the commitment.

3. Resolve the two (2) FMEA-related deficiencies associated with the designs of the 4kV SSF and 13.8 kV Keowee distribution feeder circuits.

   Response: The SSF identified potential failure was associated with the unintentional, simultaneous powering of the OTS1 switchgear from both the PSW and SSF 4kV power sources following a spurious closure of breaker OTS1-0 with OTS1 aligned to the SSF or spurious closure of breaker OTS1-1 or OTS1-4 with OTS1 aligned to the PSW source. To prevent this, design changes were made.
   Interlocked auxiliary contacts from breaker OTS1-0 were installed to prevent breakers OTS1-1 and OTS1-4 from closing while OTS1-0 is closed and vice versa. This completes the commitment.

   The Keowee identified potential failure was associated with the unintentional, simultaneous closing of the KPF-9 and KPF-10 breakers at Keowee, resulting in paralleling of the output from the Keowee Units 1 and 2. To prevent this, design changes were made. The breakers KPF-9 and KPF-10 are electrically interlocked so that only one breaker feeds power to PSW switchgear B6T or B7T. The breaker control circuitry was modified such that the breaker close charging springs are maintained discharged until the breaker is commanded to close. Since the closing coil springs are not charged the breaker will not close due to mechanical failure. This completes the commitment.

Should there be any additional questions on these commitments, please let me know.

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