

From: Robert Clark
To: Mark Flaherty
Date: 12/10/01 4:12PM
Subject: CREATS Instrumentation

Mark:

Following are questions the staff would like to discuss with Ginna regarding the proposed design changes for the CREATS actuation instrumentation. These questions are only transmitted to you to facilitate a future conference call. These questions do not at this time communicate an official NRC position nor do they constitute a formal request for additional information. We will discuss disposition (edit, delete etc.) of these questions during the conference call.

1. The licensee's submittal dated October 29, 2001, page 1, Section 1 Cable Separation/Isolation/Power Train Separation. A sentence which reads, "Separation of trains of internal wiring and devices in these cabinets (RMS2 and Auxiliary Benchboard) will be maintained to the extent practicable," leads to a conclusion that at few places, separation between trains could not be maintained. If this is true, please justify how this is acceptable without compromising safety.
2. The licensee's submittal does not address EMI/RFI qualification of the proposed design change. Please confirm that CREATS hardware will not be susceptible to Electromagnetic Interference (EMI)/ Radio Frequency Interference (RFI), will not become a source for conducted and/or radiated EMI/RFI for other safety circuits of the plant, and the EMI/RFI specifications of CREATS envelope the limits defined in EPRI Report TR-102323.
3. Please confirm that once the CREATS is placed in emergency radiation protection mode, return to normal operation shall require subsequent deliberate operator action. Also, please explain the consequences of spurious actuation of the system and its impact on plant safety systems.
4. Unless your in-house setpoint calculation methodology for safety-related instrumentation was previously reviewed and approved by the staff, please confirm that your Procedures EP-3-S-0505, "Instrument Setpoint/Loop Accuracy Calculation Methodology," and CH-RETS-RMS, "RMS Monitor Setpoint Determination," are based on the staff approved Industry standards.
5. The staff believes that a portion of the instrument loop consisting; sensor, Rad. Monitor, and Actuation Logic may have digital circuits and these circuits may have embedded software or firmware that is built and programmed for the dedicated task(s). If this is true, then please confirm that the embedded software is fully testable and meets the required quality. If it does not, then please confirm that the process for an appropriate verification and validation (V&V) was established and performed in accordance with the requirements of IEEE 7-4.3.2 and RG 1.152.

If these devices contain embedded software in electrically erasable programable read only memory (EEPROM), please confirm that the plant has procedures in place to maintain software configuration control.

6. From the submittals it was not evident to the staff, if the licensee has performed failure modes and effects analysis (FMEA) for the new Class 1E CREADS. Please explain how CREADS is protected from a potential common cause failure which could cause both radiation-loops to fail in a non-conservative direction (fail-low).

CC: Shashikant Athavale

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