

From: Timothy Johnson
To: INTERNET:dggreen01@mchsi.com
Date: 10/18/04 3:01PM
Subject: I&C Telecon information

The following are some preliminary notes from the I&C reviewer that should help our telecon tomorrow:

Some data useful to completing the DSER would be:

- 1) more detailed information on IROFS that will help me establish technical basis for acceptance (in combination with commitments);
- 2) example calculations showing conservative setpoints (and conforming to RG 1.105, as already committed by LES);
- 3) for a couple of IROFS (e.g., IROFS9), more information verifying that failures of non-IROFS components will not prevent safety function (there appears to be shared actuator between IROFS and non-IROFS control system);
- 4) for administrative IROFS relying on monitoring instrumentation, boundaries need to be clarified/verified; DP-ISA-1.1 commitments may suffice, but there could be some implementation-specific issues.

For item 1, if LES could provide me manufacturer ID, that will help me find information which I can use in the physical descriptions of the IROFS. For example, what kind of load cells are they using? This information will improve quality of the SER, but I don't think it is critical to completing the evaluation.

For item 2, I don't think I need every calculation for all IROFS, but rather representative examples - they have committed to RG 1.105 for setpoint calculations, so I need to verify they are conforming to standard/RG and are conservative as asserted in SAR.

For item 3, descriptions of some of the IROFS indicate that the safety and non-safety functions share actuators. Though LES commits to separation and isolation per IEEE 279-1971, the descriptions seem to indicate design to the contrary.

For item 4, though none of the IROFS rely on software as currently designed, some administrative controls rely on monitoring instrumentation. DP-ISA-1.1 defines the procedure for defining IROFS boundaries and I want to verify the monitoring instrumentation is accounted for appropriately. Also, want to verify that communications between IROFS and the plant control system (as shown in Figure ISA-20a) is not dependent on either software or digital communication protocol, such as Ethernet. (Note that item 4 is related to item 1, because the administrative IROFS are dependent upon load cells.)

As far as other commitments by LES I would like to have, they mostly relate to applicable portions of reactor standards. The important thing to note is that LES has already committed in principle to good engineering practices, but in some cases they do not specify objective criteria. If LES commits to the following fourteen standards and regulatory guides, then LES would be conforming to widely used and accepted I&C-related consensus standards:

- 1) IEEE Std 603-1998, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations."
- 2) IEEE Std 379-1994, "IEEE Standard Application of the Single Failure Criterion to Nuclear Power Generation Station Safety Systems."
- 3) IEEE Std 384-1992, "Standard Criteria for Independence of Class 1E Equipment and Circuits."
- 4) NUREG-800, Standard Review Plan, Branch Technical Position HICB-11, "Guidance on the Application and Qualification of Isolation Devices."
- 5) Regulatory Guide 1.75, Revision 2, "Physical Independence of Electric Systems."
- 6) IEEE Std 344-1987, "IEEE Recommended Practices for Seismic Qualification of Class 1E

Equipment for Nuclear Generating Stations."

7) Regulatory Guide 1.100, Revision 2, "Seismic Qualification of Electric and Mechanical Equipment for Nuclear Power Plants."

8) ANSI/ISA-67.04.01-2000, "Setpoints for Nuclear Safety-Related Instrumentation." (LES has committed to Regulatory Guide 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation.")

9) Regulatory Guide 3.17-1974, "Earthquake Instrumentation for Fuel Reprocessing Plants." (For the seismic monitoring and trip system)

10) IEEE Std 338-1987, "IEEE Standard Criteria for Periodic Testing of Nuclear Power Generating Station Class 1E Power and Protection Systems."

11) NUREG-0800, Standard Review Plan, Branch Technical Position HICB-17, "Guidance on Self-Test and Surveillance Test Provisions."

12) Regulatory Guide 1.118, Revision 3, "Periodic Testing of Electric Power and Protection Systems."

13) IEEE Std 518-1982, "IEEE Guide for the Installation of Electrical Equipment to Minimize Electrical Noise Inputs to Controllers from External Sources."

14) IEEE Std 1050-1996, "Guide for Instrumentation and Control Equipment Grounding in Generating Stations." (LES has committed to Regulatory Guide 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems.")

CC: BWS1; Frederick Burrows; Roman Shaffer

Mail Envelope Properties (41741323.901 : 12 : 20684)

Subject: I&C Telecon information
Creation Date: 10/18/04 3:01PM
From: Timothy Johnson

Created By: TCJ@nrc.gov

Recipients

mchsi.com

dggreen01 (INTERNET:dggreen01@mchsi.com)

nrc.gov

twf4_po.TWFN_DO

BWS1 CC (BWS1)

FHB CC (Frederick Burrows)

nrc.gov

twf5_po.TWFN_DO

RAS3 CC (Roman Shaffer)

Post Office

mchsi.com

twf4_po.TWFN_DO

twf5_po.TWFN_DO

Route

INTERNET

nrc.gov

nrc.gov

Files

MESSAGE

Size

6130

Date & Time

10/18/04 03:00PM

Options

Expiration Date:

None

Priority:

Standard

Reply Requested:

No

Return Notification:

None

Concealed Subject:

No

Security:

Standard