



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

June 9, 2010

LICENSEE: Entergy Operations, Inc.

FACILITY: Grand Gulf Nuclear Station, Unit 1

SUBJECT: SUMMARY OF MEETING ON MAY 25, 2010, TO DISCUSS THE LICENSEE'S RESPONSE TO THE NRC STAFF'S REQUEST FOR ADDITIONAL INFORMATION DATED MAY 4, 2010, REGARDING INSTALLATION OF A DIGITAL POWER RANGE NEUTRON MONITORING SYSTEM (TAC NO. ME2531)

On May 25, 2010, members of the U.S. Nuclear Regulatory Commission (NRC) staff met with representatives from Entergy Operations, Inc. (Entergy, the licensee), at NRC Headquarters, Two White Flint North, 11545 Rockville Pike, Rockville, MD. The licensee was accompanied by representatives from its contractor, General Electric - Hitachi Nuclear Energy (GEH). The meeting was a Category 1 public meeting; however, no members of the public attended. Portions of the meeting were closed due to the proprietary nature of the information that was discussed.

The meeting was requested by the licensee to discuss its proposed responses to the NRC staff's request for additional information (RAI) dated May 4, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML101190125). The RAI was issued as part of the staff's review of the licensee's application dated November 3, 2009 (ADAMS Accession No. ML093140430), which requested staff approval of an amendment to the Grand Gulf Nuclear Station, Unit 1 technical specifications to reflect installation of the digital GEH Nuclear Measurement Analysis and Control Power Range Neutron Monitoring (NUMAC PRNM) System.

The licensee presented its understanding of the RAI and its proposed approach to responding to each of the questions.

The NRC staff provided comments for consideration by the licensee in the preparation of its RAI response, including the following:

- For RAI No. 2, the staff noted that system upgrades are reviewed using the guidance of the Standard Review Plan (SRP, or NUREG-0800). The staff expects the response will address changes that have occurred to the platform since the staff's approval of the NUMAC PRNM system topical report and supplement.
- For RAI No. 5, the licensee should provide the information in its response or provide the schedule to submit the information. As much as possible, the PRNM system application should be unlinked from the planned extended power uprate application.

- For RAI No. 8, the licensee should provide the schedule to submit the information.
- For RAI No. 3, the staff expects that the licensee will provide a diversity and defense-in-depth (D-3) analysis to demonstrate that the plant remains within its design basis for a common-cause failure of the PRNM system. Additionally, the D-3 analysis should include sources of “programmable device” common-cause failures, including the tools and teams used to develop, synthesize, validate, and verify the resultant programmable logic.
- For RAI No. 7, the question is limited to changes made to the operator front and back panel screens as a result of the PRNM upgrade. If not yet available, the licensee should provide the schedule to submit the information.
- For RAI No. 9, the staff expects a description in the response describing the planned administrative controls and a proposed regulatory commitment or license condition that the controls will be in place before the PRNM system upgrade is implemented.
- The staff notes that RAI Nos. 1 and 6 were written specifically to address “programmable devices” rather than “software,” so that not just the most common/conventional microprocessor-executable software program would be addressed. Therefore, the licensee’s response to RAI No. 1 should address the voter/coincidence programmable logic, as well as all other platform programmable logic that has been modified, and the processes/procedures that govern these modifications. Similarly, the response to RAI No. 6 should address any application-specific programmable logic and the processes/procedures that govern these modifications.
- The scope of RAI Nos. 1 and 2 was subsequently discussed during a telephone call between the meeting participants on June 1, 2010. As a general comment, the NRC staff notes that SRP Appendix 7.0-A, “Review Process for Digital Instrumentation and Control Systems,” provides an overview of the process for reviewing digital instrumentation and control (I&C) systems. Appendix 7.0-A refers to SRP Appendix 7.1-D, “Guidance for Evaluation of the Application of IEEE Std 7-4.3.2,” for guidance on the use of IEEE Std 7-4.3.2-2003, as endorsed by Regulatory Guide 1.152, Revision 2. SRP Appendix 7.1-D states, “The scope of IEEE Std 7-4.3.2-2003 and Regulatory Guide 1,152, Revision 2 includes all safety instrumentation and control (I&C) systems that are computer-based. IEEE Std 7-4.3.2-2003 serves to amplify criteria in IEEE Std 603-1991 to address the use of computers as part of safety systems in nuclear power generating stations, systems covered by Sections 7.2 through 7.6 of the plant safety analysis report (SAR).” SRP Appendix 7.1-D also states, “The criteria contained in IEEE Std 7-4.3.2-2003, in conjunction with requirements in IEEE Std 603-1991, establish minimum functional and design criteria for computers used as components of a safety system.” Since there is no established relationship between IEEE Std 279-1971 and IEEE Std 7-4.3.2-2003, any new digital I&C systems or upgraded digital systems will be reviewed against IEEE Std 603-

1991. A plant licensed to requirements that predated IEEE Std 603-1991 may not be able to meet all the requirements of IEEE Std 603-1991. In that case, the licensee should document and justify each deviation from the requirements of IEEE Std 603-1991.

No regulatory decisions were made at the meeting. The meeting agenda was provided with the meeting notice dated May 12, 2010 (ADAMS Accession No. ML101300509). The licensee's presentation slides have been placed in ADAMS (ADAMS Accession No. ML101470388, proprietary version; ML101470385, public version). A list of attendees is enclosed.



for

Carl F. Lyon, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosure:  
Attendance List

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ATTENDANCE LIST

NRC MEETING WITH ENTERGY OPERATIONS, INC.

PROPOSED REQUEST FOR ADDITIONAL INFORMATION RESPONSE

GRAND GULF NUCLEAR STATION, UNIT 1

MAY 25, 2010

G. Davant, Entergy	F. Lyon, NRR
J. Langberg, Entergy	W. Kemper, NRR
T. Thornton, Entergy	B. Marcus, NRR
J. Brown, Entergy	B. Dittman, NRR
E. Cooper, GEH	
S. Rudy, GEH	
E. Mino, GEH	
S. Fitzsimmons, GEH	
T. Rogers, GEH	
E. Schmidt, GEH	
R. Miller, GEH	
A. Poulos, GEH	

Enclosure

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/RA by Kaly Kalyanam for/  
Carl F. Lyon, Project Manager  
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**ADAMS Accession Nos. Mtg. Notice ML101300509, Mtg. Summary ML101520269 Licensee Slides ML101470388** \*via email

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	DE/EICB/BC	NRR/LP4/BC	NRR/LPL4/PM
NAME	FLyon	JBurkhardt *	WKemper	MMarkley	FLyon KKalyanam for
DATE	6/4/10	6/4/10	6/8/10	6/9/10	6/9/10

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