



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

August 11, 2009

Mr. Charles Pardee
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 - REQUEST FOR
ADDITIONAL INFORMATION REGARDING CONTROL ROD DRIVE CONTROL
SYSTEM REPLACEMENT LICENSE AMENDMENT (TAC NO. MD9762)

Dear Mr. Pardee:

By letter dated September 29, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082800174), AmerGen Energy Company, LLC. (the licensee, now Exelon Generation Company, LLC) submitted a license amendment request regarding proposed changes to the technical specifications to reflect a planned replacement of the control rod drive control system for Three Mile Island Nuclear Station, Unit 1 (TMI-1). On May 6, 2009 (ADAMS Accession No. ML091260765), and June 23, 2009 (ADAMS Accession No. ML091750846), the licensee provided supplemental information.

The Nuclear Regulatory Commission staff has been reviewing the submittal and has determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information. The questions were sent via electronic transmission on August 3, 2009, with a revised version sent on August 6, 2009, to Mr. Frank Mascitelli and Mr. David Helker of your staff. The draft questions were sent to ensure that the questions were understandable, the regulatory basis for the questions was clear, and to determine if the information was previously docketed. The questions were discussed in a teleconference with your staff on August 5, 2009. It was agreed that a response would be submitted by August 21, 2009.

Please contact me at 301-415-2833, if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Peter Bamford".

Peter Bamford, Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosure: As stated

cc: Distribution via Listserv



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REQUEST FOR ADDITIONAL INFORMATION
THREE MILE ISLAND NUCLEAR STATION, UNIT 1
CONTROL ROD DRIVE CONTROL SYSTEM REPLACEMENT AND
AXIAL POWER SHAPING ROD REMOVAL
DOCKET NO. 50-289

By letter dated September 29, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082800174, AmerGen Energy Company, LLC, the licensee¹, submitted a license amendment request (LAR) for Three Mile Island Nuclear Station, Unit 1 (TMI-1). The LAR proposes to modify Technical Specifications (TSs) related to the Control Rod Drive Control System (CRDCS), Reactor Trip Breakers (RTBs) and Axial Power Shaping Rods (ASPRs). These proposed changes reflect a planned CRDCS upgrade to a digitally-based system that will result in the replacement of the TMI-1 reactor trip breakers and elimination of the APSRs. On May 6, 2009 (ADAMS Accession No. ML091260765), and June 23, 2009 (ADAMS Accession No. ML091750846), the licensee provided supplemental information. Included in the May 6, 2009, submittal was new information that the RTBs contain microcontrollers. In order for the NRC staff to complete its review of the LAR, a response to the following request for additional information concerning the microcontrollers is requested.

1. The licensee has stated that the Square D MasterPact NT RTBs contain a firmware microcontroller in the undervoltage and shunt trip devices. What is the full model number of the MasterPact NT breakers that are being used?
2. Please describe the operating experience for this model of Square D MasterPact NT breakers in safety-related applications. Include any known instances of component or sub-component failure that impacted, or had the potential to impact, the ability of the breaker to perform its safety-related function. Also, please provide any available reliability data.
3. Provide the common cause software failure analysis and, if there is the potential for software failure to impact the ability of the breaker to function properly, provide the resulting plant coping (diversity and defense-in-depth) analysis. Include potential impacts to both the undervoltage and shunt trip devices in this discussion.
4. Is the software in the breakers fully tested or was the software programmed using a high quality process that meets the requirements for development of safety-related software?
5. Is the microcontroller capable of being reprogrammed? How can the program be implemented (i.e., online, offline)?

¹ The operating license for TMI-1 has been transferred from AmerGen Energy Company, LLC to Exelon Generation Company, LLC as of January 8, 2009.

6. Is the microcontroller connected or capable of being connected to any other circuit, network, programming device, or other equipment that can have an impact on the programming?
7. Does the microcontroller include a communications interface, such as a Modbus? If so, is it, or will it, be used?
8. Please describe the data communication interfaces between the RTBs and any other devices and address their compliance with Regulatory Guide 1.152 and Nuclear Energy Institute (NEI) 04-04, "Cyber Security Program for Power Reactors."
9. Please provide the commercial grade dedication process documentation for the RTBs. Also, please verify that the commercial grade dedication process used complies with Electric Power Research Institute Topical Report (TR)-106439, "Guideline on Evaluation and Acceptance of Commercial Grade Digital Equipment for Nuclear Safety Applications" which was accepted by the NRC by letter and safety evaluation dated July 17, 1997 (ADAMS Accession Nos. 9810150221 and 9707240239).

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Sincerely,
/ra/
Peter Bamford, Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosure: As stated

cc: Distribution via Listserv

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ADAMS Accession Number: ML092120649

*concurrence via memo

** concurrence via email

OFFICE	LPLI-2/PM	LPLI-2/LA	EICB/BC	LPLI-2/BC
NAME	PBamford	ABaxter **	WKemper *	HChernoff
DATE	08/06/09	08/10/09	08/03/2009	8/11/09

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