From:	Vaidya, Bhalchandra
Sent:	Thursday, January 02, 2014 10:59 AM
To:	Kristensen, Kenneth J (Kenneth.Kristensen@cengllc.com); everett.perkins@cengllc.com; Darling, Theresa H (Theresa.Darling@cengllc.com)
Cc:	Beasley, Benjamin; Huang, Tai; Panicker, Mathew; Hemphill, Khadijah; Jackson, Christopher; Dean, Jeremy; Elliott, Robert; Dennig, Robert; Dozier, Jerry; Thorp, John
Subject:	UNACCEPTABLE APPLICATION WITH OPPORTUNITY TO SUPPLEMENT – MF3056 - Nine Mile Point Nuclear Station, Unit 2 - License Amendment Request - Maximum Extended Load Line Limit Analysis Plus.

SUBJECT: Nine Mile Point Nuclear Station, Unit 2 - License Amendment Request Pursuant to 10 CFR 50.90: Maximum Extended Load Line Limit Analysis Plus (MELLLA+) (TAC No. MF3056).

By letter dated November 1, 2013, Nine Mile Point Nuclear Station, LLC (the Licensee) submitted a license amendment request for Nine Mile Point Nuclear Station, Unit 2. The proposed amendment would allow operation in the expanded Maximum Extended Load Line Limit Analysis Plus (MELLLA+) domain; 2) use of the Detect and Suppress Solution - Confirmation Density (DSS-CD) stability solution, 3) use of the TRACG04 analysis code; 4) increase the isotopic enrichment of boron-10 in the sodium pentaborate solution used to prepare the neutron absorber solution in the Standby Liquid Control System (SLS); and 5) increase the Safety Limit Minimum Critical Power Ratio (SLMCPR) for two recirculation loops in operation.

The purpose of this letter is to provide the partial results of the U.S. Nuclear Regulatory Commission (NRC) staff's acceptance review of this amendment request. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the plant.

Consistent with Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), an amendment to the license (including the technical specifications) must fully describe the changes requested, and following as far as applicable, the form prescribed for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section stipulates that the submittal address the design and operating characteristics, unusual or novel design features, and principal safety considerations.

The NRC staff has reviewed your application and concluded that the information delineated below is necessary to enable the NRC staff to make an independent assessment regarding the acceptability of the proposed [amendment/relief] request in terms of regulatory requirements and the protection of public health and safety and the environment.

In accordance with the requirements of LIC-109, in order to make the application complete, the NRC staff requests that as discussed in the teleconference today, the licensee either provide the firm date to fully supplement the application to address the information requested in the enclosure -or- fully supplement the application to address the information requested in the enclosure by [DATE]. This will enable the NRC staff to complete its detailed technical review.

If the information responsive to the NRC staff's request is not received either by the above date, or the firm date committed in the licensee's response to this request, fully supplementing the application to address the information requested in the enclosure, the application will not be accepted for review

pursuant to 10 CFR 2.101, and the NRC staff will cease its review activities associated with the application.

If the application is subsequently accepted for review, you will be advised of any further information needed to support the NRC staff"s detailed technical review by separate correspondence.

The information requested and associated time frame in this letter were discussed with Theresa Darling, Ken Kristensen, Dale Goodney, and Chip Perkins of your staff on January 2, 2014.

If you have any questions, please contact me, at (301) 415-3308.

Enclosure: As stated

Bhalchandra K. Vaidya
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SUPPLEMENTAL INFORMATION REQUIRED TO COMPLETE THE ACCEPTANCE REVIEW OF THE LICENSE AMENDMENT REQUEST REGARDING MAXIMUM EXTENDED LOAD LINE LIMIT ANALYSIS PLUS (MELLLA+) CONSTELLATION ENERGY NINE MILE POINT NUCLEAR STATION, UNIT 2 (TAC MF3056)

By letter dated November 1, 2013, Constellation Energy, the licensee, submitted a license amendment request (LAR) (Agencywide Document Access and Management System Accession No. ML13316B107) to revise Nine Mile Point Nuclear Station, Unit 2 Operating License and Technical Specifications allowing the plant operation to expand in the Maximum Extended Load Line Analysis Plus domain. On September 17, 2007, the MELLLA+ Topic Report (TR) (ML072330599) was approved by U.S. Nuclear Regulatory Commission (NRC) with the proviso that licensees must provide NRC-approved plant specific automatic backup stability protection for MELLLA+ operation.

Upon completion of the proposed LAR, the Detect and Suppress Solution – Confirmation Density (DSS-CD) reactor trip function will be credited as a required mitigation function to provide protection against violation of the safety limit minimum critical power ratio (SLMCPR) for anticipated oscillations. The DSS-CD solution involves incorporation of a new reactor scram function that is intended to terminate power oscillations prior to significant amplitude growth. Because this new safety function is being performed by the digital Nuclear Measurement Analysis and Control Oscillation Power Range Monitor (NUMAC OPRM) system, and because each of the redundant divisions of the NUMAC system use the same digital equipment programmed in the same way, the potential for software related common cause failures of the system must be taken into consideration.

The NRC Staff Requirements Memorandum (SRM) on SECY 93 087, dated July 21, 1993, describes the position of NRC regarding Diversity and Defense-In-Depth (D3). This SRM states that applicants using digital or computer based technology shall assess the defense-in-depth and diversity of the proposed instrumentation and control system to demonstrate that vulnerabilities to common mode failures have been adequately addressed. The SRM also states; “in performing the assessment, the vendor or applicant shall analyze each postulated common-mode failure for each event that is evaluated in the accident analysis section of the safety analysis report (SAR) using best estimate methods. The vendor or applicant shall demonstrate adequate diversity within the design for each of these events.”

It is apparent that a postulated software common-cause failure (SWCCF) of the NUMAC OPRM could disable the safety trip function performed by the DSS-CD algorithms. Therefore, a diverse means of performing either the same function (Reactor Trip) or a different function is required. Please identify what this diverse means is and provide a documented basis that the diverse means is unlikely to be subject to the same common-mode failure that would disable the DSS-CD safety function. It is requested that the licensee provide a detailed analysis that meets the guidance contained in BTP 7-19.

References:

1. U.S. Nuclear Regulatory Commission, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition," (SRP) Branch Technical Position (BTP) 7-19. "Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer Based Instrumentation and Control Systems," Revision 5, March 2007 (ADAMS Accession No. ML070550072).