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NUCLEAR ENERGY INSTITUTE

March 22, 2016

Mr. William M. Dean,
Director Office of Nuclear Reactor Regulation
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Industry Position on Open Phase Conditions (OPC) in Electronic Power System which Lead to Loss of Safety Functions of both Offsite and Onsite Power Systems (NRC Bulletin 2012-01)

Project Number: 689

Dear Mr. Dean:

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI)[1] would like to address the recent 10CFR2.206 Petition[2] received by NRC on the subject issue and updating you on the progress of the industry actions.

As the understanding of this complex technical issue has evolved, it has become apparent that the design vulnerability at some nuclear generating stations could be perceived as potentially affecting how licensees meet the last paragraph of 10CFR50, Appendix A, General Design Criteria 17 (GDC 17). Specifically, at the time of the January 2012 event at Byron Station, the electric power system design at the majority of licensed nuclear generating stations did not include provisions to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power from the transmission network caused by an OPC.

However, since the Byron Event, the industry has aggressively pursued this issue. Within days of the event, Exelon Generation, the owner/operator of the Byron Station conducted a webinar so that all operating plants would be informed of the vulnerability. The NRC issued Bulletin[3] 2012-01 and the

[1] NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

[2] 10CFR 2.206 Petition on Current Operating Nuclear Power Plants - Open Phase Conditions in Electric Power System Which Lead to Loss of Safety Functions of Both Offsite and Onsite Power Systems (NRC Bulletin 2012-01).

[3] NRC Bulletin 2012-01, "Design Vulnerability in Electric Power System", dated July 27, 2012.

industry Chief Nuclear Officers approved an NEI Industry Initiative[4] that is currently being implemented to address the identified vulnerability. Compensatory measures were put in-place at all operating reactors in an effort to ensure adequate safety margins for this concern. Each licensee's response to the NRC Bulletin were submitted by February 3, 2014, and can be found under each licensee's docket number in the NRC's Agencywide Documents Access and Management System (ADAMS).

Attached is an updated Regulatory Summary Document which was originally provided to the NRC on August 14, 2014[5]. It has been updated to include the true definition of a "protective system". As stated in the attached document, IEEE Std. 279 establishes the definition of a protection system to include all devices that generate signals and actuate to trip the reactor or actuate engineered safeguards. IEEE Std. 603 contains similar provisions; however IEEE Std. 603 further defines the protection systems as the sense and command features for the reactor trip system and the engineered safety features. It further clarifies that power sources, by definition, are considered auxiliary supporting features or other auxiliary features and, therefore, are not part of the reactor trip system and engineered safety features.

In a November 25, 2014[6] letter, you stated the NRC's position that the industry solution (either Class 1E or non-Class 1E) to address the OPC issue must fully address GDC 17 or the principal design criteria specified in the updated final safety analysis report for the specific nuclear power plant and should meet four specific functional requirements. As a result, the industry is ensuring that all potential OPC solutions implemented through the NEI Initiative will be in accordance with this position. To this end approximately one-third of the industry fleet has implemented open phase monitoring or protection systems. The balance of the fleet will complete implementation of the initiative by the December 31, 2018 due date.

With regard to the 10CFR2.206 Petition, NEI sees no benefit in the NRC shifting its focus from the current resolution path. Rather than devoting resources to determining whether there is a noncompliance and whether the NRC could justify formally imposing positions that licensees have already agreed to address, the NRC and the industry should continue to move forward to resolve the OPC issue in accordance with the NEI Initiative and the four functional requirements set forth in your November 25, 2014 letter.

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[4] NEI issued Industry Initiative on Open Phase Condition, dated October 2013.

[5] NEI Letter from Douglas J. Walters, Vice President, Regulatory Affairs Regulatory Issues Related to Mr. Daniel H. Dorman, Acting Director, Office of Nuclear Reactor Regulation, Dated August 14, 2014.

[6] NRC Letter from William M. Dean, Director Office of Nuclear Reactor Regulation to Mr. Anthony R. Pietrangelo Senior Vice President and Chief Nuclear Officer Nuclear Energy Institute, dated November 25, 2014.

Please contact me if you have any questions about the industry actions to close the OPC issue.

Sincerely,

Anthony R. Pietrangelo

Attachment

c: Mr. John Lubinski, NRR/DE, NRC
Ms. Marissa Bailey, NMSS/FCSE, NRC
Ms. Mary Jane Ross-Lee, NRR/DE, NRC
Mr. Timothy J Mcginty, NRR/DSS, NRC
Mr. Jacob Zimmerman, NRR/DE/EEEB, NRC
NRC Document Control Desk