



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

June 22, 2020

Site Vice President
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-3093

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - CLOSEOUT OF
BULLETIN 2012-01, "DESIGN VULNERABILITY IN ELECTRIC POWER
SYSTEM" (EPID L-2019-PMP-0068)

Dear Sir or Madam:

The purpose of this letter is to inform you that the U.S. Nuclear Regulatory Commission (NRC) staff has verified that Entergy Operations, Inc. (the licensee) has provided the necessary information requested in the NRC's Bulletin (BL) 2012-01, "Design Vulnerability in Electric Power System," dated July 27, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12074A115), for Waterford Steam Electric Station, Unit 3 (Waterford 3). The NRC staff has completed its review of BL 2012-01 for Waterford 3 and considers the open phase issue closed at Waterford 3.

The NRC issued BL 2012-01 and requested information about each facility's electric power system designs to verify the system's capability to address open phase conditions. Specifically, the NRC requested licensees to provide the following information:

- A description of how the protection scheme for engineered safety features buses (Class 1E for current operating plants or non-Class 1E for passive plants) is designed to detect and automatically respond to a single-phase open circuit condition or high impedance ground fault condition on offsite power circuits or another power source; and
- A description of the operating configuration of engineered safety features buses (Class 1E for current operating plants or non-Class 1E for passive plants) at power (i.e., normal operating condition).

By letter W3F1-2012-0091 dated October 25, 2012 (ADAMS Accession No. ML12299A392), the licensee responded to BL 2012-01. By letter W3F1-2012-0091 dated February 3, 2014 (ADAMS Accession No. ML14035A454), the licensee responded to the NRC's subsequent request for additional information dated December 20, 2013 (ADAMS Accession No. ML13351A314).

By letters dated October 9, 2013, and March 16, 2015 (ADAMS Accession Nos. ML13333A147 and ML15075A454, respectively), the Nuclear Energy Institute submitted a voluntary industry initiative to address open phase conditions at nuclear power plants. The Nuclear Energy Institute letter dated March 16, 2015, stated, in part, "The initiative is a formal commitment by the companies that operate nuclear power plants to follow a specific policy or plan of action.

The initiative calls for a proactive plan and schedule for addressing the potential design vulnerabilities to the open phase condition.”

To evaluate the adequacy of the open phase isolation systems designs, the NRC inspected four nuclear power plants with four distinct open phase isolation system designs using NRC’s Temporary Instruction (TI) 2515/194, “Inspection of the Licensee’s Implementation of Industry Initiative Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems (NRC Bulletin 2012-01),” Revision 0, dated October 31, 2017 (ADAMS Accession No. ML17137A416). A summary of the NRC staff’s preliminary observations and issues needing additional clarity were discussed with industry representatives in two public meetings conducted on September 19, 2018, and October 17, 2018. The meeting summaries can be found in ADAMS at Accession Nos. ML18268A342 and ML18309A227, respectively.

In December 2019, the NRC staff performed TI 2515/194, Revision 0 at Waterford 3 to verify the licensee’s implementation of Revision 1 of the voluntary industry initiative. To resolve the open phase condition design vulnerability issue at Waterford 3, the licensee implemented open phase isolation system plant modifications, which provide detection, alarm, and automatic protective features. NRC’s Inspection Report 05000382/2019011, “Waterford Steam Electric Station, Unit 3 – Temporary Instruction 2515/194 (Inspection Report 05000382/2019011),” dated January 7, 2020 (ADAMS Accession No. ML20007E701), documented the results of this inspection. No findings or violations of more than minor significance were identified.

The NRC staff has reviewed the information submitted by the licensee as well and the inspection report results and concludes that the licensee has provided the necessary information requested in BL 2012-01 and it completed its review of BL 2012-01 for Waterford 3. The NRC staff considers the open phase issue closed at Waterford 3.

If you have any questions, please contact me at 301-415-0489 or by e-mail to Audrey.Klett@nrc.gov.

Sincerely,

Audrey L. Klett, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

cc: Listserv

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