



Entergy Nuclear Operations, Inc.
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530
Tel 269 764 2000

Anthony J. Vitale
Site Vice President

PNP 2014-007

January 30, 2014

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Response to Request for Additional Information - NRC Bulletin
2012-01

Palisades Nuclear Plant
Docket 50-255
License No. DPR-20

- REFERENCES:
1. NRC Bulletin 2012-01, "Design Vulnerability in Electric Power System," dated July 27, 2012 (ADAMS Accession Number ML12074A115).
 2. Entergy Nuclear Operations, Inc. letter to NRC, PNP 2012-093, "90-Day Response to NRC Bulletin 2012-01, *Design Vulnerability in Electric Power System*," dated October 25, 2012.
 3. NRC letter, "Request for Additional Information Regarding Response to Bulletin 2012-01, 'Design Vulnerability in Electric Power System,'" dated December 20, 2013 (ADAMS Accession Number ML13351A314).

Dear Sir or Madam:

On July 27, 2012, the NRC issued Bulletin 2012-01, "Design Vulnerability in Electric Power System," which requested that each licensee submit a written response in accordance with 10 CFR 50.54(f) within 90 days of the bulletin (Reference 1). Entergy Nuclear Operations, Inc. (ENO) responded to the bulletin in Reference 2.

On December 20, 2013, the NRC requested additional information from licensees to verify that they have completed interim corrective actions and compensatory measures and to determine the status of each licensee's long-term corrective actions (Reference 3). The additional information was requested by February 3, 2014.

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NRR

The ENO response to the request for additional information for the Palisades Nuclear Plant is provided in the attachment to this letter.

This letter contains no new or revised commitments.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 30, 2014.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew J. Vetter". The signature is fluid and cursive, with a large initial "A" and "V".

ajv/jse

Attachment: Response to NRC Bulletin 2012-01 Request for Additional Information for the Palisades Nuclear Plant

cc: Administrator, Region III, USNRC
Project Manager, Palisades, USNRC
Resident Inspector, Palisades, USNRC

ATTACHMENT

RESPONSE TO NRC BULLETIN 2012-01 REQUEST FOR ADDITIONAL INFORMATION FOR THE PALISADES NUCLEAR PLANT

A Nuclear Regulatory Commission (NRC) request for additional information (RAI) dated December 20, 2013, was received concerning Bulletin 2012-01, "Design Vulnerability in Electric Power System."

The Entergy Nuclear Operations, Inc. (ENO) response to the RAI for the Palisades Nuclear Plant (PNP) is provided below.

NRC Request (December 20, 2013)

In order for the NRC staff to complete its review of responses to the bulletin, the following additional information is requested:

- 1. Provide a summary of all interim corrective actions that have been taken since the January 30, 2012, event at Byron Station, Unit 2, to ensure that plant operators can promptly diagnose and respond to open phase conditions on the offsite power circuits for Class-1E vital buses until permanent corrective actions are completed.*

ENO Response

1. Lessons learned from the events at Byron Station, Unit 2, were reviewed and various interim corrective actions were evaluated for safety and efficiency at the PNP. Based on the plant's offsite power configuration and electrical design details, and on lessons learned, the following interim actions were taken to ensure plant operators can promptly diagnose and respond to an open phase condition (OPC):

- **Interim Corrective Actions**

- Periodic walk-downs of the switchyard and transformer yard are on-going to identify failed insulators or bushings that could result in an OPC. Note that these walkdowns were already being performed prior to issuance of the bulletin.
- During their shiftly rounds, operators are recording voltage on all three phases for both offsite power sources.
- Training curriculum was reviewed and updated to ensure operators can diagnose and respond to an OPC.

- Bus transfer procedures were verified to ensure voltages are checked prior to bus transfers and after transfers are completed.
- Transformer yard operator rounds are performed every shift and include general and detailed inspections of the transformers to ensure parameters are within expected limits.
- Corona camera inspections of transformer yard and switchyard equipment are being performed as part of routine inspections. Note that this was already being performed prior to issuance of this bulletin.

Request (December 20, 2013)

2. *Provide a status and schedule for completion of plant design changes and modifications to resolve issues with an open phase of electric power.*

ENO Response

2. The status and schedule are provided below:

- **Status**

- All holders of operating licenses and combined licenses for nuclear power reactors are investigating options being researched by several vendors (PSC2000, EPRI, Schweitzer, etc.) to detect OPC faults. There is currently no generic, off-the-shelf technology that has been proven to detect all the required open phase fault conditions for all plant and transformer designs.
- All holders of operating licenses and combined licenses for nuclear power reactors are fully engaged in the development of the NEI OPC Guidance Document, as well as development of enhancements to software tools being used to analyze OPC faults.
- With the goal of ensuring accurate detection without compromising nuclear safety or increasing plant risk, this new OPC technology is being thoroughly evaluated, will be tested, and will be fully analyzed before installation.
- Vulnerability studies of the OPC faults have been completed for PNP.

- **Schedule**

- ENO has committed to the generic schedule provided in the industry OPC Initiative.

- It is the intention of ENO to meet the milestones of this schedule; however, deviations may be required to accommodate outage schedules, software and hardware availability, manufacturer's delivery capabilities, licensing delays, etc.
- Any deviation from the industry OPC Initiative schedule will be documented through the deviation/exemption process addressed in the NEI OPC Guidance Document.