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JAN 3 1 2014

LR-N14-0031

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Hope Creek Generating Station
Renewed Facility Operating License No. NPF-57
NRC Docket No. 50-354

Subject: Response to Request for Additional Information Regarding Response to Bulletin 2012-01, "Design Vulnerability in Electric Power Systems"

References:

1. NRC Bulletin 2012-01, "Design Vulnerability in Electric Power Systems," dated July 27, 2012. (ADAMS Accession No. ML12074A115)
2. NRC Request for Additional Information Regarding Response to Bulletin 2012-01, "Design Vulnerability in Electric Power Systems," dated December 20, 2013. (ADAMS Accession No. ML13351A314)

On December 20, 2013, the Nuclear Regulatory Commission (NRC) issued Reference 2 to all power reactor licensees and holders of combined licenses for nuclear power reactors. Reference 2 requires that each licensee provide a response to the request for additional information by February 3, 2014. The attachment to this letter provides the response to the request for additional information. This response follows the Nuclear Energy Institute (NEI) template issued on January 10, 2014.

This letter contains no new regulatory commitments.

Should you have any questions concerning the content of this letter, please contact Mr. Brian Thomas at 856-339-2022.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 1/31/2014.
(Date)

Sincerely,

Paul J. Davison

Paul J. Davison
Site Vice President
Hope Creek Generating Station

Attachment: Hope Creek Generating Station Response to Request for Additional Information for Bulletin 2012-01

cc: W. Dean, Regional Administrator - NRC Region I
J. Hughey, Project Manager - USNRC
NRC Senior Resident Inspector – Hope Creek
P. Mulligan, Manager IV, NJBNE
Commitment Coordinator – Hope Creek
PSEG Commitment Coordinator – Corporate

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Attachment

Hope Creek Generating Station Response to

Request for Additional Information

for Bulletin 2012-01

Hope Creek Generating Station Response to Request for Additional Information for Bulletin 2012-01

NRC letter (ADAMS ML13351A314) dated December 20, 2013, requests the following:

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

Response 1 - Summary of All Interim Corrective Actions

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

- **Interim Corrective Actions**
  - HCGS has developed a daily log for identifying equipment damage indicative of an open phase condition. Daily operator tours to identify OPC vulnerabilities are performed.
  - Station procedures have been reviewed for impact. Overhead alarm procedures have been revised to observe potential changes in vital bus voltages that could indicate an active OPC upstream of the vital buses.

Response 2 - Status and Schedule for Completion of Plant Design Changes

HCGS utilizes an offsite power distribution system which differs significantly from Byron Generating Station as follows:

- Three normally energized transmission lines are connected to a 500 kV ring bus such that loss of phase on an incoming line will not result in an OPC event.
- Vital Buses are normally fed from redundant, immediate access, offsite power supplies per station Technical Specification 3.8.1.1.

- **Status**

  - Through the NEI OPC initiative, the industry, along with HCGS, is 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.
  - Through the NEI OPC initiative, the industry, along with HCGS, is fully engaged in the development of the NEI OPC Guidance Document, as well as the 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.
  - A vulnerability study of the OPC faults has been performed for HCGS. The station is currently reviewing the conclusions of the study. Based on the station design and the results of the ongoing vulnerability studies, HCGS will evaluate future modifications within the guidance of the industry OPC Initiative.

- **Schedule**

  - HCGS is following the generic schedule provided in the industry OPC Initiative.
  - It is our intention 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 Industry Guidance Document.