FENOC™
FirstEnergy Nuclear Operating Company

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February 3, 2014
L-14-040

10 CFR 50.54(f)

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

SUBJECT:
Beaver Valley Power Station, Unit Nos. 1 and 2
Docket No. 50-334, License No. DPR-66
Docket No. 50-412, License No. NPF-73
Response to Request for Additional Information Regarding Bulletin 2012-01, "Design Vulnerability in Electric Power System" (TAC Nos. ME9302 & ME9303)

FirstEnergy Nuclear Operating Company responded to Nuclear Regulatory Commission (NRC) Bulletin 2012-01, "Design Vulnerability in Electric Power System," in a letter dated October 23, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12300A066). The NRC staff requested additional information in a letter dated December 20, 2013 (ADAMS Accession No. ML13351A314). The requested information is provided for the Beaver Valley Power Station, Unit Nos. 1 and 2, in an attachment to this letter.

There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager – Fleet Licensing, at 330-315-6810.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 3, 2014.

Sincerely,

E. A. L

Eric A. Larson

Attachment: Response to Request for Additional Information on Bulletin 2012-01 for the Beaver Valley Power Station

cc: NRC Region I Administrator
NRC Resident Inspector
NRC Project Manager
Director, Pennsylvania Bureau of Radiation Protection, Department of Environmental Protection (BRP/DEP)
BVPS Site BRP/DEP Representative

Attachment
L-14-040

Response to Request for Additional Information on Bulletin 2012-01
for the Beaver Valley Power Station

For the Beaver Valley Power Station (BVPS), FirstEnergy Nuclear Operating Company (FENOC) responded to Nuclear Regulatory Commission (NRC) Bulletin 2012-01, "Design Vulnerability in Electric Power System," in a letter dated October 25, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12300A066). The NRC staff requested additional information in a letter dated December 20, 2013 (ADAMS Accession No. ML13351A314). The requested information is identified using bold text, followed by the FENOC response.

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.**

Response:

Prior to the events at Byron Station, several corrective actions to help operators diagnose and respond to open-phase conditions had already been implemented at BVPS:

- Guidance was added to operating procedures to help operators better identify an open phase condition.
- Shiftly operator rounds were established to monitor voltages associated with the offsite power circuits for signs of an open phase condition.
- The Plant Information System computer software was upgraded to show three-phase voltage and current metering data for the offsite power circuits. Previously, information on only one phase had been available.

Lessons learned from the events at the Byron station were reviewed and various interim corrective actions evaluated for safety and efficiency at BVPS. Based on the plant's offsite power configuration, electrical design details, and the lessons learned, the following additional actions were taken at BVPS to ensure plant operators can diagnose and respond to an open phase condition:

- Operating procedures were revised to include checks for open phase conditions immediately preceding planned transfers to an offsite power circuit.
- Daily walkdowns were established to inspect transmission lines associated with the offsite power circuits.
- Event details were communicated to station operators as a part of the continuing training program.

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:

Industry/BVPS Status:

- Holders of operating licenses and combined licenses for nuclear power reactors are investigating options to detect open phase fault conditions. 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.
- Holders of operating licenses and combined licenses for nuclear power reactors are engaged in development of a Nuclear Energy Institute (NEI) Open Phase Condition Industry Guidance Document, as well as development of enhancements to software tools being used to analyze open phase fault conditions. A December 2013 version of the Open Phase Condition Industry Guidance Document (NEI 13-12) was provided to the NRC in December.
- With the goal of ensuring accurate detection without compromising nuclear safety or increasing plant risk, new open phase condition technology will be thoroughly evaluated, tested, and analyzed before installation.

BVPS Schedule:

- FENOC intends to meet the remaining milestones identified in the industry Open Phase Condition Initiative (ADAMS Accession No. ML13333A147) for the Beaver Valley Power Station; however, deviations may be required to accommodate outage schedules, software and hardware availability, manufacturer's delivery capabilities, or other unexpected delays.
- Any deviation from the industry Open Phase Condition Initiative schedule will be documented through an appropriate deviation process. Revision 2 of the Open Phase Condition Industry Guidance Document, which is scheduled to be issued in June 2014, is expected to provide a deviation process for the industry.