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Christopher J. Wamser
Site Vice President

BVY 14-007

January 29, 2014

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

SUBJECT: Response to Request for Additional Information Regarding Response to Bulletin 2012-01, "Design Vulnerability in Electric Power System" Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

REFERENCES:

1. Letter, NRC to Entergy Nuclear Operations, Inc. "Design Vulnerability in Electric Power System," dated July 27, 2012
2. Letter, Entergy Nuclear Operations, Inc. to NRC, "90 Day Response to Bulletin 2012-01, 'Design Vulnerability in Electric Power System'," BVY 12-074, dated October 25, 2012
3. Letter, NRC to Entergy Nuclear Operations, Inc. "Request for Additional Information Regarding Response to Bulletin 2012-01, 'Design Vulnerability in Electric Power System'," dated December 20, 2013
4. Letter, Entergy Nuclear Operations, Inc. to NRC, "Notification of Permanent Cessation of Power Operations," BVY 13-079, dated September 23, 2013

Dear Sir or Madam:

In Reference 1, the NRC issued Bulletin 2012-01, requesting that each licensee submit a written response in accordance with 10 CFR 50.54(f) within 90 days of the bulletin to provide the requested information. Reference 2 provided the 90 day response for Vermont Yankee Nuclear Power Station. In Reference 3, the NRC requested additional information to verify completion of interim corrective actions and compensatory measures and to determine the status of each licensee's long-term corrective actions. Attachment 1 of this letter provides the requested information for VY.

There are no new regulatory commitments being made in this submittal.

Should you have any questions concerning this letter or require additional information, please contact Mr. Coley Chappell at (802) 451-3374.

IE76
NRR

I declare under the penalty of perjury that the foregoing is true and correct.
Executed on January 29, 2014.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris J. Williams", with a long horizontal line extending to the right.

[CJW/JTM]

Attachments: 1. Bulletin 2012-01 Response to Request for Additional Information

cc: Mr. William M. Dean
Regional Administrator, Region 1
U.S. Nuclear Regulatory Commission
2100 Renaissance Blvd, Suite 100
King of Prussia, PA 19406-2713

Mr. Douglas V. Pickett, Project Manager
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop OWFN-8-G9A
Washington, DC 20555

USNRC Resident Inspector
Vermont Yankee

Mr. Christopher Recchia, Commissioner
Vermont Department of Public Service
112 State Street – Drawer 20
Montpelier, Vermont 05620-2601

Attachment 1

Vermont Yankee Nuclear Power Station

Bulletin 2012-01 Response to Request for Additional Information

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR
BULLETIN 2012-01, "DESIGN VULNERABILITY IN ELECTRIC POWER SYSTEM"**

**VERMONT YANKEE NUCLEAR POWER STATION
ENTERGY NUCLEAR OPERATIONS, INC
DOCKET NO. 50-271**

On July 27, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 2012-01, "Design Vulnerability in Electric Power System" (Agencywide Documents Access and Management System Accession No. ML 12074A115), to all holders of operating licenses and combined licenses for nuclear power reactors. In addition, Watts Bar Nuclear Plant, Unit 2, is addressing the issues identified in the bulletin as part of the licensing process. Bulletin 2012-01 requested information about each facility's electric power system designs, in light of recent operating experience involving the loss of one of the three phases of the offsite power circuit (single-phase open circuit condition) at Byron Station, Unit 2.

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.**

Response:

As described in Vermont Yankee's (VY) original response to Bulletin 2012-001 (Reference 2), VY has implemented the following interim corrective actions:

- Heightened surveillances were originally initiated to detect an open phase fault. These include a once per shift visual check of the overhead conductors associated with the offsite power source and enhanced once per shift control room meter readings to check for balanced voltage and currents on lines and buses associated with the offsite power circuits.
- Night orders were originally issued to make operators aware of symptoms associated with open phase conditions.
- The heightened surveillances and night orders have been converted to permanent changes to operator rounds and permanent changes to existing station operating procedure OPON-3150-01, "Loss of Start Up Transformer(s)."
- VY has revised its operator training programs for initial and requalification training to include the Byron event, its consequences and the required interim operator responses.
- VY has reviewed the configuration of the overhead lines associated with the offsite power circuits. VY has concluded, based on the configuration of its lines and insulators (predominantly Lapp suspension insulators), that it is less susceptible to the same failures which occurred at Byron Station.
- VY has initiated a replacement program for the insulators in the 345 kV switchyard as a corrective action from a past insulator failure.

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:

Because of the complexity of this issue and the need to develop a secure and reliable means to detect the open phase condition and to automatically protect electric equipment from potential damage caused by the open phase condition, the industry proposed to the NRC staff the need to carefully develop and design a protection system to detect open phase faults. The nuclear industry proposed the following schedule:

By December 31, 2014: Complete all analysis of the open phase condition using industry criteria and identify appropriate actions (design changes, if necessary) required to demonstrate compliance.

By December 31, 2016: Implement design changes, if necessary, to comply with the open phase condition criteria. The "active" actuation features of new technology may be installed in a monitoring mode, with adequate justification, for security reasons.

Bulletin 2012-01 was addressed to all holders of operating licenses and combined licenses for nuclear power reactors, except those who have permanently ceased operation and have certified that fuel has been removed from the reactor vessel.

On September 23, 2013, Entergy Nuclear Operations, Inc. notified the NRC (Reference 4) that it intended to permanently cease power operations of VY at the end of the current operating cycle, which is expected to occur in the fourth quarter of 2014.

Once VY has permanently ceased operations, permanently defueled and submitted the certifications required by 10 CFR 50.82(a)(1)(i) and (ii), the issues identified by the Bulletin will no longer be applicable to VY. VY is currently preparing plans to decommission the site while concurrently safely completing the current operating cycle. Resources which otherwise would have been assigned to refueling outage preparation are now assigned decommissioning preparation activities. Allocation of resources to study, plan, design, and purchase materials which will never be installed does not maintain or enhance protection of the public health and safety.

The actions to address the open circuit conditions are scheduled for completion well after VY shall cease power operations; therefore VY is not planning to complete the open circuit condition analyses or to develop modification packages to address the open phase condition.

Based on this, VY plans to continue to implement and maintain the interim measures taken in response to the Bulletin until the fuel has been certified to be permanently removed from the reactor vessel following permanent cessation of operation at the end of the current operating cycle.