



NUCLEAR ENERGY INSTITUTE

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SENIOR VICE PRESIDENT AND
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June 26, 2000

Mr. Samuel J. Collins
Director, Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop O-5 E7
Washington, DC 20555-0001

SUBJECT: Electrical Grid Voltage Adequacy

Dear Mr. Collins:

Your March 2, 2000, letter identified potential vulnerabilities involving degraded plant switchyard voltage and requested industry assistance to better understand the issues and potential actions.

In a May 18 meeting with members of your staff, industry representatives discussed their experiences and actions related to ensuring an understanding of plant electrical design requirements, monitoring and notification of degrading grid conditions, and improving organizational interfaces to address inadequate grid voltage conditions.

This meeting also identified actions being taken by the nuclear industry to address power grid stability concerns. The specific industry actions are listed in the enclosure. We believe these actions address the issues identified in your letter and as described in the NRC Information Notice dated March 27, 2000. NEI plans to take the following additional actions to provide further assurance that potential vulnerabilities involving degraded plant switchyard voltage are being addressed in a comprehensive manner.

1. Communicate to licensee chief nuclear officers the issues associated with degraded grid voltage.
2. Monitor industry progress in addressing the action plan as outlined in the enclosure.
3. Obtain insights from recently initiated industry efforts to assess the risk significance of potential degraded grid voltage sequences.

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Mr. Samuel J. Collins

June 26, 2000

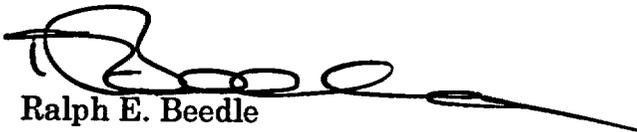
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4. Conduct an industry workshop early next year on degraded grid voltage to facilitate a broader sharing of licensee practices, insights and activities.

In summary, the nuclear industry recognizes the need for dependable and reliable offsite electrical power supplies to its nuclear units. The issues of degraded grid voltage identified in your letter are of concern to plant operators, and activities by nuclear plant operators are currently underway to address them. We welcome continued dialogue with your staff on this issue and suggest a meeting in the October timeframe to provide an update on the industry actions, including NRC participation in the workshop noted above.

Please contact Dave Modeen (djm@nei.org; 202-739-8084) or me with any questions or comments on this letter.

Sincerely,



Ralph E. Beedle

JCB/avw
Enclosure

c: Dr. Brian W. Sheron
Mr. Jack R. Strosnider, Jr.
Mr. Peter C. Wen

Industry Action Plan for Addressing Grid Voltage Adequacy Concerns

1. Establish appropriate interfaces between nuclear power plants and grid operators such that:
 - a. Planning for plant safety system maintenance and testing activities that could effect electrical supply diversity is coordinated with the grid maintenance and testing activities to prevent inadvertent reductions in nuclear plant defense-in-depth.
 - b. Plant operators are provided early warning from the grid operator of potential or developing grid instabilities.
 - c. Grid operators are apprised of the unique plant operating restrictions and requirements associated with operation of nuclear power plants with respect to nuclear safety.
 - d. The nuclear unit is clearly recognized as an important load (customer) from a nuclear safety perspective. This relationship should be reflected in grid load-shedding schemes.
 - e. The responsibility (ownership) for grid equipment maintenance is clearly defined between the plant and the grid operator.
2. Review the adequacy of procedures for loss or degradation of the electrical grid to ensure that:
 - a. Actions to be taken in the event of grid instability and voltage degradation are specified, including criteria for preemptively placing safety systems on emergency power supplies and for conservatively placing the plant in a safe operating or shutdown condition when significant threats to grid stability exist.
 - b. Clear guidance exists for manual configuration of electrical buses when automatic bus transfers fail to actuate or when manual alignment of emergency power is necessary.
 - c. Operating procedure guidance reflects the importance of timely resetting (rearming) of safety system electrical sequencing equipment following return to grip power.
 - d. Management expectations clearly communicate that, following a loss of grid involving a plant transient or trip, the operating crew's immediate focus should be on stabilizing the plant in a safe condition rather than on rapidly returning to power operation.
3. Verify that plant and switchyard high voltage grid distribution equipment for which the plant is responsible is fully incorporated into plant preventive maintenance program.
4. Confirm grid reliability and stability design assumptions remain valid. Review trip setpoints for safety-related components to determine if degraded grid voltage may result in unanticipated component trips prior to emergency power source automatic actuation. Identify and implement corrective measures for vulnerabilities discovered by this review.
5. Incorporate degraded grid voltage conditions into operator training (in addition to complete loss-of-grid training). Provide operator training on post-loss-of-grid recovery actions, including additional grid losses during recovery phases, and on manual electrical bus alignments that may be necessary during complicated loss-of-grid events. Conduct periodic drills or simulations to verify adequacy of loss-of-grid procedures and training.