

April 23, 2004

MEMORANDUM TO: Cornelius F. Holden, Jr., Director
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: John Boska, Senior Project Manager, Section 2 /RA/
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF PUBLIC MEETING HELD ON MARCH 4, 2004,
BETWEEN NUCLEAR REGULATORY COMMISSION STAFF AND
INDUSTRY REPRESENTATIVES RELATED TO ELECTRICAL GRID
RELIABILITY

The Nuclear Regulatory Commission (NRC) staff hosted a public meeting on March 4, 2004, at the DoubleTree hotel in Rockville, Maryland. The purpose of the meeting was to solicit information from industry representatives and licensees on methods available to manage the risk from reduced electrical grid reliability, and to discuss the licensing basis associated with grid reliability. The agenda is provided as Attachment 1, a list of attendees is provided as Attachment 2, and the handout from the meeting is provided as Attachment 3.

Mr. Holden opened the meeting by providing some background to indicate why the NRC is placing a priority on grid reliability. The agenda provided the topics that the NRC believed needed further discussion. Mr. Holden added that the focus of the meeting was communication on these areas which relate to grid reliability, and the proposed outcome for the meeting was that the NRC would understand what the licensees were doing in these areas. Mr. Marsh discussed the need to further define how events such as the northeast power outage on August 14, 2003, relate to the licensing basis for the nuclear power plants (NPPs). Mr. Barrett discussed insights that the NRC had gained from risk analyses done for the August 14th event in accordance with the NRC's accident sequence precursor (ASP) program. Although the overall risk from grid events does not show a significant change over the last several years, there are localized effects such as the time of the year, the physical location, and certain grid conditions that indicate an increase in risk. The NRC sees grid reliability as a safety-significant issue. If an NPP has safety-related equipment out of service during a period when the grid is under stress, then the risk increases. The risk review required by Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.65, paragraph (a)(4), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," may be a good method for dealing with risk-significant conditions. Mr. Barrett discussed short-term and long-term aspects of the NRC's concerns. The short-term concern is for the upcoming summer months. Since in most localities the grid is closer to operational limits during the summer peak, licensees may need to consider methods to reduce the risk. The long-term concern is that the licensing bases continue to be met so there are no unacceptable increases in risk related to grid reliability.

Mr. Marion asked when the results of the risk analyses from the ASP program would be available. He also asked if the NRC's internal task group reviewing grid reliability had any recommendations for the licensees. Mr. Marsh indicated that the draft ASP analyses would be sent to the licensees in about a week or two so they could provide comments to the NRC. Mr. Holden indicated that the internal NRC task group would be providing a paper to the NRC Commissioners on grid reliability, but it would probably be August before it would be publicly available.

Mr. Marion asked if the primary concern of the NRC was with the availability of the emergency diesel generators (EDGs). Mr. Barrett indicated that was the primary concern. Many licensees have requested and received revisions to their Technical Specifications over the last several years to have longer allowed outage times for the EDGs and to allow EDG maintenance and testing while the plant is at power. The NRC made certain assumptions in granting those revisions, and the NRC needs to ensure that changing conditions in the industry do not invalidate the basis on which those license amendments were granted.

Mr. Calvo stated that the NRC is interested in having a highly reliable electrical grid. Many different groups contribute to grid reliability. The NRC will work with groups such as the Nuclear Energy Institute (NEI), the North American Electric Reliability Council, the Federal Energy Regulatory Commission, and the licensees to achieve this goal. However, in the short term the NRC needs to ensure that licensees are prepared for the summer period.

Mr. Jenkins went over the six topics for discussion that the NRC had placed on the agenda, indicating why the NRC needed to discuss these topics. Mr. Calvo discussed the changes in the ownership of the transmission systems (the grid) over the last several years. Licensees used to own the NPP and the transmission system in the surrounding area. The NRC had some assurance that the transmission system operators (TSOs) would meet the needs of the nuclear plant operators. However, now most NPPs are operated by companies which are independent of the company which operates the local transmission system. New methods may have to be put in place to ensure that TSOs give the correct priority to the NPPs.

Mr. Marion discussed some of the industry efforts aimed at managing the risk associated with grid reliability. The Electric Power Research Institute (EPRI) has been monitoring the loss of offsite power (LOOP) at NPPs for several years. EPRI also helped develop the guidance for the station blackout (SBO) rule 10 CFR 50.63, "Loss of all alternating current power". The Institute of Nuclear Power Operations (INPO) evaluates events affecting NPPs. Based on previous events, in 1999 INPO issued Significant Operating Experience Report (SOER) 99-01 on LOOP. There were several recommendations in that SOER, and all NPPs have committed to implement those recommendations. NEI has previously briefed the NRC staff on the status of implementing the recommendations. One recommendation concerned communications between the NPP control room and the TSOs. That communication process is in place at all NPPs. Also, following the August 14th power outage, INPO issued a Significant Event Report to communicate the significant details of the event to all NPPs.

Mr. Rahn then presented the EPRI slides titled "LOOP Events and Industry Experience" (refer to Attachment 2). There were several discussions among the attendees related to the information on the slides.

Following the discussions on the slides, the six topics on the agenda were discussed. As there is some variability across the NPPs in how these topics are handled, it was clear that the topics would have to be answered on a plant-specific basis, and that no answer could be given that would cover all NPPs.

The attendees discussed the past implementation of the SBO rule. (Note that although nine NPPs lost offsite power on August 14th, none of these was an SBO, since the EDGs functioned as designed at these NPPs). NPPs are required to cope with an SBO for a specified duration, and be able to recover from it through the restoration of offsite power. The coping duration at NPPs is either four or eight hours, depending on their SBO analyses. NPPs may need to review their SBO analyses to ensure that the assumptions are still valid. The NRC is concerned that LOOP events in recent years have been lasting longer than the data used at the time the SBO rule was implemented.

After the discussion of the agenda topics was completed, Mr. Marion thanked the NRC for the opportunity to discuss the NRC's concerns on grid reliability. He indicated that NEI would gather additional information from the licensees that could be discussed with the NRC at a later time. He also indicated that they would focus first on the NPPs that were affected by the August 14th power outage.

Mr. Marsh asked if there were any questions from the public. Mr. Frantz asked what was the NRC focused on for grid reliability? Is the NRC applying a deterministic approach or a risk-based approach? Is the intent for licensees to show that they meet their licensing basis, or is the intent to meet a risk-based target? Mr. Marsh indicated that the NRC needed to ensure that all the NPPs complied with the NRC regulations in this area. Mr. Barrett added that the NRC needed to understand if the reality today matches the assumptions used in licensing the NPPs.

As there were no further questions or comments, the meeting was adjourned.

Attachments: As stated

cc w/atts: See next page

Distribution for Summary of a Public Meeting Held on March 4, 2004, Between NRC Staff and Industry Representatives Related to Grid Reliability

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PDI-2 Reading File
S. Collins
L. Marsh
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ACRS
OGC

Meeting Summary: ML041050177
Meeting Notice: ML040440079
Attachment 2 (List of Attendees and EPRI Slides): ML041060189
Attachment 3 (LOOP Events and Industry Experience): ML041060195
Package: ML041050207

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AGENDA
Grid Reliability Meeting
March 4, 2004

A. Introduction and Purpose

B. Topics for Discussion:

- 1) Loss of offsite power (LOOP) represents a significant area of risk for nuclear power plants. Discuss the frequency of LOOP events, and how this compares to the values assumed in the Station Blackout (SBO) analysis. Is there a correlation with LOOPS and a time of the year (e.g., summer)?
- 2) One of the critical factors for recovery from SBO is the time to restore offsite power. Discuss how the actual time to restore offsite power to the safety buses for actual LOOP events compares with that assumed in the SBO analysis.
- 3) Discuss how the current emergency diesel generator (EDG) reliability on demand and EDG unavailability statistics compare to the values assumed in the SBO analysis.
- 4) What compensatory actions, with respect to grid condition and switchyard work, do plants have in place during times of EDG maintenance or on-line EDG testing? Are any restrictions placed on EDG maintenance or on-line EDG testing with regard to the season or condition of the grid when these are performed?
- 5) What communication protocols exist between the nuclear power plants (NPPs) and the transmission system operators? Are they enforced by contract? Do they include notification when a trip of the NPP would result in inadequate post-trip switchyard voltages? Are NPPs notified when the NPP post-trip switchyard voltages would be inadequate?
- 6) Are plant and/or nearby transmission voltage regulating equipment (e.g., automatic load tap changing equipment for transformers, capacitor banks or other reactive power compensating equipment) monitored and included in determinations of offsite power operability required by the plant Technical Specifications?

C. NRC Responds to Questions From the Public

D. Conclusion and Closing Remarks