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SUSQUEHANNA STEAM ELECTRIC STATION
COMMENTS ON PROPOSED GENERIC COMMUNICATION
DRAFT NRC REGULATORY ISSUE SUMMARY 2011-013
ADEQUACY OF STATION ELECTRIC DISTRIBUTION
SYSTEM VOLTAGES ***(76 Fed. Reg. 10072)***
PLA-6701

Docket Nos. 50-387
and 50-388

Reference: Draft NRC Regulatory Issue Summary 2011-XX, "Adequacy of Station Electric Distribution System Voltages," dated January 12, 2011.

PPL Susquehanna, LLC (PPL) appreciates the opportunity to comment on the proposed draft Regulatory Issue Summary (RIS) 2011-013, "Adequacy of Station Electric Distribution System Voltages," originally identified as RIS 2011-XX. In that regard, PPL offers the following comments, which are also submitted to the Nuclear Energy Institute (NEI), by copy of this letter.

As stated in draft RIS 2011-013, the intent of the RIS is to clarify the NRC staff's technical position on existing regulatory requirements and voltage studies necessary for degraded voltage relay setting bases and Transmission Network/Offsite/Onsite station electric power system design bases. The RIS also states that it does not transmit any new requirements or staff positions.

PPL Susquehanna Specific Comments

Contrary to the stated intent, PPL believes that the RIS does transmit new requirements and staff positions. Specific comments applicable to Susquehanna Steam Electric Station (SSES) are as follows:

- The RIS introduces the need to consider both "starting and running" conditions during all operating configurations while maintaining the offsite power supply connected to the plant electrical distribution system. The establishment of a degraded voltage relay (DVR) to detect a "sustained" degraded voltage condition challenges the relay's basis for "protection" if its actuation (dropout) setpoint must accommodate both starting and running voltage conditions. The term "sustained

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degraded voltage" implies a steady state degraded voltage condition, and excludes starting voltage consideration.

RIS 2011-XX, Page 6, Section 1. "Degraded Voltage Relaying Design Calculations" contains the statement "staff considers degraded voltage condition coincident with a postulated design basis accident to be a credible event." This statement implies a requirement to demonstrate capability of connected loads to start and run at the degraded voltage relay dropout setting. For Susquehanna, sequencing of loads from the offsite power source cannot be demonstrated at the relay dropout setpoint because operation at this voltage level would result in separation from the offsite transmission system. Furthermore, the statement on page 6 of the RIS is not in agreement with other regulatory position documents such as GSI 171, "Engineered Safety Features Failure (ESF) from a Loss of Offsite Power (LOOP) subsequent to a Loss of Coolant Accident (LOCA)," which concluded a degraded voltage condition coincident with a postulated design basis accident is not a credible event.

Additional clarification is necessary if starting transients must be included when determining the degraded voltage relay (DVR) dropout setpoint. This condition will increase the probability of separating from the offsite transmission system and increase the likelihood of a double sequencing event, which is a potential nuclear safety concern.

- The RIS requires performance of analyses for an accident in the unit being analyzed and simultaneous shutdown of all other units at the station. This is not consistent with the present Susquehanna design and licensing basis, which is an accident on one unit followed by the safe shutdown of the second (non-accident) unit. The safe shutdown of the non-accident unit is considered a controlled shutdown, which follows automatic operation of the safety related loads on the accident unit. This accident response is also consistent with the NERC requirements for the design of the transmission system. The RIS should be revised to be in agreement with the current NERC requirements.

Generic Comments

In addition to the specific comments above, the following generic comments are provided.

- The draft RIS attempts to clarify the requirements for setting the DVRs based on the criteria established in the following three main documents:

  1) NRC letters to licensees dated June 2 & 3, 1977,
  2) Branch Technical Position (BTP), PSB-1 Revision 0,

3) Generic Letter 79-36, "Adequacy of Station Electric Distribution Systems Voltages"

The guidance listed in the draft RIS is not consistent with all the requirements listed in these three documents and a new interpretation is provided in some cases.

It should be generally recognized that a nuclear plant operating license may not have been issued based on the above documents. For example, the 1977 letters discussed above are not applicable to SSES.

- The lack of regulatory clarity in the RIS could result in revising the degraded voltage setpoint for a plant's DVR thus increasing the possibility of premature separation from the offsite circuit (i.e., undervoltage relay actuation). This relay operation could lead to an increase in the likelihood of a double sequencing event, which has the potential to create a nuclear safety concern.

- The RIS introduces the need for two sets of calculations, one to establish the DVR relay setpoint and one for the interface with the offsite transmission system. The RIS should not specify the number of calculations that are necessary for a plant to meet a regulatory requirement.

- The condition the DVR is required to "protect" needs to be specifically defined along with the applicable relay setting, (i.e., relay minimum dropout, maximum dropout, or reset). If the DVR is installed to provide a level of protection then the analysis must demonstrate that the safety related equipment is capable of performing its required safety function. An example of this would be the case where the DVR analysis would need to demonstrate acceptable operation at both the starting and running equipment ratings when at the DVR dropout setting.

- A clarification of the term "sustained" is needed to determine if "sustained" refers to a steady state voltage condition (i.e., no equipment starting voltage effects) for which the DVR setting is to be established.

- The guidance in the RIS is too general when referring to operating voltages. The specific voltage requirements need to be specified instead of implied by a general term. The RIS needs to clarify that the impact of the nuclear unit trip on the transmission system voltage must be considered in the plants voltage analysis.

- The time delays suggested are not consistent with PSB-1. The PSB established one time delay to allow for operator action. The RIS does not address this requirement.

- The RIS also lacks any acknowledgement of preventative measures the licensees have taken to minimize the potential for a degraded voltage condition. Advancements in plant loadflow analyses and measures to increase the reliability of the offsite transmission system are industry improvements that have occurred since the degraded voltage events that occurred 35 years ago.

If you have any questions regarding the comments above, please contact Mr. Duane L. Filchner at (610) 774-7819.

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