



RIC 2011
Adequacy of Station Electric Distribution System Voltages—Degraded Voltage Protection

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Purpose of Session

- Ensure that design issues concerning station electrical distribution system/offsite power system interface and degraded voltage protection are addressed
- Staff is issuing the Regulatory Issue Summary to clarify the existing staff guidance and positions



NRC Regulation and Guidance

- Title 10 of the Code of Federal Regulations Part 50, Appendix A, General Design Criteria 17, "Electric Power Systems"
- June 1977 Letter to all Operating Reactors, "Statement of Staff Positions Relative to Emergency Power Systems for Operating Reactors"
- Generic Letter 79-36, "Adequacy of Station Electric Distribution Systems Voltages"
- Branch Technical Position BTP-1 (Later BTP 8-6) of NUREG 0800 / Standard Review Plan



NRC Staff Positions on DVRs (1977 Letter)

- Voltage calculations are necessary to develop DVR settings, ensuring 1E equipment is supplied with adequate voltage
- Voltage calculations should model the plant safety related electrical distribution system and offsite circuits
- Voltage calculations should have cases that demonstrate the protection of 1E systems by the DVR
- DVR time delays must support FSAR accident analyses and protect 1E systems and components while not reducing availability of adequate offsite power

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NRC Staff Positions on Offsite Circuit / Station Distribution Design Interface

- The offsite electric power system is the preferred source of power to the plant
- Voltage calculations should demonstrate voltage requirements of all plant components are satisfied in all conditions
- Voltage analysis, while supplied from the offsite circuit, should be based on the operating voltage range of the transmission network connection.

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NRC Staff Positions on Offsite Circuit / Station Distribution Design Interface (cont.)

- Voltage calculations should model voltage at the terminals of each safety related load.
- All plant electric distribution system automatic functions should be assumed to occur as designed
- Manual load shedding should not be assumed

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Questions?

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