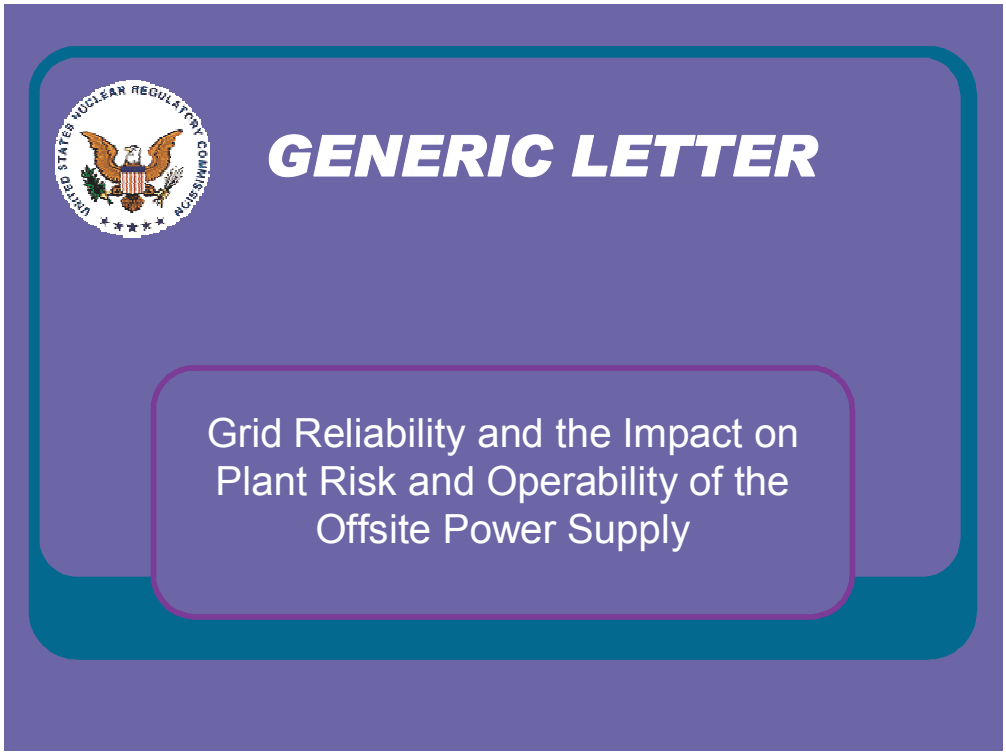
ADAMS/ACCESSION NO.: ML060170609



ENCLOSURE 5

OBJECTIVES

- PROVIDE A REGULATORY BASIS FOR THE QUESTIONS IN THE GL
- PROVIDE AN EXPLANATION OF WHAT IS INTENDED BY THE GL QUESTIONS
- IDENTIFY WHAT NRC EXPECTS FOR ANSWERS TO THE GL QUESTIONS
- IDENTFY HOW NRC ANTICIPATES USING THE INFORMATION

PURPOSE OF GENERIC LETTER

- TO OBTAIN INFORMATION FROM LICENSEES IN THREE AREAS:
  - MONITORING GRID CONDITIONS TO DETERMINE THE OPERABILITY OF OFFSITE POWER SYSTEMS;
  - ASSESSING AND MANAGING MAINTENANCE RISK BASED ON CURRENT GRID CONDITIONS;
  - EVALUATING SITE SPECIFIC INCREASES IN LOOP FREQUENCY AND IMPACT ON SBO COPING DURATION; AND PROCEDURES TO RESTORE OFFSITE POWER AND USE OF NEARBY POWER SOURCES.

REGULATORY REQUIREMENTS

- GENERAL DESIGN CRITERIA THAT ADRESS OFFSITE POWER SUPPLY
  - GDC-17 Electric Power Systems
  - GDC 33 Reactor Coolant Makeup
  - GDC 34 Residual Heat Removal
  - GDC 35 Emergency Core Cooling
  - GDC 38 Containment Heat Removal
  - GDC 41 Containment Atmosphere Cleanup
  - GDC 44 Cooling Water

REGULATORY REQUIREMENTS

- GDCs 33, 34, 35, 38, 41 and 44 require the following:

"that for offsite electric power system operation (assuming onsite power is not available) **and** for onsite electric power system operation (assuming offsite electric power is not available), the system safety function can be accomplished, assuming a single failure."

REGULATORY REQUIREMENTS

- GDC 17, Electric Power Systems

  "Provisions shall be included to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power unit, **the loss of power from the transmission network**, or the loss of power from the onsite electric power supplies."

APPLICABLE SRP ACCEPTANCE CRITERIA FOR GRID STABILITY

- Grid stability Analysis to show that it does not result in loss of offsite power due to:
  - Loss of largest single supply (such as nuclear unit),
  - Critical transmission line, or
  - Largest load

REGULATORY REQUIREMENTS

- Maintenance Rule Risk Assessments per 10 CFR 50.65(a)(4)
  - LOOP is a Significant Contributor to Risk
  - Health of Grid must be Included in (a)(4) Assessment
  - Coordination of Significant LOOP/SBO Mitigating System Component Testing (Grid-Risk Sensitive Maintenance)
  - Compensatory Measures may be Required When Taking LOOP/SBO Components Out of Service

REGULATORY REQUIREMENTS

- Station Blackout Rule Coping Analysis 10 CFR 50.63
  - EDG Unavailability Assumed to be Very Small in SBO Rule (0.007)
  - SBO Assumptions May Have Changed
  - LOOP Frequency
  - Offsite Power Restoration Time
  - Use of Nearby Power Sources
  - LOOP Frequency and Consequential LOOP Probability May Increase in Summer Months

FOUR QUESTIONS IN THE OFFSITE POWER AREA

- AGREEMENTS WITH TSO FOR MONITORING OFFSITE POWER (OSP)
- METHODOLOGIES TO ASSURE POST-TRIP OSP WILL BE AVAILABLE AT REQUIRED VOLTAGE & CAPACITY
- OPERABILITY DETERMINATION FOR THE AVAILABILITY OF OSP FOLLOWING UNIT TRIP
- LIMITING CONDITION FOR OPERATION FOR PREDICTED INADEQUATE OSP FOLOWING A TRIP OF THE UNIT

TWO QUESTIONS IN THE MAINTENANCE RULE AREA

- GRID RELIABILITY EVALUATIONS AS PART OF THE MAINTENANCE RISK ASSESSMENTS REQUIRED BY 10 CFR 50.65(A)(4).
- GRID RELIABILITY EVALUATIONS IN MANAGING MAINTENANCE RISK AS REQUIRED BY 10 CFR 50.65(A)(4).

TWO QUESTIONS IN THE SBO AREA

- Procedures for Restoring Offsite Power and Use of Nearby Power Sources
- SBO Coping Duration Analysis

GL QUESTION 1: FORMAL AGREEMENTS

- Describe any formal agreements with the transmission system operator (TSO) to promptly notify the NPP when conditions of the surrounding grid are such that degraded voltage below TS requirements or a LOOP could occur following a trip of the reactor unit(s).

GL QUESTION 1: (cont'd)
FORMAL AGREEMENTS

- Seven Subset Questions
  - A Required Notification Time
  - B Periodic Check With TSO
  - C Training and Testing
  - D Notification Triggers
  - E Basis for GDC-17 Compliance
  - F Agreement Details
  - G Switchyard Voltage Trigger

GL QUESTION 2: METHODOLOGIES TO ASSURE POST-TRIP OFFSITE POWER AVAILABILITY

- How do you ensure that the offsite power system will remain operable following a trip of your NPP?
- Describe the criteria and any methodologies used to make this assessment.

GL QUESTION 2: (cont'd) METHODOLOGIES TO ASSURE POST-TRIP OSP AVAILABILITY

- Ten Subset Questions
  - A RTCA or Equal
  - B Is RTCA Basis for Notification
  - C Post-trip Contingency Alarm
  - D Program Data Update Frequency
  - E Other Contingency Alarms

GL QUESTION 2: (cont'd) METHODOLOGIES TO ASSURE POST-TRIP OSP AVAILABILITY

- Ten Subset Questions
  - F Notification of RTCA Unavailability
  - G Predicted Voltage Verification
  - H Future Plans for RTCA
  - I Alternative Periodic Studies
  - J Basis for GDC-17 Compliance

GL QUESTION 3: OPERABILITY DETERMINATION FOR OSP - POST TRIP

- How do you ensure that the NPP's offsite power system and safety-related components will remain operable when switchyard voltages are degraded?
- Describe the criteria and method used to make this assessment.

GL QUESTION 3: (cont'd) OPERABILITY DETERMINATION FOR OSP POST TRIP

- Six Subset Questions
  - A OSP Voltage Inoperability Triggers
  - B Double Sequencing Operability
  - C Describe Operability Evaluation
  - D Other OSP TS Entry Conditions
  - E Basis for GDC-17 Compliance
  - F Training on Compensatory Actions

GL QUESTION 4:
LCO FOR A PREDICTED INADEQUATE OSP

- TS require that the plant's offsite power system be operable as part of the plant's limiting conditions of operation.
- Describe the criteria and method used to determine if the offsite power system will remain operable following a trip of the NPP.

GL QUESTION 4: (cont'd) LIMITING CONDITIONS FOR OPERATION

- Three Subset Questions
  - A Operator Guidance for Voltage Control Equipment
  - B Training on Guidance Documents
  - C Basis for GDC-17 Compliance

GL QUESTION 5: GRID RELIABILITY EVALUATIONS FOR MAINTENANCE RULE RISK ASSESSMENTS

- How are grid reliability evaluations used in the maintenance risk assessments required by 10 CFR 50.65(a)(4)?

GL QUESTION 5: (cont'd) MAINTENANCE RULE RISK ASSESSMENTS

- Twelve Subset Questions
  - A Grid Input into Risk Assessments
  - B Grid Monitored During Maintenance
  - C Seasonal Variation on Grid Stress
  - D Seasonal Variation on LOOP Frequency
  - E Grid Status Protocols
  - F Required Notification During Maintenance

GL QUESTION 5: (cont'd) MAINTENANCE RULE RISK ASSESSMENTS

- Twelve Subset Questions
  - G Contact TSO During Maintenance
  - H Training on Protocols
  - I TSO Commitment to Agreement
  - J Basis for Compliance to 50.65
  - K Basis for Compliance to Industry Guidance Documents
  - L Alternate Risk Assessment

GL QUESTION 6: GRID RELIABILITY EVALUATIONS IN MANAGING MAINTENANCE RISK

- How are the results of the maintenance risk assessment, including the results of the grid reliability evaluations, used in managing maintenance risk, as required by 10 CFR 50.65(a)(4)?

GL QUESTION 6: (cont'd)
MANAGING MAINTENANCE RISK ASSOCIATED WITH OSP

- Nine Subset Questions
  - A Coordinate TSO Maintenance
  - B Coordinate NPP Maintenance
  - C Re-schedule Maintenance Based On Grid Conditions
  - D Risk Management Compensatory Actions
  - E Describe Guidance Procedures

GL QUESTION 6: (cont'd) MANAGING MAINTENANCE RISK ASSOCIATED WITH OSP

- Nine Subset Questions
  - F Training on OSP Risk Management
  - G Basis for Compliance with 10 CFR 50.65 without Coordination with TSO
  - H Basis for Compliance with 10 CFR 50.65 without Risk Management
  - I Corrective Actions to Come Into Compliance

QUESTION 7: RESTORATION OF OFFSITE POWER

- RG 1.155, states NPPs to have procedures to restore offsite power and use of nearby power sources when offsite power is unavailable.
- The staff expectation is that each NPP has established an agreement with the plant's TSO that identifies local power sources that could be made available to resupply power to the NPP following a LOOP event.

QUESTION 7: (cont'd)
RESTORATION OF OFFSITE POWER

- Two Subset Questions
  - A Training to Restore OSP
  - B Basis for Compliance to 10 CFR 50.63

QUESTION 8:
SBO COPING DURATION ANALYSIS

- 10 CFR 50.63 (SBO Rule) requires that each NPP be able to withstand an SBO for a specified duration and recover from an SBO.
- RG 1.155 gives licensees guidance on developing their approaches for complying with 10 CFR 50.63.

QUESTION 8: (cont'd)
SBO COPING DURATION ANALYSIS

- Four Subset Questions
  - A History of LOOPs at SITE
  - B Re-evaluation of SBO Response per RG 1.155
  - C Results of Re-evaluation
  - D Basis for Compliance with 10 CFR 50.63

Grid Reliability

- **References**
  - September 16, 2005, meeting summary (ADAMS Accession No. ML052790704)
  - TI 2515/156, “Offsite Power System Operational Readiness,” (ADAMS Accession No. ML041200565)
  - TI 2515/163, “Operational Readiness of Offsite Power,” (ADAMS Accession No. ML051240080)
  - Letter to NEI transmitting the results of TI 2515/163 (ADAMS Accession No. ML052660434)
  - Regulatory Issue Summary 2004-05, “Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power” (Available on NRC public website - http://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/2004/ri200405.pdf)