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MEMORANDUM FOR: R. C. DeYoung, Assistant Director
 Light Water Reactor, DPM

FROM: C. F. Miller, Section Leader
 Electrical, Instrumentation and
 Control Systems Branch, EICSB

THRU: T. A. Ippolito, Chief
 Electrical, Instrumentation and
 Control Systems Branch, DSS

SUBJECT: SUPPLEMENTAL QUESTIONS FOR OFF-SITE POWER SYSTEMS

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Plant Name: Davis Besse - Unit 1
 Pocket No.: 50-346
 Licensing Stage: OL
 Milestone No.: 12-22
 Responsible Branch: EICSB
 and Project Manager: L. Engle
 Requested Completion Date: N/A
 Review Status: Awaiting Information

Please transmit the attached information request to the applicant.
 This information is required for completion of our review.

These concerns are being uniformly applied to all OL's presently under
 review. We request that the applicant's response be submitted to us
 so that our evaluation may be incorporated in the supplement to the
 safety evaluation report.

CSJ

C. F. Miller, Section Leader
 Electrical, Instrumentation and
 Control Systems Branch, DSS

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DATE →	12/17/76	12/18/76	12/12/76		

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ENCLOSURE

Supplemental Questions for Off-site
Power Systems on Davis Besse 1

1. Based on the grid system stability analysis results, state the nominal value and the maximum and minimum spread values of voltage and frequency of the offsite power source that assure satisfactory operability of all electrical equipment of the station during all modes of plant operation.

2. We require that a review be performed on the design and installation of the station electrical systems to provide assurance that all equipment will function continuously at the maximum and minimum electrical characteristics during all modes of plant operation identified in the first question. Provide a list identifying each circuit and/or electrical device that does not satisfy the above. The results of such a review should also specifically include the following:
 - A. The nominal and the maximum/minimum values of voltage at the safety related buses for offsite power system voltage spreads defined in first question.
 - B. The capability of all safety related loads, control and instrumentation circuits to perform their safety functions under the offsite power system voltage spreads defined in first question.
 - C. Specific design features incorporated in the plant electrical system, i.e., transformer on load/offload tap changers, voltage regulators, etc., to assure that acceptable voltage levels are maintained at the safety related buses for all modes of plant operation.

3. Provide a description of the procedures used to maintain grid configuration and operation in a condition which always satisfies the limits identified in Question 1. Also, provide the following; based on the grid system stability analyses results:
 - A. Describe how the operator is made aware of the operation of the grid in regard to the limits identified in Question 1.
 - B. The effects of loss of the nuclear generating unit on off-site power source while operating at the limits identified in Question 1.
 - C. The effects of loss of the largest grid load on offsite power source while operating at the limits identified in Question 1.
 - D. Identify any restrictions placed on the grid operation that requires specific spinning reserve (either real or reactive power) to be available within a dedicated distance from the nuclear station in order to maintain the offsite power source within the limits identified in Question 1 during grid disturbances.

4. Describe the specific design provisions included in the plant Class 1E power systems, to assure continued operability of safety equipment, should the offsite power system characteristics exceed the limits identified in first question due to abnormal system conditions. The response should also specifically include the following:

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- A. The design basis and criteria for identifying the offsite power system degradation and isolation of the plant electrical power systems from the offsite power system.
 - B. The design bases and criteria of systems used by the control room operator to identify the condition of all safety related buses and other safety related equipment during an offsite power system degradation.
 - C. A list identifying those monitors used by the control room operator in (B) above. This should also specifically include meters, indicator types, alarm setpoints, and recorders.
5. Provide a description of the method which will be employed to verify the adequacy of the plant design before reactor operation.

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