UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

April 29, 1991

TO: ALL HOLDERS OF OPERATING LICENSES

SUBJECT: RESOLUTION OF GENERIC ISSUE A-30, "ADEQUACY OF SAFETY-RELATED DC POWER SUPPLIES," PURSUANT TO 10 CFR 50.54(f) (GENERIC LETTER 91-06)

The staff of the U.S. Nuclear Regulatory Commission (NRC) has completed the evaluation of Generic Issue (GI) A-30 as part of the resolution of GI-128, "Electrical Power Reliability." GI A-30 focuses on safety-related dc systems. Enclosure 1 to this generic letter provides a brief description and history of this GI. Additional details are provided in NUREG/CR-5414, "Technical Findings for Proposed Integrated Resolution of Generic Issue 128, 'Electrical Power Reliability.'" As a result of its evaluation, the staff believes that certain maintenance, surveillance, and monitoring provisions are appropriate for safety-related dc systems. The staff believes that most plants have already implemented most of these provisions because of a number of actions taken previously by the staff and industry.

In order for the NRC to determine whether any further staff action is required to modify, suspend or revoke your license, addressees are required, pursuant to Section 182 of The Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f), to provide written responses to the questions in Enclosure 1 within 180 days of the date of this letter. This information should be submitted to NRC, signed under oath or affirmation.

The actions requested in this generic letter are not considered a backfit in accordance with NRC procedures and do not represent a change in staff positions. This generic letter is a request for information only to determine if licensee's plant specific maintenance, surveillance, and monitoring provisions are appropriate and that these provisions have been implemented. An evaluation of this letter was performed in accordance with the charter of the Committee to Review Generic Requirements (CRGR) and 10 CFR 50.54(f) and will be made available in the Public Document Room with the minutes of the 163rd meeting of the CRGR.

NRC has recognized that an "Individual Plant Examination (IPE) For Severe Accident Vulnerabilities" could enable licensees to address unresolved safety and generic safety issues as outlined in generic letter 88-20, provided that the details defined in NUREG-1335 (Section 2.1.6, Subitem 7), "Individual Plant Examination: Submittal Guidance", are included. Therefore, the enclosure to this letter gives licensees the option of providing certain supporting information as part of the IPE instead of supplying it in response

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to this letter. However, a decision to address this generic issue as provided in Enclosure 1 (i.e., by addressing questions 5 and 9) does not relieve licensees from searching for other plant-specific vulnerabilities of dc systems as part of your IPE.

This request is covered by Office of Management and Budget Clearance Number 3150-0011, which expires June 30, 1991. The estimated average number of burden hours is 100 person hours per licensee response, including the time required to assess the questions, search data sources, gather and analyze the data, and prepare the required reports. Comments on the accuracy of this estimate and suggestions to reduce the burden may be directed to Ronald Minsk, Office of Information and Regulatory Affairs (3150-0011), NEOB-3019, Office of Management and Budget, Washington, D.C. 20503, and to the U. S. Nuclear Regulatory Commission, Information and Records Management Branch, Division of Information Support Services, Office of Information and Resources Management, Washington, D.C. 20555.

If you have any questions, please contact your project manager.

Sincerely,

James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. 10 CFR 50.54(f) Request For GI A-30 "Adequacy of Safety-Related dc Power"
2. List of Recently Issued generic letters

ENCLOSURE 1

10 CFR 50.54(f) REQUEST - GENERIC ISSUE (GI) A-30 "ADEQUACY OF SAFETY-RELATED DC POWER SUPPLIES"

Background

The specific area of concern of GI A-30 "Adequacy of Safety-Related DC Power Supplies" is the adequacy of the safety-related dc power in operating nuclear power plants, particularly with regard to multiple and common cause failures. Risk analysis and past plant experience support conclusions that failure of the dc power supplies could represent a significant contribution to the unreliability of shutdown cooling. Analysis indicates that inadequate maintenance and surveillance and failure to detect battery unavailability are the prime contributors to failure of the dc power systems.

During the development of plans to resolve GI A-30, it was observed that several previously issued regulatory notices (IENs), bulletins (IEBs) and letters (GLs) submitted to licensees include recommendations similar to those that have been identified to resolve GI A-30. More specifically, it has been determined that recommendations contained in notifications IEN 85-74, "Station Battery Problems", IEB 79-27, "Loss of Non-Class 1E Instrumentation and Control Power System Bus during Operation," and separate actions being taken to resolve GI 49, "Interlocks and LCOs for Class 1E Tie Breakers" include the elements necessary to resolve GI A-30. It is therefore concluded that licensees that have implemented these recommendations and actions will have resolved GI A-30. The response to the questions that follow is necessary to provide the staff with information to determine whether any further action is required for your facility.

Questions

The following information is to be provided for each unit at each site:

1. Unit _____

2. a. The number of independent redundant divisions of Class 1E or safety-related dc power for this plant is _____. (Include any separate Class 1E or safety-related dc, such as any dc dedicated to the diesel generators.)

   b. The number of functional safety-related divisions of dc power necessary to attain safe shutdown for this unit is _____.

3. Does the control room at this unit have the following separate, independently annunciated alarms and indications for each division of dc power?

   a. alarms

      1. Battery disconnect or circuit breaker open? _____

      2. Battery charger disconnect or circuit breaker open (both input ac and output dc)? _____

3. dc system ground? _____

4. dc bus undervoltage? _____

5. dc bus overvoltage? _____

6. Battery charger failure? _____

7. Battery discharge? _____

b. Indications

1. Battery float charge current? _____

2. Battery circuit output current? _____

3. Battery discharge? _____

4. Bus voltage? _____

c. Does the unit have written procedures for response to the above alarms and indications? _____

4. Does this unit have indication of bypassed and inoperable status of circuit breakers or other devices that can be used to disconnect the battery and battery charger from its dc bus and the battery charger from its ac power source during maintenance or testing? _____

5. If the answer to any part of question 3 or 4 is no, then provide information justifying the existing design features of the facility's safety-related dc systems. *See note below.

6. (1) Have you conducted a review of maintenance and testing activities to minimize the potential for human error causing more than one dc division to be unavailable? _____ and (2) do plant procedures prohibit maintenance or testing on redundant dc divisions at the same time?

_____

If the facility Technical Specifications have provisions equivalent to those found in the Westinghouse and Combustion Engineering Standard Technical Specifications for maintenance and surveillance, then question 7 may be skipped and a statement to that effect may be inserted here. _____

7. Are maintenance, surveillance and test procedures regarding station batteries conducted routinely at this plant? Specifically:

a. At least once per 7 days are the following verified to be within acceptable limits:

1. Pilot cell electrolyte level? _____

2. Specific gravity or charging current? _____

3. Float voltage? _____

4. Total bus voltage on float charge? _____

5. Physical condition of all cells? _____

b. At least once per 92 days, or within 7 days after a battery discharge, overcharge, or if the pilot cell readings are outside the 7-day surveillance requirements are the following verified to be within acceptable limits:

1. Electrolyte level of each cell? _____

2. The average specific gravity of all cells? _____

3. The specific gravity of each cell? _____

4. The average electrolyte temperature of a representative number of cells? _____

5. The float voltage of each cell? _____

6. Visually inspect or measure resistance of terminals and connectors (including the connectors at the dc bus)? _____

c. At least every 18 months are the following verified:

1. Low resistance of each connection (by test)? _____

2. Physical condition of the battery? _____

3. Battery charger capability to deliver rated ampere output to the dc bus? _____

4. The capability of the battery to deliver its design duty cycle to the dc bus? _____

5. Each individual cell voltage is within acceptable limits during the service test? _____

d. At least every 60 months, is capacity of each battery verified by performance of a discharge test? _____

e. At least annually, is the battery capacity verified by performance discharge test, if the battery shows signs of degradation or has reached 85% of the expected service life? _____

8. Does this plant have operational features such that following loss of one safety-related dc power supply or bus:

   a. Capability is maintained for ensuring continued and adequate reactor cooling? _____

   b. Reactor coolant system integrity and isolation capability are maintained? _____

c. Operating procedures, instrumentation (including indicators and annunciators), and control functions are adequate to initiate systems as required to maintain adequate core cooling? _____

9. If the answer to any part of question 6, 7 or 8 is no, then provide your basis for not performing the maintenance, surveillance and test procedures described and/or the bases for not including the operational features cited. *See note below.

*Note: For questions involving supporting type information (question numbers 5 and 9) instead of developing and supplying the information in response to this letter, you may commit to further evaluate the need for such provisions during the performance of your individual plant examination for severe accident vulnerabilities (IPE). If you select this option, you are required to:

(1) So state in response to these questions, and
(2) Commit to explicitly address questions 5 and 9 in your IPE submittal per the guidelines outlined in NUREG-1335 (Section 2.1.6, Subitem 7), "Individual Plant Examination: Submittal Guidance."

Enclosure

LIST OF RECENTLY ISSUED GENERIC LETTERS

Generic Letter No.	Subject	Date of Issuance	Issued To
91-05	LICENSEE COMMERCIAL-GRADE PROCUREMENT AND DEDICATION PROGRAMS	04/09/91	ALL HOLDERS OF OLs AND CPs FOR NUCLEAR POWER REACTORS
91-04	CHANGES IN TECHNICAL SPECIFICATION SURVEILLANCE INTERVALS TO ACCOMMODATE A 24-MONTH FUEL CYCLE	04/02/91	ALL HOLDERS OF OLs OR CPs FOR NUCLEAR POWER REACTORS
91-03	REPORTING OF SAFEGUARDS EVENTS	03/06/91	ALL HOLDERS OF OLs OR CPs FOR NUCLEAR POWER REACTORS AND ALL OTHER LICENSED ACTIVITIES INVOLVING A FORMULA QUANTITY OF SPECIAL NUCLEAR MATERIAL (SNM)
91-02	REPORTING MISHAPS INVOLVING LLW FORMS PREPARED FOR DISPOSAL	12/28/90	ALL OPERATORS OF LOW-LEVEL RADIOACTIVE WASTE (LLW) DISPOSAL SITES, WASTE PROCESSORS, & ALL HOLDERS OF LICENSES FOR NUCLEAR FUELS, NUCLEAR MATERIALS & NUCLEAR POWER REACTORS
91-01	REMOVAL OF THE SCHEDULE FOR THE WITHDRAWAL OF REACTOR VESSEL MATERIAL SPECIMENS FROM TECHNICAL SPECIFICATIONS	01/04/91	ALL HOLDERS OF OLs OR CPs FOR NUCLEAR POWER PLANTS
90-09	ALTERNATIVE REQUIREMENTS FOR SNUBBER VISUAL INSPECTION INTERVALS AND CORRECTIVE ACTIONS	12/11/90	ALL LIGHT-WATER REACTOR LICENSEES AND APPLICANTS
89-10 SUPP. 3	CONSIDERATION OF THE RESULTS OF NRC-SPONSORED TESTS OF MOTOR-OPERATED VALVES	10/25/90	ALL LICENSEES OF OPERATING NUCLEAR POWER PLANTS AND HOLDERS OF CONSTRUCTION PERMITS FOR NUCLEAR POWER PLANTS
90-08	SIMULATION FACILITY EXEMPTIONS	08/10/90	ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR NUCLEAR POWER REACTORS