

## **APPENDIX H**

**ARCS Meeting Minutes/Summary of the  
AC/DC Power Systems Reliability Subcommittee,  
August 8, 1990.**

UNCLASSIFIED

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9-6-90 by C. Wylie

ACRS MEETING MINUTES/SUMMARY OF THE  
AC/DC POWER SYSTEMS RELIABILITY  
SUBCOMMITTEE, AUGUST 8, 1990  
BETHESDA, MD

Purpose

The purpose of this meeting was to review the NRC and NUMARC proposed resolution of Generic Issue B-56, "Diesel Generator Reliability."

Attendees

ACRS

- C. Wylie, Chairman
- J. Carroll, Member
- H. Lewis, Member
- W. Kerr, Member
- C. Michelson, Member
- M. El-Zeftawy, Staff

NRC

- P. Norian, RES
- J. Burns, RES
- F. Rosa, NRR
- A. Serkiz, RES
- W. Minners, RES
- R. Gramm, NRR
- H. Wang, NRR
- R. Van Houten, SECY
- L. Norrholm, OCM

Others

- W. Rasin, NUMARC
- A. Marion, NUMARC
- A. Pictrangelo, NUMARC
- J. Sutton, Y AEC
- E. Fotopoulos, Bechtel

Meeting Highlights, Agreements, and Requests

1. Mr. Wylie, Subcommittee Chairman stated the purpose of the Subcommittee meeting and introduced the other ACRS members.

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2. Mr. W. Minners, RES, briefed the Subcommittee members regarding the resolution of Generic Issue B-56, "Diesel Generator Reliability." He indicated that GI/B-56 is a safety issue related to the Station Blackout Rule (10 CFR Part 50, Section 50.63). The staff issued Regulatory Guide 1.155 "Station Blackout," to provide guidance for compliance with the Rule. RG 1.155 identify the need for ensuring reliable sources by means of a reliability program designed to maintain and monitor the reliability level of each power source over time for assurance that selected reliability levels of 0.95 or better are being achieved.

Mr. Minners pointed out that the resolution of GSI B-56 will be accomplished through the issuance of RG 1.9, Rev. 3. This RG accomplishes the following:

- Integrates into a single regulatory guide pertinent guidance previously addressed in RG 1.108; RG 1.9, Rev. 2, and Generic Letter 84-15.
- Defines the principal elements of an EDG reliability program which is for the most part consistent with current industry practices.
- Better defines testing requirements, eliminates cold fast starts, and reduces accelerated testing.

- Defines alert levels and remedial actions to be taken if a deteriorating situation is encountered for the reliability program and problem EDGs.

Regulatory Guide 1.9, Rev. 3, was previously issued for public comment in November 1988, and the comment period was ended in March 1989. The staff received comments from NUMARC, EPRI, ASME, IEEE, IMO Delaval, 9 utilities, and one individual.

As a result of the staff's effort to discuss this matter with NUMARC's B-56 Working Group, NUMARC has revised its NUMARC-8700 document, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors, "Appendix D, to provide guidance similar or identical to the reliability section of RG 1.9, Rev. 3, but in more detail. The staff indicates that RG 1.9, Rev. 3, utilizes definitions from INPO's U.S. Plant Performance Indicator Program (PPIP) to enhance reporting consistency.

Regulatory Guide 1.9, Rev. 3, will be applied to all operating plants for purposes of monitoring EDG reliability levels and reviewing EDG reliability programs with respect to meeting the Station Blackout Rule.

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Mr. Serkiz, RES, indicated that the resolution of GI B-56 through the issuance of RG 1.9, Rev. 3, will not introduce any regulatory requirements beyond those currently required for compliance with the Station Blackout Rule.

On October 6, 1989 and February 8, 1990, the staff and NUMARC representatives have briefed the full ACRS Committee regarding this issue. The Committee viewed some differences between the staff and NUMARC regarding some of the items contained in the proposed revised regulatory guide, and advised the staff to work closely with NUMARC to resolve these differences. Since then, the staff had discussions with NUMARC regarding the use of Appendix D of NUMARC-8700 as the principal reference for monitoring and maintaining EDG reliabilities selected for compliance with 10 CFR 50.63, "Station Blackout."

Mr. Minners provided histograms of emergency diesel generator failures on demand for 1976 through 1985. Although the average failure on demand observed is about  $2 \times 10^{-2}$ , there is a significant spread from the highest to the lowest demand failure rate. There were 145 instances in which multiple D.Gs were simultaneously failed, unavailable, or showed some degradation.

\* | Mr. Serkiz pointed out that EDG maintenance problems continue to exist despite reported high levels of EDG reliability (e.g. Vogtle, Cooper, D.C. Cook, Calvert Cliffs, and Zion). The NRC relies primarily on industry reported EDG performance and availability.

Mr. Minners provided some data regarding demands between failures versus failure number for two plants. he indicated that such data would provide trigger values especially for the problem diesel.

The staff has currently revised R.G. 1.9, Rev. 3 to reference the revised NUMARC's Appendix D, as appropriate and included guidance for an EDG reliability program (Section C.6). The revised NUMARC's Appendix D was submitted on May 2, 1990, and has been reduced in scope.

A 50.54(f) letter has been prepared by the staff to determine the course of action licensees and applicants plan to pursue and suggests submittals of Tech. Specifications changes to take advantages of relaxations afforded. Currently the staff believes that the reduction in contents of NUMARC-8700 document, Appendix D does not provide a means for the direct total endorsement approach as recommended by the CRGR. The staff recommends that R.G. 1.9, Rev. 3 reference Appendix D where unambiguous reference can be made to Appendix D, and

that guidance related to an onsite EDG reliability program be included in the subject R.G.

The staff has met with CRGR on July 25, 1990 to discuss this issue. CRGR recommended that Section C.6.1 (monitoring) to be remained in the main body of the R.G. However, the illustrative examples and considerations contained in sections C.6.2, C.6.3, C.6.4, C.6.5, C.6.6, and C.6.7 will be placed into an Appendix. The CRGR also recommended that the 50.54(f) letter to be revised to more clearly note that NRC is requesting a response as to whether licensees plan to implement guidance provided, or to identify actions utilities plan to implement for monitoring and maintaining EDG reliability.

Recently the staff has just revised Section C.5, "Reporting Criteria" of R.G. 1.9, Rev. 3, which incorporates the reporting requirements desired by NRR. This revision calls for a special report to be submitted when a "problem" diesel situation occurs (i.e., 4 failures in the last 25 valid demands). The staff feels that this backfitting is necessary to provide uniform reporting requirements for all plants. It is worth noting that, Mr. F. Rosa, DST/SELB/NRR, stated that he defines the problem diesel as the one with 3 failures in the last 20 valid demands.

3. Mr. W. Rasin, NUMARC/Director, stated that NUMARC has revised NUMARC-8700 document, with the following changes:

- Initiative 5 of NUMARC-8700, has been revised to include monitoring of EDG reliabilities against the target reliability selected for Station Blackout, and also addresses actions for a problem EDG experiencing 4 or more failures in the last 25 demands.
- NUMARC revised their Appendix D, and the current version has been reduced in scope. The previous guidance dealing with surveillance needs, performance monitoring of important EDG parameters, data systems, maintenance, failure analysis and root cause investigation, problem closeout and methodology for determining programmatic deficiencies is now being put in a topical report titled "Effective Elements of an EDG Reliability Program." This Topical Report will not be submitted to the NRC for review. NUMARC intends to provide this Topical Report to utilities as needed.

Appendix D now consists of two sections: D.1, "Definitions" and D.2, "Monitoring EDG Reliability." The details of the EDG reliability program are discussed in the Topical Report.



Mr. Rasin indicated that NUMARC strongly opposes the NRC staff proposal of issuance of 50.54(f) generic letter (GL), and believes that it is unnecessary and unwarranted in light of the established high industry performance. He pointed out that invoking 10 CFR 50.54(f) in GL makes guidance in R.G. de facto regulatory requirements. He also stated that the staff has not satisfied the backfit rule requirements, and recommended that staff should focus on programs instead of performance.

4. Mr. A. Marion, NUMARC, indicated that the industry actions addressing resolution of the B-56 issue provide the NRC staff with the following:

- A docketed commitment to maintain the chosen target reliability of 0.95 or 0.975;
- A commitment to a standard set of trigger values, acceptable to NRC, from which to monitor EDG target reliability;
- Information relative to individual EDG failures and associated corrective actions;

- Information relative to the combination of individual failures as they relate to plant unit performance and reliability, and
- Information relative to comprehensive programmatic improvements resulting from the assessments following double trigger exceedence.

NUMARC believes that Generic Issue B-56 has been satisfactorily resolved by the industry without the need for regulatory action.

5. As a result of the Subcommittee's discussion, some of the Subcommittee members expressed some concern in regard to the following:

- Dr. Kerr questioned the staff's proposal of using the subject R.G. as a tool for backfitting purposes. He also questioned the enforceability of such approach.
- Dr. Kerr expressed concern that the staff is imposing and advocating a maintenance rule on the industry.
- Dr. Lewis expressed concerns regarding the staff's failure for optimal use of the collected data on diesel failures.

- Dr. Lewis indicated that it is not clear what problem the proposed reliability program by the staff is supposed to solve.
- Mr. Wylie commented that the commitments of the licensees to monitor and maintain EDG reliability above the chosen target levels and the industry initiatives could be sufficient to ensure DG reliability.
- Mr. Carroll commented that it is not clear if, for instance, the Vogtle situation could have been identified by the new staff's proposal.
- Dr. Lewis expressed concern regarding the lack of experts among the NRC staff to handle mathematical and statistical interpretation of the data.

#### Future Actions

The Subcommittee Chairman is planning to brief the full Committee at the August 9-11, 1990 ACRS meeting regarding this subject. The staff and NUMARC representatives will also brief the full Committee on August 9, 1990 regarding the same issue. The Committee may wish to write a report to the Commission regarding this issue.

