

ACRS-2837  
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BY C. WYLIE 8/26/92

SUMMARY/MINUTES OF THE ACRS SUBCOMMITTEE MEETING  
ON CONTROL AND ELECTRICAL POWER SYSTEMS  
AUGUST 4, 1992  
BETHESDA, MARYLAND

PURPOSE

The ACRS Subcommittee on Control and Electrical Power Systems held a meeting on August 4, 1992. The purpose of this meeting was to discuss the NRC staff's proposed Supplement 1 to Generic Letter (GL) 83-28, "Required Actions Based on Generic Implications of the Salem ATWS Events," and an associated Differing Professional Opinion (DPO) by C. Morris (NRR staff). A copy of the meeting agenda and the staff's handout for the meeting are attached. The meeting began at 1:00 pm and adjourned at 3:35 pm and was held entirely in open session. No written comments or requests for time to make oral statements were received from members of the public. The principal attendees were as follows:

ATTENDEES

ACRS

C. Wylie, Chairman  
J. Carroll, Member  
W. Kerr, Member  
C. Michelson, Member  
D. Houston, ACRS Staff  
P. Boehnert, Cognizant Staff  
Engineer

NRC STAFF

W. Russell, NRR  
E. Rossi, NRR  
C. Berlinger, NRR  
C. Morris, NRR  
G. Marcus, OCM

There were three members of the public in attendance representing Bechtel, NUS and Gasser, Associates.

DISCUSSION

Chairman's Opening Remarks

In his opening remarks, Mr. Wylie indicated that GL 83-28 had been issued following the failure of the reactor trip breakers (RTB) to open on demand at the Salem plant in February 1983. He stated that the staff was proposing to delete portions of the original generic letter and that a differing professional opinion had been filed in regard to this deletion. He noted that this matter would be discussed at the Full Committee meeting on August 6, 1992.

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Presentation by NRC Staff

C. Berlinger (NRR) discussed the historical background for GL 83-28 and summarized the major actions that were implemented to improve the reliability of reactor trip systems. These two actions were:

- Auto-actuation of shunt trip attachment following reactor trip signal, and
- Establish comprehensive preventive maintenance and surveillance testing programs.

Mr. Berlinger stated that only two RTB failure to open events had occurred since the Salem event, one at McGuire in 1987 and the other at Palo Verde in 1992. Based on this operating experience, the staff has concluded that the implementation of the major actions has been effective in improving RTB reliability.

Mr. Berlinger indicated that the staff was proposing to delete two areas of the original generic letter in regard to: (1) performance of life testing and (2) periodic replacement based on life expectancy. These areas had been suggested in the generic letter but never implemented, therefore are not considered as contributors to the observed improvement in RTB reliability. He noted that the Westinghouse Owners Group (WOG) had submitted a report, WCAP-10835, on life testing of RTBs out to 5000 cycles. The staff did not complete a review of the report or issue a Safety Evaluation Report (SER) on it since the staff had a concern regarding thermal aging of the test breaker. Additionally, the staff was not convinced that life testing should be required. Mr. Berlinger further noted a public comment from Union Electric in which they requested the staff to acknowledge the WOG effort and report.

In response to a question by Mr. Wylie, W. Russell (NRR) discussed the generic maintenance rule and the preventive maintenance program that was implemented by GL 83-28. He indicated that a planned program for periodic maintenance of the RTBs would be required either by the generic letter or the maintenance rule. He did not foresee any relaxation of maintenance based upon the presumption that one would not have failures.

Presentation on The Differing Professional Opinion

C. Morris (NRR) discussed the evolvement of the differing professional opinion (DPO) and the prior internal staff reviews that had been performed in regard to this matter. He joined the Electrical Systems Branch in 1987 and had been involved in design and reliability aspects of electrical systems for some 20 years. His DPO was based on a number of aspects, none of which seemed to be of any great safety significance. These were as follows:

- The Generic Letter is an inappropriate vehicle for the imposition of requirements.
- The failure reports on RTBs were difficult to decipher but he did note 120 failures. All but two were failures to close, not failures to open, and thus had been dismissed by the staff as insignificant.
- Regular monthly testing of RTBs would probably involve more than one open and close cycle, perhaps as many as 10 or 20. Therefore, some accountability of cycling or cumulative damage should be considered in lieu of life tests.
- Life testing might reveal certain things that haven't been identified so far. Such tests would certainly add to the data base.

The Subcommittee questioned whether one would get as much information out of proposed life testing or from actual observations of these RTBs under real conditions at the various nuclear plants. Mr. Morris implied that the results from the various plants would not be presented in an integrated manner. The Subcommittee indicated that Mr. Morris had not convinced them that life testing should be required.

#### Closing Remarks

In closing, Mr. Wylie suggested an agenda for the presentation of the staff and Mr. Morris at the Full Committee Meeting on August 6, 1992.

#### FUTURE ACRS ACTION

The proposed Supplement 1 to GL 83-28 and the Mr. Morris' DPO will be discussed at the August ACRS Meeting and an ACRS report on this matter will be developed during the meeting.

#### ACTIONS, AGREEMENTS AND COMMITMENTS

No items in this category were identified.

#### REVIEW DOCUMENTS

The review documents for the Subcommittee meeting are as follows:

- 1) Memorandum for David L. Meyer (OA) from Bruce Boger (NRR) dated June 22, 1992. Subject: Notice of Opportunity for Public Comment on Proposed Generic Communication (Supplement No. 1 to Generic Letter 83-28).

- 2) Memorandum for Edward Jordan (CRGR) from Thomas Murley (NRR) dated January 29, 1992. Subject: Draft Supplement 1 to Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events" (with attachments: Charles Morris' Differing Professional Opinion)
- 3) Memorandum for Carlyle Michelson (ACRS) from C. Morris (NRR) dated June 18, 1990. Subject: A Request For ACRS to Review the Generic Matter of Reactor Trip Breaker Life Testing.
- 4) Letter to USNRC from Union Electric dated July 29, 1992. Subject: Proposed Supplement 1 to Generic Letter 83-28.
- 5) Memorandum for James M. Taylor (EDO) from Edward Jordan (CRGR) dated August 3, 1992. Subject: Charles Morris' Differing Opinion - Reactor Trip Breaker Generic Letter Supplement.
- 6) Memorandum for ACRS Subcommittee from C. Morris (NRR) dated August 4, 1992. Subject: Reactor Life Test (with attachments).

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NOTE: Additional meeting details can be obtained from a transcript of this meeting available in the NRC Public Document Room , 2120 L Street, NW, Washington, DC 20006, (202) 634-3273 or can be purchased from Ann Riley and Associates, Ltd., 1612 K Street, NW, Suite 300, Washington, DC 20006, (202) 293-3950.

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
CONTROL AND ELECTRICAL POWER SYSTEMS SUBCOMMITTEE MEETING:  
GENERIC LETTER 83-28, SUPPLEMENT 1/C. MORRIS DPO  
AUGUST 4, 1992  
BETHESDA, MARYLAND

TOPICAL AGENDA

- I. Introduction 1:00 pm  
    C. Wylie, Chairman
- II. NRC-NRR Presentation (1 Hour)  
    • Generic Letter 83-28 Suppl. 1  
    • Public Comments Received  
    • C. Morris DPV/DPO  
    • Future Actions
- III. C. Morris Presentation (30 Min.)  
    • DPO Concerns
- IV. Subcommittee Discussion  
    • Decision to bring matter to ACRS
- V. Adjourn 3:00 pm

**GENERIC LETTER 83-28, SUPPLEMENT 1  
REQUIRED ACTIONS BASED ON GENERIC  
IMPLICATIONS OF SALEM ATWS EVENTS**

**PRESENTATION BEFORE THE  
CONTROL AND ELECTRIC POWER SUBCOMMITTEE  
BY  
CARL H. BERLINGER, CHIEF  
GENERIC COMMUNICATIONS BRANCH  
DIVISION OF OPERATIONAL EVENTS ASSESSMENT  
(301) 504-2837**

**AUGUST 4, 1992**

# GENERIC LETTER 83-28, SUPPLEMENT 1

- GL 83-28 REQUESTED LICENSEES TO IMPLEMENT LONG-TERM CORRECTIVE ACTIONS IN RESPONSE TO SALEM ATWS EVENTS.
- TWO MAJOR ACTIONS TO IMPROVE RELIABILITY OF REACTOR TRIP SYSTEM:
  - AUTO-ACTUATION OF SHUNT TRIP ATTACHMENT FOLLOWING REACTOR TRIP SIGNAL.
  - ESTABLISH COMPREHENSIVE PREVENTIVE MAINTENANCE AND SURVEILLANCE TESTING PROGRAMS.
- IN ADDITION, ITEMS 4.2.3 AND 4.2.4 REQUESTED LICENSEES TO:
  - PERFORM LIFE TESTING.
  - PERIODIC REPLACEMENT BASED ON LIFE EXPECTANCY.
- LICENSEES IMPLEMENTED THE MAJOR REQUESTED ACTIONS RELATED TO AUTO-ACTUATION OF RTB SHUNT TRIP ATTACHMENT AND PREVENTIVE MAINTENANCE AND SURVEILLANCE TESTING PROGRAMS.
- LICENSEES DID NOT FULLY IMPLEMENT LIFE TESTING AND PERIODIC REPLACEMENT PROGRAMS; CONTEND THAT FURTHER LIFE TESTING NOT NECESSARY BECAUSE OF CONTINUING TEST, MAINTENANCE AND TRENDING PROGRAMS.

## **GENERIC LETTER 83-28, SUPPLEMENT 1**

- **TO ASSESS NEED FOR ADDITIONAL GUIDANCE TO LICENSEES WHO HAD NOT FULLY IMPLEMENTED ACTION ITEMS 4.2.3 AND 4.2.4, AND,**
- **TO RESOLVE A DPO RAISED BY MR. CHARLES MORRIS ON IMPLEMENTATION OF THESE ACTION ITEMS :**
- **STAFF PERFORMED A REVIEW OF OPERATING EXPERIENCE DATA FROM 1986 THROUGH EARLY 1991 BASED ON INFORMATION IN NPRDS AND LERs.**
- **ONLY ONE RTB FAILURE TO OPEN ON DEMAND EVENT OCCURRED AT MC GUIRE, UNIT 2 ON JULY 2, 1987.**
- **RECENTLY, ANOTHER EVENT OCCURRED AT PALO VERDE, UNIT 3 ON MARCH 31, 1992.**



## GENERIC LETTER 83-28, SUPPLEMENT 1

- **STAFF CONCLUDED REGARDING RTB RELIABILITY:**
  - \* **ACTIONS COMPLETED ALREADY HAVE BEEN EFFECTIVE IN IMPROVING RTB RELIABILITY.**
  - \* **FURTHER ACTIONS TO ADDRESS END-OF-LIFE DEGRADATION IN BREAKER RELIABILITY NOT JUSTIFIED.**
  - \* **HARDWARE AND SOFTWARE MODIFICATIONS RESULTING FROM PROMULGATION OF REQUIREMENTS OF 10 CFR 50.62 TO REDUCE RISK FROM ATWS EVENTS FURTHER REDUCED RISK FROM RTB FAILURES.**
  - \* **CONTINUED IMPLEMENTATION OF GL 83-28 ACTION ITEMS 4.2.3 AND 4.2.4 NOT NECESSARY.**
  
- **THIS GENERIC LETTER SUPPLEMENT PROPOSES TO REMOVE THE REQUIREMENT FOR LIFE TESTING (4.2.3) AND PERIODIC REPLACEMENT (4.2.4) BASED ON EXPECTED LIFETIMES.**

# GENERIC LETTER 83-28

- REQUESTED ACTIONS IN GENERIC LETTER 83-28 :
    - \* 1.0 POST-TRIP REVIEW.
    - \* 2.0 EQUIPMENT CLASSIFICATION AND VENDOR INTERFACE.
    - \* 3.0 POST-MAINTENANCE TESTING.
    - \* 4.0 REACTOR TRIP SYSTEM RELIABILITY IMPROVEMENTS.
  - 4.0 REACTOR TRIP SYSTEM RELIABILITY IMPROVEMENTS :
    - \* 4.1 VENDOR-RELATED MODIFICATIONS.
    - \* 4.2 PREVENTIVE MAINTENANCE AND SURVEILLANCE PROGRAMS FOR REACTOR TRIP BREAKERS :
      - 4.2.1 A PLANNED PROGRAM OF PERIODIC MAINTENANCE.
      - 4.2.2 TRENDING OF PARAMETERS.
      - 4.2.3 LIFE TESTING. \*\*\*
      - 4.2.4 PERIODIC REPLACEMENT. \*\*\*
    - \* 4.3 ACTUATION OF SHUNT TRIP ATTACHMENT.
    - \* 4.4 IMPROVEMENTS IN MAINTENANCE AND TEST PROCEDURES FOR B&W PLANTS.
    - \* 4.5 SYSTEM FUNCTIONAL TESTING
- \*\*\* NOT FULLY IMPLEMENTED BY LICENSEES