



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

FEB 25 1983

MEMORANDUM FOR: William J. Dircks
Executive Director for Operations

FROM: Victor Stello, Jr., Chairman
Committee to Review Generic Requirements

SUBJECT: MINUTES OF CRGR MEETING NUMBER 31

The Committee to Review Generic Requirements met on Wednesday, February 9, 1983, from 1-3 p.m. A list of attendees is enclosed.

1. IE representatives R. Baer and J. Collins presented for Committee review the proposed IE Bulletin (IEB 83-01) titled Stress Corrosion Cracking in Large-Diameter Stainless Steel Recirculation System Piping at BWR Plants. Proposed IEB 83-01 concerns the same subject as IEB 82-03 which was reviewed by the Committee (CRGR Meeting No. 22) prior to issuance by IE.

As a result of the extensive intergranular stress corrosion cracking (IGSCC) found at Nine Mile Point Unit 1, NRC issued IEB 82-03 to (a) notify power reactor licensees and permittees concerning IGSCC and (b) require actions by nine BWR licensees at plants scheduled for refueling outages in late 1982 and early 1983. Inspections pursuant to IEB 82-03 have shown that there is cracking in the main recirculation system piping in three of the five plants examined to date. Therefore, IE proposes IEB 83-01 to further address IGSCC. Proposed IEB 83-01 differs from IEB 82-03 as follows:

- ° IEB 83-01 provides a summary of the history of pipe cracks in BWR recirculation systems found as a result of the inspections performed since the issuance of IEB 82-03.
- ° IEB 83-01 requires actions by licensees at BWR plants that were not addressed by IEB 82-03.
- ° IEB 83-01 includes acceptance criteria for demonstration of ultrasonic testing techniques for plant inspection of piping.
- ° IEB 83-01 includes requirements for a minimum sampling plan.

Although complete cost-benefit information was not available, the Committee judged that the proposed Bulletin, IEB 83-01 was needed and recommends that it be issued after modification to address the following comments:

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- (a) The Bulletin should explicitly state that actions required are beyond current license requirements for inspection of piping.
 - (b) The Bulletin should indicate that, before resuming operations following the outage, licensees are required to report only findings of cracks and corrective actions. Information concerning criteria used to select welds for examination should be provided to NRC no later than 60 days after completion of examinations. Other information concerning examination details such as piping layouts, weld locations, materials specifications, occupational exposures, exposure ALARA guidance, and resource expenditure need not be reported but should be retained by licensees since it could be requested as part of ongoing longer term NRC efforts in this area.
 - (c) The bulletin should include a generic description of what NRC considers to be an appropriate examination to detect pipe cracking and should indicate that each licensee is responsible for assuring that plant specific examinations are appropriate for each weld examined.
 - (d) The bulletin should emphasize the importance of having qualified personnel, procedures and equipment to perform the examination. In this regard, information concerning the adequacy of procedures, personnel and equipment for detecting cracks should be disseminated by the appropriate means such as code committees, testing organizations, licensees and permittees.
 - (e) The Bulletin should explain when and how to request deviations from actions required by the Bulletin.
 - (f) IE should assure that all licensed BWR plants have appropriately addressed the pipe cracking issue, in particular those who may not have responded to IEB 82-03.
 - (g) NRR comments concerning the bulletin should be appropriately addressed.
2. W. Mills (IE) presented for Committee review the proposed IE Bulletin titled Check Valve Failures in Raw Water Cooling Systems of Diesel Generators. Mr. Mills previously briefed the Committee (CRGR Meeting No. 28) concerning IE plans to address check valve failures in systems important to safety. This bulletin is part of a generic NRC response to address check valve failures and in-service inspections to detect such failures.

The proposed bulletin (a) notifies licensees and permittees about numerous incidents of failed check valves in systems important to safety; (b) informs licensees of a significant generic matter for which additional NRC action is anticipated; (c) requires appropriate surveillance and testing of check valves in raw water cooling systems for diesel generators; and (d) requires a response from all licensed nuclear power reactors.

The bulletin focuses on check valve failures in the raw water cooling system of diesel generators for the following reasons:

- (a) Six of six check valves in these systems at Dresden and Quad-Cities failed with a common mode potential for interrupting flow of cooling water to the diesel generators.
- (b) Both diesels on Dresden Unit 3 tripped on overtemperature due to lack of cooling water flow and resulted in the unit being without emergency power.
- (c) The cause of the lack of raw cooling water flow to the Dresden Unit 3 dedicated diesel (failed check valves) was not discovered for almost 1 month following the event despite numerous test and surveillance procedures and was attributed to other causes. The conditions of the swing diesel and the Unit 2 dedicated diesel check valves at Dresden were not discovered until more than 1 month after the initial event.
- (d) These check valves were not included in the plant in-service testing (IST) program at the time of the event. Since the event, the NRC Office of Nuclear Reactor Regulation has added these valves to IST requirements for plants currently being reviewed.
- (e) Even if the valves had been in the IST program, it is doubtful if the normal forward flow test would have discovered these latent failures except by chance, as occurred at Dresden. The failures were finally discovered by direct inspection of valve internals. Although most check valves in systems important to safety are included in current IST program reviews, most are not required to be reverse flow tested or disassembled to detect gross internal failure largely because licensees have identified these valves as having a single safety function - the open position. However, forward flow tests to verify the open position are not adequate for detecting internal disassembly and loss of the check valve barrier function. Effective check valve testing techniques are necessary to the development of a more meaningful and productive IST program.

The Committee judged that the proposed Bulletin was needed and recommends that it be issued after a paragraph similar to the following is included in an appropriate section of the bulletin:

"Title 10 of the Code of Federal Regulations, Section 50.55a(g) requires testing of valves whose function is required for safety. This is implemented by application of Section XI of the ASME Boiler and Pressure Vessel Code and Addenda. However, NRC analysis of operating experience with check valves has shown that disassembly and partial disassembly of check valve internals is not effectively found by Section XI testing as it is implemented at this time. Tests required by Section XI or Technical

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Specifications usually require only forward flow testing of the check valves. These tests may not detect internal check valve failures unless the disassembled parts move to block flow during the test."

The Committee noted that the popular use of swing check valves in safety related plant flow systems considerably expands the scope of concern for check valve maintenance and testing beyond diesel cooling water systems. Licensee event reports indicate that other systems important to safety have also experienced failures of check valves which have not been included in the IST program and have not been discovered during testing. Other licensee event reports indicate that for those valves which are not leak tested in some manner to determine their barrier status, both the type and frequency of testing may not be adequate to detect valve failure. Therefore, the maintenance and IST programs should be reassessed by NRR and IE with focus on detecting and preventing gross and multiple check valve failures that could defeat functions of systems important to safety.

- 3. E. Jordan (IE) informed the Committee of IE plans to propose a bulletin in the near future that concerns Hayward Tyler Pump Company (HTPC) ASME Nuclear code pumps and spare parts.

Original Signed by
V. Stello

Victor Stello, Jr., Chairman
Committee to Review Generic Requirements

Enclosure:
List of Attendee

cc: Commission (5)
Regional Administrators
CRGR Members
G. Cunningham, ELD
SECY

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DATE	:2/7/83	:2/23/83	:2/25/83	:	:	:

ATTENDANCE RECORD FOR

CRGR MEETING NO. 31

(2/09/83)

CRGR Members

V. Stello, Chairman
D. Ross, RES
L. Chandler, ELD for J. Scinto
E. Jordan, IE
D. Chapell, NMSS for Cunningham
R. Purple, NRR for Eisenhut
J. Heltemes, AEOD

Others

W. Schwink, DEDROGR staff
T. Murley, DEDROGR/D
W. Kane, DEDROGR staff
T. Cox, DEDROGR staff
B. Liao, NRR
L. Shao, RES
B. Mills, IE
G. Lanik, IE
J. Collins, IE
B. Baer, IE
M. Taylor, DEDROGR staff
F. Cherny, NRR
R. Bosnak, NRR