

NOV 15 1982

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 24

The Committee to Review Generic Requirements met on Wednesday, November 3, 1982 from 1-5 p.m. A list of attendees is enclosed.

1. J. Cunningham (IE) presented for CRGR review the proposed IE bulletin titled Overexposures in PWR Cavities. The purpose of the bulletin is to inform PWR licensees (OLs) and permit holders (CPs) of (a) events with potentially significant impact on the health and safety of workers, (b) circumstances surrounding several violations of the requirements of 10 CFR 20 and (c) required actions to prevent reoccurrence of those events. The staff believes that these violations of 10 CFR 20 are indicative of unsafe practices currently employed at some facilities and that these practices are of a nature that additional (potentially more severe) violations are likely unless preventive action is taken.

A discussion of the actions required by the bulletin and costs associated with those actions follows:

- (a) A review of procedures to eliminate the need to enter the reactor cavity. This should require no more than 1 staff-month of effort by an engineer. For those plants that currently do not allow entries into the cavity while the incore thimbles are out of the core, the impact is negligible. For those plants that routinely experience refueling pool leaks and are allowing cavity entries, several alternatives have been suggested to minimize the impact. The cost of these alternatives ranges from several thousand dollars for requiring reinsertion of the thimbles to a very minimal cost for a leak detection system. Filling the refueling pool is usually a critical path effort and reinsertion of the thimbles can add as much as 6 hours thereby possibly extending the outage for 6 hours. On the other hand, the Farley plant has devised a leak detection system which consists of polyethylene bags, fixed below each refueling pool seal, fitted with leak-off tubes that direct any leakage to a central collection point. The method to eliminate cavity entries is left to the licensee or permit holder.

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- (b) The evaluation of the need for an area radiation monitor in the cavity including documentation of the evaluation. This should require no more than 1 staff week of effort by a health physicist (HP). The evaluation of need is left to the licensee to minimize the impact of this recommendation on those licensees that do not make entries into the cavity area.
- (c) Requiring all personnel that enter the reactor cavity area for inspection/work to be issued a radiation work permit (RWP) will cause some licensees that currently exempt RWP requirements if escorted by HP to revise their procedures. Review, revision and approval of the RWP issuance procedures will require 1 to 2 staff weeks per plant. Implementation of the new procedure is another impact on the licensee; however, the added small increment of the number of RWP's issued by this new procedure would be negligible compared to the large number of RWPs issued each year at a plant.
- (d) Review and upgrading of HP, and Operations training programs to include training on specific radiological hazards in the reactor cavity should not require more than 2 staff weeks of effort by the utility training staff. Integrating the radiation hazards training into the existing training/retraining programs at the plant, minimizes any impact of implementing this recommendation.

IE believes that the benefit to be derived from the proposed bulletin is the termination of a series of overexposures resulting from inspections of lower reactor cavities in PWRs. These overexposures have averaged slightly less than one per year since 1972, and the staff is of the view that issuance of this bulletin may prevent a potentially more serious exposure from occurring. Although the highest dose experienced in one of these incidents so far has been 10 rems, the radiation field (2000 R/HR) in the cavity with the thimbles down can deliver potentially life-threatening doses in a short time period.

The Committee is of the view that breakdown in management controls that results in overexposure events of this nature (violation of 10 CFR 20) should be addressed through strong enforcement action. Where there is repeated occurrences of regulation violation, very strong enforcement action such as civil penalties, plant shutdown and license suspension should be considered, particularly where a knowledgeable person such as a reactor shift supervisor is involved, and disregards prudent health physics practices. Therefore, the Committee recommends that the proposed bulletin not be issued but that the following information be issued promptly by the Director, IE, utilizing an appropriate mechanism, to PWR licensees and permit holders.

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- (a) Information concerning the radiological hazards associated with individuals entering reactor cavities.
- (b) Historical information concerning overexposures associated with individuals entering reactor cavities.
- (c) A copy of the \$100,000 civil penalty recently issued to Zion concerning overexposure of a shift supervisor entering the reactor cavity.
- (d) A clear indication that NRC will strongly consider the full range of enforcement actions including (1) largest fines, (2) plant shutdown, (3) license suspension and (4) combinations of 1 through 3 to address overexposure of this nature (violation of 10 CFR Part 20).

2. R. Baer (IE) presented for CRGR review the proposed IE bulletin titled, Deficiencies in Primary Containment Electrical Penetration Assemblies. This issue was previously discussed at CRGR Meeting No. 18. At that meeting, R. Baer briefed the Committee concerning the proposed IE action to address failure of certain design types of Bunker Ramo containment electrical penetration assemblies in some plants under construction and in operation. At Meeting #18, the Committee recommended that an information notice be promptly issued to communicate current available information to licensees and permit holders and that a proposed bulletin concerning the matter be forwarded for CRGR review at a later date. The notice was issued on September 22, 1982 and the proposed bulletin was discussed at this CRGR meeting.

The purpose of the bulletin is to inform CP holders and licensees about findings from a joint Region III, Region IV and IE study concerning electrical penetrations supplied by the Bunker Ramo Co. The study concluded that there is a potential safety significance and generic implications at a limited number of plants that utilize these penetration assemblies. All recipients of the bulletin are to review the information for applicability to their facilities and (a) take appropriate action if their plant utilizes hard epoxy containment electrical penetration assemblies manufactured by the Bunker Ramo Co. or (b) report that such assemblies are not used in their facility.

IE believes that the safety benefit to be derived from the issuance of this bulletin is to provide reasonable assurance that electrical penetration assemblies are suitable for the service intended. The estimated costs for assuring that the subject penetration assemblies are adequate for service are provided below:

a. Plants Under Construction

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\$3,000,000 per plant. This cost is based on \$1,000,000 for material and \$2,000,000 for labor, retesting, etc. The cost to recrimp all electrical connectors as opposed to replacement is estimated to be 80 to 85 percent of replacement cost. Despite the high cost of a complete recrimping program, industry asked that the bulletin permit this as an option, since complete recrimping may not be required because a sampling type inspection is permitted. If no problems are identified at a plant, the inspection and reporting cost would be about 10-20 percent of a total replacement.

BWR: Since BWRs have approximately one-half the number of penetration assemblies of a PWR, the estimated cost would be approximately one-half of the \$3,000,000 cost estimated for PWRs.

b. Operating Plants

An informal survey conducted by the regional offices has not disclosed any of the problems cited in the bulletin as occurring at operating plants. Therefore, it is expected that the operating plants will merely have to provide a report. This would have a minimal cost and operating impact.

The Committee recommended that the proposed bulletin be issued after it is modified such that (a) all required actions are to be completed within 90 days rather than an earlier timeframe and (2) the word "accessible" is clearly defined.

3. R. Bernero (RES) briefed the Committee on the background, current status and the recommendations of the ATWS Task Force/Steering Group concerning the following alternatives.

- a. No ATWS rule (or include ATWS under the Severe Accident Program).
- b. Adopt the proposed or a modified version of the Utility Group rule.
- c. Adopt the staff rule or a modification of it.
- d. Adopt those portions of the Hendrie rule for which a technical basis currently exists.

The CRGR requested a subsequent briefing to address the following questions:

- a. What occupational exposures are associated with the proposed fixes?

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- b. What are the benefits of the proposed fixes? Can they be quantified (using \$1,000/man-rem averted)?
- c. If the proposed changes are incorporated in one regularly scheduled refueling outage, what would be the incremental costs attributable to the proposed fixes?
- d. There appears to be a large variation in the estimates of costs of reactor trip (inadvertent) associated with various alternatives and between vendors; e.g., \$2.5 - \$5.0 M for BWRs, \$1.0M for W PWRs, and \$2.0 - \$3.0 M for CE and B&W PWRs. Are these differences real (particularly for PWRs) and why? One understands that cleanup from auto SLCS in BWRs would be higher, but would auto SLCS at 86 gpm be twice as costly as auto SLCS at 43 gpm?
- e. The NRC proposal regarding BWRs (86 gpm manual SLCS) relies on operator action and good training and procedures. Obviously the human reliability in manually actuating SLCS and in manipulating HPCI water level (lower) would limit the achievement of fixes for BWR ATWS. Automation of an 86 gpm SLCS would improve SLCS reliability and, except for long term cooling, a factor of 20 reduction in the probability of core damage due to ATWS might be achieved. Having achieved success by SLCS automation and HPCI manipulations, the use of containment pressure relief (per Limerick) could be advantageous in reducing the probability of failure of long term cooling. This could also be of benefit to operator reliability in terms of the additional time window available for operator actions should pool temperature become greater than 200°F by delays in SLCS and HPCI manipulations. Has staff explored such benefits of overpressure relief in the context of proposed fixes?
- f. Operator actions to lower the coolant levels by manipulation of HPCI would appear to be contrary to sound core cooling principles and may increase the probability of core damage. Has this been fully thought out in terms of pros and cons? What assurance exists that level indications in BWRs are sufficiently accurate under these ATWS conditions? (There have been concerns expressed that level indications in BWRs are not accurate even under non-ATWS conditions.)
- g. What is the staff's view on the limiting pool temperatures (local and bulk) where condensation of ATWS generated steam could not be assured? Are there hydraulic load considerations at lower temperatures that would be more limiting?
- h. With regard to the proposed limit of 200°F local BWR pool temperature, is this a measurable quantity. What confidence

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would the operators expect to have in indications of local pool temperatures? What would the operators be expected to do in the event of an indicated local pool temperature greater than 200°F? Should he throttle back or turn off HPI? Should he depressurize the vessel (thereby raising the pool temperature) in order to bring in all available ECC water plus full pool cooling? Has staff given consideration to what alternative sequences might exist if the operators did not respond in the short time windows indicated for the sequences investigated?

If there are additional questions concerning ATWS, they will be addressed at the briefing.

Original Signed by  
V. Stello

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

Enclosure: List of  
Attendees

cc: Commission (5)  
Office Directors  
Regional Administrators  
CRGR Members  
G. Gunningham

Distribution:  
VStello  
TEMurley  
DEDROGR cf  
DEDROGR staff  
Central File  
PDR (NRg/CRGR)  
SStern  
FCameron  
BBrach  
RErickson  
FHebdon  
WLittle (R-III)  
JGagliardo (R-IV)  
JZwetzig (R-V)

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SURNAME	WStello	TEMurley	VStello				
DATE	11/12/82	11/12/82	11/ /82				

CRGR MEETING #24  
List of Attendees  
(November 3, 1982)

CRGR MEMBERS

Vic Stello  
Bob Purple (for Darrell Eisenhut)  
Joe Scinto  
Jack Heltemes  
Dick Cunningham  
Bob Bernero

OTHERS

Tom Murley  
Walt Schwink  
Larry Ybarrondo  
Guy Arlotto  
Jim Wigginton  
Bob Baer  
Mat Taylor  
Tom Cox  
Frank Congel  
Ed Abbott  
Steve Stern  
Jay Cunningham  
Jim Milhoan  
John Austin  
Tom Ippolito  
Al Dromerick  
T. Speis  
Chuck Graves  
D. Pyatt  
G. Burdick  
Pat Baranowsky

REGION IV ROUTE SLIP

Date OCT 25 1982  
 Revised 9-82

REGIONAL ADMINISTRATOR'S STAFF
<input checked="" type="checkbox"/> J. Collins-Reg. Adm. <i>10/26</i>
(Vacant)-Dep. Reg. Adm.
URANIUM RECOVERY FIELD OFFICE
D. Smith, Director
PUBLIC AFFAIRS OFFICER
C. Wisner
ENFORCEMENT STAFF
E. Johnson-Director
OFFICE OF INVESTIGATION
R. Herr, Acting Director
OPERATIONAL SUPPORT BRANCH
A. Haycraft
PERSONNEL & MIS SECTION
B. Kay
CONTRACTS & FACILITIES SUP. SECTION
L. Floyd
DIVISION OF RESIDENT, REACTOR PROJECT
ENGINEERING PROGRAMS
J. Gagliardo-Director
REACTOR PROJECT BRANCH #1
G. Madsen
REACTOR PROJECT SECTION A
T. Westerman
REACTOR PROJECT SECTION B
W. Crossman
REACTOR PROJECT BRANCH #2
W. Seidle
REACTOR PROJECT SECTION C
W. Johnson
ENGINEERING SECTION
D. Hunnicutt

DIVISION OF VENDOR TECHNICAL PROGRAMS
<input checked="" type="checkbox"/> R. Bangart-Director <i>RLB 10/27/82</i>
EMERGENCY PREPAREDNESS ANALYST
C. Hackney
J. Montgomery
EMERGENCY RESPONSE COORDINATOR
J. Baird
STATE PROGRAMS
R. Doda
R. Heyer
(Vacant)
VENDOR PROGRAMS BRANCH
U. Potapovs
REACTIVE & COMP. PROGRAM SECTION
I. Barnes
REACTOR SYSTEM SECTION
C. Hale
EQUIPMENT QUALIFICATION SECTION
S. Phillips
PERFORMANCE APPRAISAL
C. Oberg
TECHNICAL PROGRAMS BRANCH
<input checked="" type="checkbox"/> G. Brown <i>GB</i>
MATERIALS RADIATION SECTION
<input checked="" type="checkbox"/> J. Everett
FACILITIES RAD. PROTECTION SECTION
B. Murray
PHYSICAL SECURITY SECTION
J. Kelly
Duplicate In RIV File Room
Return To RIV File Room

Comments: