January 11, 1988

CAN BE RELEASED

MEMORANDUM FOR: Victor Stello, Jr.
Executive Director for Operations

FROM: Edward L. Jordan, Chairman
Committee to Review Generic Requirements

SUBJECT: MINUTES OF CRGR MEETING NUMBER 127

The Committee to Review Generic Requirements (CRGR) met on Wednesday, December 23, 1987, from 1-6 p.m. A list of attendees for this meeting is enclosed (Enclosure 1). The following items were addressed at the meeting:

1. G. Arlotto, RES, P. Baer, RES, and N. Anderson, RES, presented for CRGR review the proposed resolution for USI A-47, Safety Implications of Control Systems in LWR Nuclear Power Plants." The Committee recommended forwarding the office package to the EDO following incorporation of CRGR comments. This matter is discussed in Enclosure 2.

2. E. Rossi, NRR, and A. Spano, RES, presented for CRGR review the proposed resolution of GI-93, "Steam Binding of AFW Pumps." The Committee recommended issuance of the Generic Letter following incorporation of CRGR comments. This matter is discussed in Enclosure 3.

3. J. Roe, NRR, presented for CRGR review the proposed Policy Statement on Maintenance. The Committee recommended forwarding the package with the incorporated CRGR comments. This matter is discussed in Enclosure 4.

In accordance with the EDO's July 18, 1983 directive concerning "Feedback and Closure on CRGR Reviews," a written response is required from the cognizant office to report agreement or disagreement with CRGR recommendations in these minutes. The response, which is required within five working days after receipt of these meeting minutes, is to be forwarded to the CRGR Chairman and if there is disagreement with the CRGR recommendations, to the EDO for decisionmaking.

Questions concerning these meeting minutes should be referred to Cheryl Sakenas (492-4148).

Original Signed By:
E. L. Jordan

Edward L. Jordan, Chairman
Committee to Review Generic Requirements

Enclosures:
As stated

cc: See next page

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OFC	AEOD:CRGR	AEOD:DD	C/CRGR:AEOD			
NAME	CSakenas:ng	CJHeltemes	ELJordan			
DATE	1/6/88	1/6/88	1/7/88			

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cc w/enclosures:
Commission (5)
SECY
CRGR Members
Office Directors
Regional Administrators
W. Parler
G. Arlotto
R. Baer
N. Anderson
E. Rossi
A. Spano
J. Roe

Enclosure 1
LIST OF ATTENDEES
CRGR MEETING NO. 127

December 23, 1987

CRGR MEMBERS

E. Jordan
R. Bernero
T. Martin
D. Ross
J. Scinto
J. Sniezek

OTHERS

C. Heltemes
C. Sakenas
M. Chiramal
M. Wegner
G. Quittschreiber
S. Black
R. Bosnak
A. Thadani
T. Speis
S. Newberry
R. Kendall
J. Mauck
G. Arlotto
R. Baer
A. Szukiewicz
N. Anderson
E. Butcher
E. Rossi
B. Sheron
V. Hodge
K. Kniel
T. Gwynn
C. Berlinger
J. Craig
J. Wermiel
A. Spano
G. Cwalina
J. Zwolinski
J. Jankovich

Enclosure 2 to the Minutes of CRGR Meeting No. 127
Proposed Resolution for USI A-47, "Safety Implications of
Control Systems in LWR Nuclear Power Plants

The proposed resolution of A-47 was summarized by G. Arlotto, RES, and N. Anderson, RES (slides attached). They stated that the proposed resolution would involve a limited numuer of requirements which would provide for overfill protection, automatic initiation of emergency feedwater, and for plants designed by Combustion Engineering would improve emergency procedures for small-break LOCAs. The conclusions of the studies performed on the four selected plants were discussed.

The NUREG summarizing the work done on the B&W design reassessment to date was discussed. It was concluded by A. Thadani, NRR, that nothing in this document affected the proposed resolution for A-47. However, it was noted that the B&W design reassessment, for example in the area of instrumentation and control, continues and the results of this further work are not currently available. Thus, it is possible that some potential conflicts could result from this ongoing work.

After discussion of the proposed resolution of A-47, the Committee supported the forwarding of the office package, subject to the following recommendations:

1. To clarify and make explicit the regulatory framework or basis for the proposed action;

2. To issue the Generic Letter for public comment;

3. To include a sensitivity analysis on the alternatives considered;

4. To resolve the legal concerns on specific wording;

5. Place the burden on licensees to identify differences; and

6. To clarify the generic letter with regard to points raised during the meeting.

RES agreed to proceed on this basis and will submit a proposed revision for CRGR final concurrence.

Attachment to Encl 2

USI A - 47

SAFETY IMPLICATIONS OF CONTROL SYSTEMS

CRGR PRESENTATION

DECEMBER 23, 1987

PRESENTATION OUTLINE

- O INTRODUCTION
- O SUMMARY OF PROPOSED RESOLUTION
- O ACRS REVIEW AND COMMENTS
- O BACKGROUND
- O INSTRUMENTATION DEFINITION
- O A-47 PROGRAM OBJECTIVES
- O ASSUMPTIONS AND PROGRAM SCOPE LIMITATIONS
- O REVIEW APPROACH
- O PROGRAM OVERVIEW
- O CONDUCT OF STUDY
- O CONCLUSIONS OF STUDY
- O GENERIC APPLICABILITY
- O REGULATORY ANALYSIS FOR PROPOSED SAFETY ENHANCEMENT
- O PROPOSED RESOLUTION
- O METHOD OF IMPLEMENTATION

INTRODUCTION

- O USI A-47 IS A PROGRAM TO EVALUATE THE EFFECTS OF NON-SAFETY GRADE CONTROL SYSTEM FAILURES ON PLANT SAFETY

- O THE PURPOSE OF THIS PRESENTATION IS TO:

  - PRESENT THE STAFF PROPOSED RESOLUTION TO USI A-47

  - SEEK CRGR RECOMMENDATION TO ISSUE PROPOSED RESOLUTION FOR PUBLIC COMMENT

  - DESCRIBE THE RELATIONSHIP BETWEEN USI A-47 AND BWOG REASSESSMENT PROGRAM

- O RES, NRR, AEOD, AND OGC HAVE CONCURRED IN THE PROPOSED RESOLUTION

- O DETERMINE TO BE A CATEGORY II ACTION

- O PROPOSED ACTIONS ARE BACKFITS AS DEFINED IN 10 CFR 50.109

- O DOCUMENTS TO BE ISSUED FOR PUBLIC COMMENTS ARE:

  - TECHNICAL FINDINGS REPORT (NUREG 1217)

  - REGULATORY ANALYSIS (NUREG 1218)

  - PROPOSED GENERIC LETTER

SUMMARY OF PROPOSED RESOLUTION

- O LIMITED NUMBER OF REQUIREMENTS

- O PROVIDE OVERFILL PROTECTION (ALL PLANTS)

- O PROVIDE PERIODIC VERIFICATION OF OVERFILL PROTECTION (TECH SPECS)

- O PROVIDE DIVERSE AUTOMATIC INITIATION OF EFW (OCONEE ONLY)

- O IMPROVE EMERGENCY PROCEDURES FOR SBLOCA
  (CE PLANTS WITH LOW HEAD PUMPS)

A-47 ACRS REVIEW

(NOVEMBER 6, 1987)

- LETTER IN PREPARATION, NOT YET RECEIVED

- ENDORSED STAFF RECOMMENDATIONS

- SUGGESTED CLARIFICATIONS FOR THE OVERFILL PROTECTION REQUIREMENTS

- WOULD LIKE TO SEE SCOPE EXPANDED

    - SEISMIC EVENTS
    - OPERATOR ERRORS
    - SYSTEM INTERACTIONS

UNRESOLVED SAFETY ISSUE TASK A - 47 BACKGROUND

0	COMMISSION APPROVES A-47 AS A USI	DECEMBER 1980
0	TECHNICAL ASSISTANCE CONTRACTS STARTED	MAY 1982
0	TASK ACTION PLAN APPROVED	SEPTEMBER 1982
0	TECHNICAL WORK COMPLETED	JANUARY 1986
0	PROPOSED RESOLUTION PACKAGE COMPLETE	SEPTEMBER 1986
0	A-47 PACKAGE ISSUED TO CRGR	NOVEMBER 1987
0	FINAL RESOLUTION OF A-47	APRIL 1989*

* ANTICIPATED

"SAFETY IMPLICATIONS OF CONTROL SYSTEMS"

O INSTRUMENTATION SYSTEMS COMPRISE TWO BASIC GROUPS

I. SAFETY-GRADE PROTECTION SYSTEMS

A. REACTOR TRIP SYSTEM

B. EMERGENCY CORE COOLING SYSTEMS

C. OTHER SAFETY SYSTEM (I.E., MSIV, EFW, PRESSURE RELIEF)

II. NON-SAFETY GRADE CONTROL SYSTEMS

A. MAINTAIN PLANT PRESSURE AND TEMP LIMITS DURING SHUTDOWN, START-UP AND NORMAL POWER OPERATION

B. INCLUDES CONTROLS FOR: PRESS, TEMP, LEVEL, FLOW AND VESSEL INVENTORY

C. NOT RELIED UPON TO PROTECT THE REACTOR OR MITIGATE ACCIDENTS

O USI A-47 FOCUSED ON GROUP II.

USI A-47 OBJECTIVES

1. IDENTIFY IF CONTROL SYSTEM FAILURES COULD:

   - CAUSE TRANSIENTS OR ACCIDENTS TO BE MORE SEVERE THAN THOSE IDENTIFIED IN THE FSAR(S)
   - ADVERSELY AFFECT ANY ASSUMED OR ANTICIPATED OPERATOR ACTION DURING THE COURSE OF TRANSIENTS OR ACCIDENTS
   - CAUSE TECHNICAL SPECIFICATION SAFETY LIMITS TO BE EXCEEDED.
   - CAUSE TRANSIENTS OR ACCIDENTS TO OCCUR AT A FREQUENCY IN EXCESS OF THOSE ESTABLISHED FOR ABNORMAL OPERATIONAL TRANSIENTS AND DESIGN BASIS ACCIDENTS.

2. VERIFY THE ADEQUACY OF CURRENT LICENSING DESIGN REQUIREMENTS (SRP SECTION 7.7)

3. PROPOSE, IF NECESSARY, ADDITIONAL GUIDELINES TO ASSURE THAT NUCLEAR POWER PLANTS DO NOT POSE UNACCEPTABLE RISK DUE TO NON-SAFETY GRADE CONTROL SYSTEM FAILURES.

ASSUMPTIONS AND PROGRAM SCOPE LIMITATION

- MINIMUM NUMBER OF SAFETY GRADE PROTECTION SYSTEMS ARE AVAILABLE, IF NEEDED, TO TRIP REACTOR AND INITIATE OVER PRESSURE PROTECTION SYSTEMS OR ECCS.

- POTENTIAL EFFECTS OF COMMON CAUSE EVENTS (SUCH AS EARTHQUAKES, FLOOD, FIRE, SABOTAGE, OR OPERATOR ERRORS OF OMISSION OR COMMISSION), WERE EVALUATED IN A LIMITED MANNER BY EVALUATING SELECTED MULTIPLE FAILURES.

- TRANSIENTS DURING LCO AND ATWS EVENTS WERE EXCLUDED FROM SCOPE.

- PLANT-SPECIFIC DESIGNS WERE APPROPRIATELY MODIFIED TO COMPLY WITH IE BULLETIN 79-27 ("LOSS OF NON-CLASS IE INSTRUMENTATION AND CONTROL POWER SYSTEM BUS DURING OPERATION") AND NUREG-0737 (TMI ACTION PLAN)USI A-47

REVIEW APPPOACH

- O PERFORMED DETAILED REVIEW OF FOUR PLANT DESIGNS, ONE FOR EACH NSSS SUPPLIER

  B&W - OCONEE (REVIEW BY ORNL)

  CE - CALVERT CLIFFS (REVIEW BY ORNL)

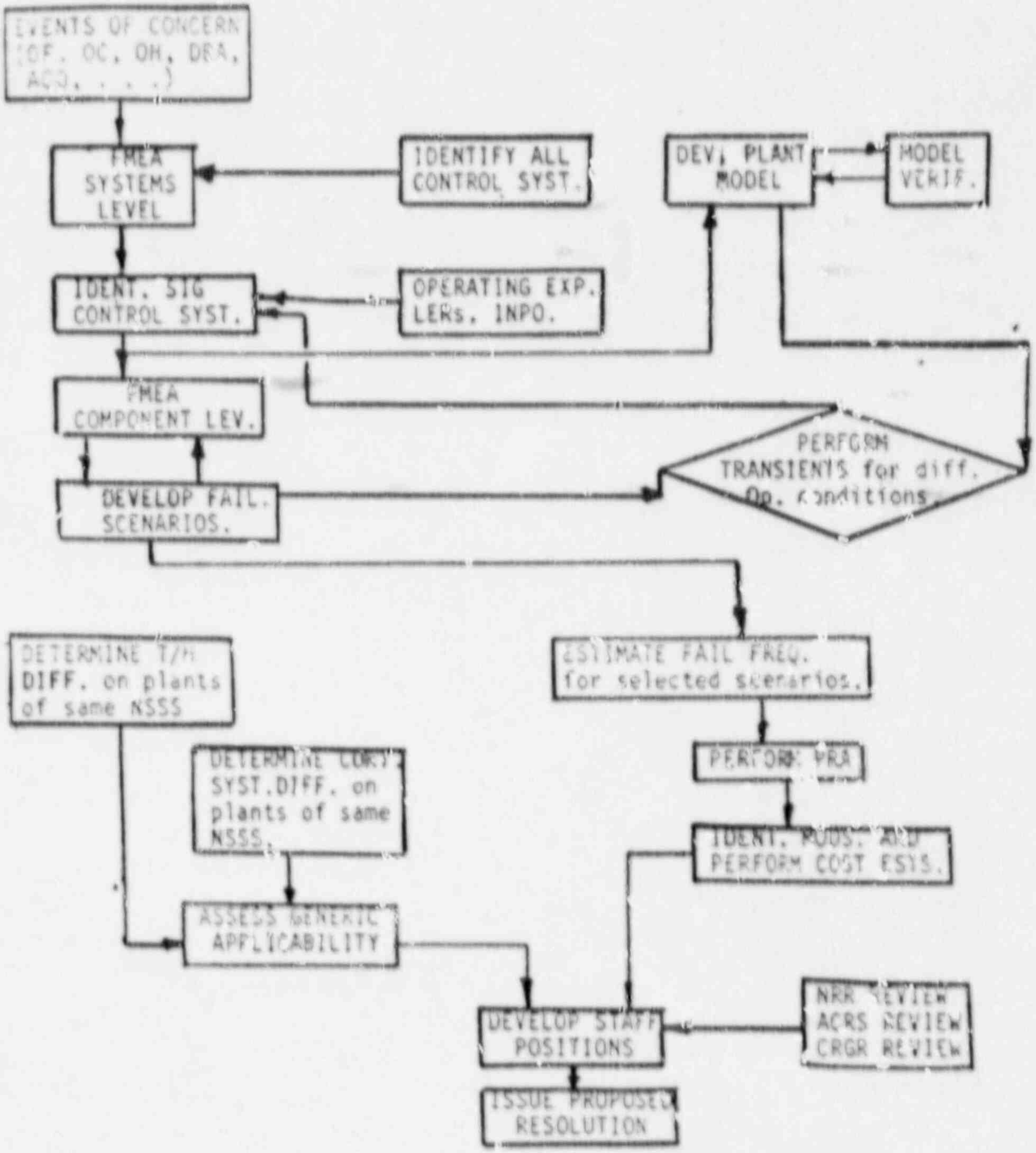
  GE - BROWNS FERRY (REVIEW BY INEL)

  W - H. B. ROBINSON (REVIEW BY INEL)

- O EVALUATED ALL MANUAL AND AUTOMATIC NON-SAFETY GRADE CONTROL SYSTEMS THAT INTERFACE WITH THE PRIMARY REACTOR FLUID SYSTEM AND THE STEAM AND FEEDWATER SYSTEMS

- O INCLUDED BOTH NSSS AND BOP CONTROL SYSTEMS.

USI A-47
PROGRAM OVERVIEW



SYSTEMS → / EVENTS ↓	CONDENSER AND MAIN FEEDWATER SYSTEMS (Hi Flow, Fail to Trip, Low Temp)	TV/TBVs — Closure	TV/TBVs — Opening	TCV — Closure	TCV — Opening	RECIRCULATION Sys. — Hi Flow	RECIRCULATION Sys. — No Flow	REACTOR MANUAL CONTROL & CRD SYSTEM (ROD WITHDRAWAL)	MSIV (VLV CLOSURE)	RCIC (INAD. START)	HPCI & CSS - (INAD START)	OTHER CONTROL SYSTEMS →
OVER PRESSURE	X	X		X		X		X	X	X	X	.... →
OVER FILL	X		X		X		X	X		X	X	.... →
REACTIVITY INCREASE	X	X		X		X		X	X	X	X	.... →
..... → OTHER EVENTS ↓												... →

A-47 METHODOLOGY

— EXAMPLE FOR BWR —

CONDUCT OF STUDY

1. PERFORMED STUDIES AND DEVELOPED CONCLUSIONS FOR REFERENCE PLANTS

2. REVIEWED DESIGN VARIATIONS OF EACH PLANT GROUP

3. ASSESSED GENERIC APPLICABILITY OF REFERENCE PLANT STUDY

4. DEVELOPED GENERIC CONCLUSIONS FOR EACH PLANT TYPE

5. SELECTED ALTERNATIVES FOR PLANT IMPROVEMENTS

6. ASSESSED VALUE IMPACT OF ALTERNATIVES

7. SELECTED PROPOSED PLANT CHANGES ON BASIS OF VALUE IMPACT

8. EVALUATED PROPOSED CHANGES TO 10 CFR 50.109 GUIDELINES

CONCLUSION OF STUDY

- O RESULTS OF REFERENCE PLANT ANALYSIS CAN BE GENERALLY APPLIED TO ALL PLANTS OF THAT CLASS.

- O CONTROL SYSTEM DESIGN OF PLANTS BY THE SAME (NSSS) SUPPLIERS ARE FUNCTIONALLY SIMILAR.

- O TRANSIENTS RESULTING FROM THE FAILURE OF THE SAME NON-SAFETY GRADE CONTROL SYSTEM ON DIFFERENT PLANTS OF THE SAME NSSS SUPPLIER WILL PRODUCE SIMILAR OR BOUNDING TRANSIENTS.

- O IMPROVEMENTS MADE AFTER THE TMI-2 EVENT FOR THE AUXILIARY FEEDWATER SYSTEM AND FOR OPERATOR INFORMATION AND TRAINING GREATLY AID IN RECOVERY OF COMPLEX TRANSIENTS.

CONCLUSION (CONT'D)

O PLANT TRANSIENTS RESULTING FROM CONTROL SYSTEM FAILURES CAN BE ADEQUATELY MITIGATED BY THE OPERATORS PROVIDED THAT FAILURES DO NOT COMPROMISE OPERATION OF THE MINIMUM NUMBER OF PROTECTION SYSTEM CHANNELS. (EXCEPTIONS NOTED RECOMMEND PROCEDURE AND OPERATOR TRAINING AT CE PLANTS).

O TRANSIENT OR ACCIDENTS RESULTING FROM CONTROL SYSTEM FAILURES ARE LESS SEVERE THAN, AND BOUNDED BY THE TRANSIENTS AND ACCIDENTS ANALYZED IN THE FSAR. HOWEVER, O.F. EVENTS WERE NOT ANALYZED IN THE FSAR.

O PWR PLANT DESIGNS WHICH HAVE REDUNDANT COMMERCIAL GRADE (OR BETTER) OVERFILL PROTECTION SYSTEMS (FROM MAIN FEEDWTER OVERFEED EVENTS) AND SATISFY THE SINGLE FAILURE CRITERION WERE DETERMINED TO BE ADEQUATE.

O BWR PLANT DESIGNS WHICH HAVE COMMERICAL GRADE (OR BETTER) OVERFILL PROTECTION SYSTEMS (FROM MAIN FEEDWATER OVERFEED EVENTS) WERE DETERMINED TO BE ADEQUATE.

O BASED ON THE CONCLUSIONS, SOME SAFETY ENHANCEMENTS ARE PROPOSED

GENERIC APPLICABILITY

- O FOCUS ON THE SIGNIFICANT FAILURE SENARIOS IDENTIFIED DURING REVIEW.

- O ASSESSMENT BASED ON ENGINEERING CHARACTERISTICS, EVALUATIONS CONDUCTED BY INEL AND ORNL, AND STAFF AND CONTRACTOR JUDGMENT.

- O RESULTS OF REVIEW OF THE REFERENCE PLANT IS CONSIDERED APPLICABLE TO PLANTS OF THE SAME VENDOR IF:

  1. MAJOR FLUID SYSTEMS ARE FUNCTIONALLY SIMILAR TO THE REFERENCE PLANT

  2. POWER-TO-VOLUME RATIO AND VARIOUS VOLUME-TO-FLOW RATIOS ARE SIMILAR TO THE REFERENCE PLANT.

  3. THERMAL-HYDRAULIC TRANSIENTS ANALYZED FOR THE REFERENCE PLANT ARE SIMILAR TO OR CONSIDERED MORE SEVERE THAN TRANSIENTS ON OTHER PLANTS OF THE SAME CLASS.

  4. DIFFERENCES IN DESIGN OF CONTROL SYSTEMS AT OTHER PLANTS ARE NOT SIGNIFICANT ENOUGH TO SUBSTANTIALLY ALTER THE FAILURE SCENARIOS THAT WERE IDENTIFIED.

  5. DIFFERENCES IN DESIGN OF PROTECTION SYSTEMS AT OTHER PLANTS ARE NOT SIGNIFICANT ENOUGH TO SUBSTANTIALLY ALTER FAILURE SCENARIOS THAT WERE IDENTIFIED.

REGULATORY ANALYSIS FOR PROPOSED SAFETY ENHANCEMENTS

- O USED EXISTING PRAs OF REFERENCE PLANTS
- O SELECTED APPROPRIATE EVENT TREES FROM PRAs
- O MODIFIED EVENT TREE INITIATING FREQUENCIES BY ADDING CONTROL SYSTEM FAILURE SCENARIOS
- O ESTIMATED CORE-MELT FREQUENCIES AND RISK CONTRIBUTION FROM MODIFIED EVENT TREES
- O ESTIMATED COST OF IDENTIFIED MODIFICATIONS
- O CALCULATED VALUE-IMPACT FOR PROPOSED MODIFICATIONS

PROPOSED RESOLUTION

- REQUIRE ALL PLANTS TO PROVIDE AUTOMATIC STEAM GENERATOR OR REACTOR VESSEL OVERFILL TRIP SYSTEM TO MITIGATE MAIN FEEDWATER OVERFEED EVENTS. (MOST PLANTS PROVIDE THESE FEATURES)
- REQUIRE OVERFILL TRIP SYSTEM TO BE SEPARATED FROM THE MAIN FEEDWATER CONTROLS. (NOT REQUIRED TO BE SAFETY GRADE BUT SHOULD NOT BE POWERED FROM THE SAME POWER SOURCES, NOT LOCATED IN THE SAME CONTROL CABINETS AND NOT ROUTED THROUGH THE SAME FIRE PROTECTION AREAS AS THE MAIN FEEDWATER CONTROLS.)
- REQUIRE ALL PLANTS TO PERIODICALLY VERIFY OPERABILITY OF OVERFILL TRIP SYSTEM.
- REQUIRE ALL B&W PLANTS TO PROVIDE AUTOMATIC INITIATION OF EFW, ON LOW STEAM GENERATOR LEVEL. (OCONEE IS ONLY PLANT WHICH DOES NOT HAVE THIS FEATURE)
- REQUIRE ALL CE PLANTS (WITH LOW HEAD SAFETY INJECTION PUMPS) TO REASSESS EMERGENCY PROCEDURES AND OPERATOR TRAINING AND MODIFY THEM (IF NECESSARY) TO ASSURE PLANT SHUTDOWN FOR ANY SB LOCA.

METHOD OF IMPLEMENTATION

- O IMPOSED BY GENERIC LETTER
- O IMPLEMENTATION BASED ON PLANT LIVING SCHEDULE
- O GENERIC LETTER PROVIDES ACCEPTANCE GUIDELINES FOR PLANT SPECIFIC IMPLEMENTATION
- O GENERIC SER PROVIDED FOR ACCEPTANCE REVIEW
- O GUIDANCE FOR OPERATING PLANT REVIEWS IS PART OF USI A-47 PACKAGE
  - ° ENCLOSURE 3 TO GENERIC LETTER PROVIDES GUIDANCE FOR OVERFILL PROTECTION AND TECHNICAL SPECIFICATIONS
  - ° ENCLOSURE 4 TO GENERIC LETTER PROVIDES A SAMPLE GENERIC SER
  - ° ENCLOSURE 6 TO THE A-47 PACKAGE PROVIDES A SAMPLE SHOLLY AMENDMENT
  - ° ENCLOSURE 7 TO THE A-47 PACKAGE PROVIDES PROPOSED CHANGES TO STANDARD TECH SPECS FOR B&W AND CE PLANTS

BACKGROUND

Table 5.1 Summary of Alternatives

Alternative	Estimated risk reduction: Core-melt frequency (plant year)	Estimated risk reduction: Man-rem (30 years)	Cost: Plant	Cost: Industry	Is option viable?
For GE BWR Plants					
1. Upgrade overfill protection from a 2-out-of-3 to 2-out-of-4	6E-7	123	$150K-$1.3M	$3-$13M	No
2. Upgrade overfill protection to a reference plant design (i.e., a 2-out-of-3)	-	45-123	$150K-$1.3M	$1.2M-$10M	No
3. Upgrade plants with no overfill trip to a 1-out-of-1 or better (2-out-of-4)	-	3600-3800	$100K-$500K	$100K-$500K	Yes*
4. Issue information letter regarding results and assumption of overfill protection	-	-	None	None	Yes
For W PWR Plants					
1. Provide automatic shutoff of AFW on steam generator high level.	6E-8	9	$45K	$2.3M	No
2. Issue information letter regarding results and assumptions of overfill protection	-	-	None	None	Yes
3. Upgrade overfill protection from 2-out-of-3 to 2-out-of-4	<1E-10	Insignificant	$250K-$1.3M	$8M-$24M	No

*Applicable to the Oyster Creek plant.

Table 5.1 (Continued)

Alternative	Estimated risk reduction: Core-melt frequency (plant year)	Estimated risk reduction: Man-rem (30 years)	Cost: Plant	Cost: Industry	Is option viable?
4. Take action to upgrade overfill protection (except for three very early plant designs)	-	-	-	-	No
5. Provide automatic closure of steam block valves					
Case 1 - For steam dump to condenser	<1E-10	Insignificant	$65K*	$3.4M*	No
Case 2 - For atmospheric dump	1E-7	20	$123K-$1.2M	$6.5 - $37M	No
6. Modify ADV controller logic	1.5E-7	20	$123K-$1.2M	$6.5M - $37M	No
7. Take action to upgrade pressurizer PORV system	-	-	-	-	No
8. Issue information letter on potential overpressure vulnerabilities	-	-	None	None	No
9. Issue information letter on control system failures that could exacerbate SGTR	1E-8	2	None	None	No

*For instrumentation only. If additional isolation valves are needed to replace or modify the existing valves the cost would be substantially greater.

Table 5.1 (Continued)

Alternative	Estimated risk reduction: Core-melt frequency (plant year)	Estimated risk reduction: Man-rem (30 years)	Cost: Plant	Cost: Industry	Is option viable?
For B&W PWR Plants					
1. Test overfill protection system monthly	3-E6	450	$100K	$300K	No**
2. Test overfill protection monthly and provide logic modification	7E-6	1000	$200K	$600K	Yes**
3. Upgrade overfill protection					
Case 1 - Provide an additional independent feedwater flow termination	9E-6	1300	$100K - $1.3M	$300K - $3.9M	Yes**
Case 2 - Provide a 2-out-of-3 or a 2-out-of-4 system	8E-6	1200	$300K - $600K	$1M - $2M ($5M max.)	Marginal**
4. Take action to upgrade overfill protection on plants that provide redundant overfill protection	-	-	None	None	No
5. Automatic initiation of AFW to minimize loss of steam generator cooling on loss of power	2E-6-9E-6	155 - 670	$150K	$450K	Yes**

**Applicable to Oconee plants.

Table 5.1 (Continued)

Alternative	Estimated risk reduction: Core-melt frequency (plant year)	Estimated risk reduction: Man-rem (30 years)	Cost: Plant	Cost: Industry	Is option viable?
For CE PWR Plants					
1. Automatic overfill protection (feedwater pump or feedwater isolation valve closure trip)	4E-6	570	$100K	$1.5M	Yes
2. Improve operator procedures to permit safe shutdown following an SBLOCA	8E-6	850	$10K	$70K	Yes

NRC MANPOWER ESTIMATES TO IMPLEMENT A-47

ANTICIPATE THAT MOST REVIEWS WILL BE CONFIRMATORY AND MINIMAL TECHNICAL INPUT WILL BE EXPENDED

-- TECHNICAL MANWEEKS

BWRS	8 WEEKS
WESTINGHOUSE	5 WEEKS
B&W	8 WEEKS
CE	35 WEEKS

-- PROJECT MANAGEMENT MANWEEKS

ALL VENDORS	30 WEEKS

-- TOTAL STAFF MANWEEKS = 86 WEEKS; (ABOUT 2.0 FTEs)

Enclosure 4 to the Minutes of CRGR Meeting No. 127
Proposed Policy Statement on Maintenance

The proposed Policy Statement was summarized by J. Roe, NRR (slides attached). He noted that selected plants, not all plants, would be assessed over a two-year period. Current thinking is that these team evaluations will visit approximately 80 percent of the reactor sites in a 1 1/2 year period. A specific activity during these team visits will be an assessment of NPRDS implementation and use. It was noted that no change in the NRC enforcement policy was suggested or implied and, in fact, it was indicated that enforcement action will be taken in cases where inadequate maintenance was identified. The onsite plant assessments are scheduled to begin in April 1988.

A CRGR comment on the Policy Statement was that it focused very tightly on repair. A proposed solution was to modify the Policy Statement so that the prescribed maintenance program includes "...repair, surveillance, diagnostic evaluations, and preventive measures...." Further, minor modifications were suggested in the section entitled "Definition of Maintenance" in order to clearly highlight the extent of supporting functions needed for an effective maintenance program. Another suggested change was to note the role that consensus industry standards play in defining an effective maintenance program.

Since the NRR package was received late by CRGR members, it was agreed to defer developing a CRGR position on the package until the next day. In a conference call on December 24, 1987, the CRGR agreed to support the forwarding of the Maintenance Policy Statement with the changes noted above. Mesrs. Ross, Bernero, Scinto and Jordan participated in this telephone conference. Mesrs. Sniezek and Martin were not available.

MAINTENANCE POLICY STATEMENT
CRGR REVIEW

DECEMBER 23, 1987

Attachment
to Encl 4

BACKGROUND

- INDUSTRY INITIATIVES ARE BEING IMPLEMENTED
- WIDE VARIATION IN EFFECTIVENESS
- NEEDED MAINTENANCE NOT BEING ACCOMPLISHED OR NOT PERFORMED EFFECTIVELY AT SOME PLANTS
- HIGH PERCENTAGE OF FAILURES FROM IMPROPER PERFORMANCE OF MAINTENANCE
- MAINTENANCE/OPERATIONS INTERFACE INADEQUATE
- MAINTENANCE-RELATED CHALLENGES TO SAFETY SYSTEMS IS EXCESSIVE

CONTENT OF THE POLICY STATEMENT

SUMMARY

POLICY

- o BACKGROUND
- o POLICY STATEMENT

ADDITIONAL INFORMATION

- o DEFINITION OF MAINTENANCE
- o FRAMEWORK FOR MAINTENANCE PROGRAMS
- o COMPONENTS, SYSTEMS AND STRUCTURES
- o NRC ASSESSMENT ACTIVITIES

ENFORCEMENT

POLICY

POLICY STATEMENT

ALL COMPONENTS, SYSTEMS, STRUCTURES

-- AVAILABLE TO PERFORM INTENDED FUNCTION

-- PROMPTLY REPAIRED

PRESCRIBED MAINTENANCE PROGRAM

ADDITIONAL INFORMATION

DEFINITION OF MAINTENANCE

- o AGGREGATE OF FUNCTIONS TO ASSURE SAFETY
- o INCLUDES SUPPORTING FUNCTIONS

FRAMEWORK

- o ESTABLISH PROGRAM OBJECTIVES
- o DEVELOP AND IMPLEMENT PROGRAM
- o PROGRAM EVALUATION
- o FEEDBACK

COMPONENTS, SYSTEMS AND STRUCTURES

- o MAINTENANCE PROGRAM FOR ALL COMPONENTS, SYSTEMS AND STRUCTURES
- o COMMENSURATE WITH ITS IMPORTANCE TO SAFETY
- o FOCUS PRIMARY ATTENTION ON SPECIFIED ITEMS

NRC ASSESSMENT ACTIVITIES

ENHANCED ASSESSMENT OF PLANTS

REVIEW OF INPO INITIATIVES

-- REVIEW OF NPRDS

-- OBSERVATION OF INPO PLANT EVALUATIONS

Enclosure 3 to the Minute of CRGR Meeting No. 127
Proposed Resolution for GI-93,
"Steam Binding of AFW Pumps"

E. Rossi, NRR, summarized the proposed Generic Letter addressing resolution of GI-93. He stated that the purpose of this Generic Letter was to closeout IE Bulletin 85-01 and instruct licensees to continue monitoring programs for AFW backleakage.

The Committee discussed the proposed resolution and supported issuance of the Generic Letter following incorporation of the following recommendations:

1. Clarify letter as to what actions or programs licensees should have in place.

2. Clarify the regulatory analysis with regard to points raised during the meeting.

3. Require licensees to provide response to letter within a 90-day time period.

One CRGR member provided a dissenting opinion on the resolution of this Generic Letter (attached).