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

September 19, 1991

TO: LICENSEES AND APPLICANTS OF THE FOLLOWING PRESSURIZED-WATER REACTOR NUCLEAR POWER PLANTS:

1. Braidwood Units 1 and 2
2. Byron Units 1 and 2
3. Catawba Units 1 and 2
4. Comanche Peak Units 1 and 2
5. Cook Units 1 and 2
6. Diablo Canyon Units 1 and 2
7. McGuire Units 1 and 2

SUBJECT: REQUEST FOR INFORMATION RELATED TO THE RESOLUTION OF GENERIC ISSUE 130, "ESSENTIAL SERVICE WATER SYSTEM FAILURES AT MULTI-UNIT SITES," PURSUANT TO 10 CFR 50.54(f) - GENERIC LETTER 91-13

DISCUSSION

The purpose of this letter is to inform affected licensees and applicants of the technical findings resulting from the NRC resolution of Generic Issue 130 (GI-130), "Essential Service Water System Failures at Multi-Unit Sites," and to request information from licensees and applicants at affected multi-unit sites relating to the applicability of certain findings regarding their facilities. Affected licensees and applicants are required to respond to the request for information contained in this letter, but no new requirements or staff positions are imposed on the affected licensees and applicants by this letter.

The essential service water system (ESWS) is important in maintaining plant safety during power operation, shutdown, and accident conditions. As part of our evaluation of loss of essential service water (LOSW), extensive analyses of this issue were performed at the Brookhaven National Laboratory (BNL). The technical findings of this effort at BNL are reported in NUREG/CR-5526, "Analysis of Risk Reduction Measures Applied to Shared Essential Service Water Systems at Multi-Unit Sites." In addition, the NRC staff performed a regulatory analysis to evaluate the safety benefits and implementation costs associated with various equipment and the administrative-type improvements that were considered. The staff's regulatory analysis is contained in NUREG-1421, "Regulatory Analysis for the Resolution of Generic Issue 130: Essential Service Water System Failures at Multi-Unit Sites." These analyses assume that the flushing and flow testing provisions of Generic Letter (GL) 89-13, "Service Water System Problems Affecting Safety-Related Equipment," will be applied to the crosstie lines as part of addressees' implementation of the resolution of GI-51, "Improving the Reliability of Open-Cycle Service Water Systems" (GL 89-13 and Supplement 1). On the basis of results of these evaluations of this generic

safety issue, the NRC staff has concluded that the following administrative-type improvements would significantly enhance the availability of the ESWS in affected plants, and their implementation is warranted in view of the safety benefit to be derived and the cost of implementation:

- Technical specification (TS) changes contained in Enclosure 1 to enhance the availability of the ESWS as applied to the design configuration of affected plants.

- Improvement of emergency procedures for a LOSW using existing design features, specifically: (a) operating and maintaining high-pressure injection (HPI) pump integrity in the event of loss of reactor coolant pump (RCP) seals as a result of ESWS failure, and (b) testing and manipulating the ESWS crosstie between the units during a LOSW accident.

The incorporation of technical specification improvements is consistent with the Commission's Policy Statement on Technical Specification Improvements. This policy statement captures existing requirements under Criterion 3 (Mitigation of Design-Basis Accidents or Transients) or under the provisions to retain requirements that operating experience and probabilistic risk assessment are shown to be important to the public health and safety. General Design Criteria 44, 45, and 46 of 10 CFR Part 50, Appendix A, in conjunction with the probabilistic risk assessment performed under GI-130, form the technical bases for these TS and procedures improvements.

A backfit analysis of the type described in 10 CFR 50.109(a)(3) and 10 CFR 50.109(c) was performed, and a determination was made that these new TS and procedures improvements would provide a substantial increase in overall protection of the public health and safety and that the costs of implementing these improvements are justified in view of this increased protection (Enclosure 2). It should be noted that for the benefits of these improvements to be realized, the guidance contained in GL 89-13 and Supplement 1 should be considered in the context of the inter-unit crosstie. Namely, GL 89-13 states: "Redundant and infrequently used cooling loops should be flushed and flow tested periodically at the maximum design flow to ensure that they are not fouled or clogged. Other components in the service water system should be tested on a regular schedule to ensure that they are not fouled or clogged...."

Enclosure 3 contains a discussion of an additional safety enhancement identified as part of our evaluation of GI-130 involving installation of a dedicated RCP seal cooling system similar to that identified also under GI-23, "Reactor Coolant Pump Seal Failures." The final decision on the possible backfitting of additional plant improvements has been deferred until completion of GI-23; and that aspect of GI-130 is subsumed by GI-23. GI-23 will be resolved following the review of comments received based on the related Federal Register Notice published on April 19, 1991. The comment period has been extended until September 30, 1991. Enclosure 3 is provided to you for information only at this time.

INFORMATION REQUEST (10 CFR 50.54(f))

Addressees are requested to review the recommended TS and procedures improvements described in the preceding discussion and to evaluate the applicability and safety significance of those improvements at their respective facilities. On the basis of results of the recommended plant-specific evaluations, each addressee shall provide a response to the NRC pursuant to Section 182 of the Atomic Energy Act and 10 CFR 50.54(f) which indicates whether or not the recommended TS and procedures improvements are applicable to its facility, and whether or not the addressee will incorporate the TS (Enclosure 1) into its license and implement the procedures improvements. The response shall be provided to the NRC under oath or affirmation within 180 days of the date of this letter. If an addressee intends to implement the recommended TS and procedures improvements, the licensee shall include an implementation schedule as part of the response to this letter. The licensee should retain supporting documentation consistent with the records retention program at each facility.

An evaluation of the justification for this information request has been prepared in accordance with the requirements of 10 CFR 50.54(f). That evaluation concludes that the information requested is justified in view of the potential safety significance of the ESW reliability issue to be addressed with that information (Enclosure 4). Copies of NUREG-1421 and NUREG/CR-5526 are also enclosed for your information and to assist you in evaluating the applicability of this issue to your respective facilities (Enclosures 5 and 6).

A list of recently issued NRC GLs is enclosed for your information (Enclosure 7).

This request is covered by Office of Management and Budget Clearance Number 3150-0011, which expires May 31, 1994. The estimated average burden hours is 50 person hours per owner response, including assessment of the new recommendations, searching data sources, gathering and analyzing the data, and preparing the required letters. These estimated average burden hours pertain only to the identified response-related matters and do not include the time for actual implementation of the requested action. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), Division of Information Support Services, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; and to Ronald Minsk, Office of Information and Regulatory Affairs (3150-0011), NEOB-3019, Office of Management and Budget, Washington, D.C. 20503.

If you have any questions on this matter, please contact your Project Manager.

Sincerely,

James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Draft Technical Specifications (3/4.7.4)
2. Backfit Analysis for GI-130
3. Background Discussion of a Deferred Safety Enhancement from GI-130 to GI-23
4. Justification Analysis [10 CFR 50.54(f)] for Generic Letter on GI-130
5. NUREG-1421
6. NUREG/CR-5526
7. List of Recently Issued NRC Generic Letters

ENCLOSURE I

DRAFT TECHNICAL SPECIFICATION

PLANT SYSTEMS

3/4.7.4 SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4 At least two independent service water loops per unit and the crosstie between the service water systems of each unit (as applicable) shall be operable. In addition, the crosstie shall be capable of being opened [from the main control room] as a flow path between the two units.

APPLICABILITY: Modes 1, 2, 3, and 4.

ACTION:

A. Both units in Modes 1, 2, 3, or 4.

1. With one service water loop per unit OPERABLE, restore at least two loops per unit to OPERABLE status within 72 hours, or for the unit with the inoperable service water loop, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

2. With one [or both] of the crosstie valve(s) INOPERABLE and not capable of being opened [from the control room], within 72 hours restore the valve(s) to OPERABLE status or open the affected valve(s), and maintain the affected valve(s) open; otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

B. One unit in Modes 1, 2, 3, or 4 and one unit in Mode 5 or 6.

1. Verify that at least one pump in the shut down unit is OPERABLE and available to provide service water to the operating unit. If neither service water pump in the shut down unit is OPERABLE, restore at least one pump to OPERABLE status within 72 hours, or place the operating unit in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

2. With one service water loop in the operating unit INOPERABLE, restore two loops in the operating unit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

3. With one [or both] of the crosstie valve(s) INOPERABLE and not capable of being opened [from the control room], within 72 hours restore the valve(s) to OPERABLE status or open the affected valve(s), and maintain the affected valve(s) open; otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

DRAFT TECHNICAL SPECIFICATIONS

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.7.4 Two service water loops per unit shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position is in its correct position.

b. At least once per 92 days by cycling crosstie valves and/or verifying that valves are locked open with power removed; and

c. At least once per 18 months during shutdown, by verifying that:

1. Each automatic valve servicing safety-related equipment actuates to its correct position on a _____ test signal;

2. Each service water system pump starts automatically on a _____ test signal; and

3. Each crosstie valve is cycled or is locked open with power removed.

BASES

3/4.7.4 SERVICE WATER SYSTEM

The OPERABILITY of the service water system ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

In the event of a total loss of service water in one unit of a two-unit site where backup cooling capacity is available via a crosstie between the two units, the OPERABILITY of the unit crosstie along with a service water pump in the shut down unit ensures the availability of sufficient redundant cooling capacity for the operating unit. These limiting conditions will ensure a significant risk reduction, as indicated by the analyses of a loss-of-service water system accident. The surveillance requirements ensure the short-term and long-term operability of the service water system and the crosstie between the two units. The service water system crosstie between the two units consists of appropriate piping, valves, and instrumentation cross-connecting the discharge of the service water pumps of the two units. By operating the crosstie, the supply of additional redundant cooling capacity from one unit is available to the service water system of the other unit.

ENCLOSURE 2

BACKFIT ANALYSIS (REFERENCE 10 CFR 50.109)

FOR GENERIC ISSUE 130

A.1 INTRODUCTION

This enclosure presents the backfit analysis for Generic Issue 130 (GI-130), "Essential Service Water System Failures at Multi-Unit Sites." The technical findings for GI-130 are presented in NUREG/CR-5526, and the regulatory analysis is presented in NUREG-1421. The studies apply to 14 reactor units at seven sites and indicate that essential service water system (ESWS) failures at these plants are a significant contributor to the overall plant risk. As a consequence of these technical findings, and based on the cost/benefit analyses performed, the staff has determined that these 14 plants may need to modify technical specifications (TS) to enhance the availability of the ESWS and to institute procedures to assure the integrity of the high-pressure injection (HPI) pump in the event of RCP seal failure as a result of loss of essential service water (LOSW), as well as procedures to test and manipulate the ESWS crosstie between the two units during a LOSW accident.

The estimated benefit from the identified safety enhancements is a reduction in the core damage frequency and a reduction in the associated risk of offsite radioactive releases as a result of ESW failure. The reduction of risk to the public (per plant lifetime) is estimated to be 4141 person-rem (best estimate numbers used) and supports the conclusion that these safety enhancements provide a substantial increase in the overall protection of the public health and safety. Also, the direct and indirect costs of implementation are justified in view of this increased protection.

As discussed in NUREG-1421, when considered individually, most of the alternatives analyzed for reducing the risk associated with this issue would be cost-effective in meeting the $1000/person-rem guideline. The objective of the GI-130 resolution is that the risk from loss of the ESWS be reduced consistent with the two basic requirements of the backfit rule that the corrective alternatives be both substantial and cost-effective.

One of the potential improvements consisting of improvements in TS and emergency procedures was shown to be capable of reducing the core damage frequency (CDF) from loss of ESW (1.5E-04/RY) by 17 percent (or by approximately 3.0E-05/RY) in a cost-effective manner. The staff recognizes the uncertainties in these estimates, and in recognition of the potentially substantial risk reductions (over 4000 person-rem per plant lifetime), the staff believes that significant safety improvements can be achieved by low cost changes in TS and procedures. This is deemed to be consistent with the provisions of the backfit rule.

The overall approach to arriving at the proposed resolution considered both the numerical results of the cost-benefit analysis and the spectrum and type of potential improvements available for potential risk reduction for

loss-of-service-water sequences. Those alternatives that could reduce the number of occurrences of the LOSW initiators would be desirable from the prevention perspective. Those alternatives that would help to reduce the consequences of an LOSW would be desirable from the mitigation perspective. The improvements in the TS would assist on the prevention side, while the improved procedures would provide a blend of both prevention and mitigation capabilities.

The conclusion of this backfit analysis is that a substantial increase in the protection of the public health and safety will be derived from backfitting of the ESWS improvements and that the backfit is justified in view of the favorable cost/benefit ratios. In the following sections of this backfit analysis, the nine factors stipulated by 10 CFR 50.109(c) to be used in the determination of backfitting are addressed.

A.2 ANALYSIS OF 10 CFR 50.109(c) FACTORS FOR "ALTERNATIVE 5"

A.2.1 Objective

The objective of Alternative 5 (the proposed backfit) is to improve the performance of the ESW system by providing a blend of both prevention and mitigation capabilities. This backfit will be applicable to all the pressurized-water reactor (PWR) plants (14 units) covered by GI-130.

A.2.2 Licensee Activities

To implement "Alternative 5," each licensee would modify TS in accordance with Enclosure 1 to this generic letter, as well as implement procedures for operating and maintaining HPI pump integrity and testing and manipulating the ESWS crosstie between units during a LOSW event.

A.2.3 Public Risk Reduction

Backfitting in accordance with the proposed alternative will yield a reduction in the incidence of public risk from the accidental offsite release of radioactive materials of 4141 person-rem (best-estimate) per plant with an average remaining life of 30 years. This backfit will reduce the core damage frequency from an LOSW by 17 percent (or by approximately 3.0E-05/RY).

As detailed in Chapter 6 of NUREG-1421, the staff recognizes the uncertainties in these estimates and has considered both the numerical results of the cost-benefit analysis as well as the spectrum and type of potential improvements for risk reductions associated with LOSW sequences.

A.2.4 Occupational Exposure

The radiological operational exposure is negligible and, therefore, the implementation of Alternative 5 will not result in any increase in the radiological exposure to facility employees.

A.2.5 Installation Costs

The best estimate total cost per reactor associated with Alternative 5 is $83,000. When the onsite averted costs are taken into account, this alternative results in a net savings.

A.2.6 Potential Safety Impact

A number of generic safety issues related to GI-130 have been in various stages of resolution, including some that have already been resolved. The relation of these issues to GI-130 is as follows:

- GI-23, "Reactor Coolant Pump Seal Failures" -- This generic safety issue addresses the same possible improvements as Alternative 6 and, in part, Alternative 7 of GI-130. The staff's current understandings, technical findings, and potential recommendations regarding GI-23 were issued for public comment. On the basis of the staff's current knowledge and perspective, the staff has identified an approach for the resolution of GI-23. This approach is contained in Draft Regulatory Guide DG-1008.

  An objective of the identified approach for the resolution of GI-23 is to reduce the risk of severe accidents associated with RCP seal failure by reducing the probability of seal failure, or to demonstrate that the risk is not significant, thus assuring that it is a relatively small contributor to total core damage frequency. The proposed means of doing so entails the installation of a separate and independent cooling system for the RCP seals. Hence, implementation of the proposed GI-23 resolution could provide a substantial portion of the proposed GI-130 resolution. As such, the resolution of GI-130 is coordinated with the resolution of GI-23 by allowing the installation of a backup RCP seal cooling system to be deferred to the resolution of GI-23 pending the receipt and review of public comments. It is expected that information developed as a result of the submittal of public comments will be helpful in our efforts to better understand the performance of the RCP seals under loss of seal cooling conditions.

- GI-51, "Improving the Reliability of Open-Cycle Service-Water Systems" -- The resolution of this generic safety issue was reported in August 1989 and its imposition began with the issuance of Generic Letter 89-13 and Supplement 1. Implementation of the GI-51 entails the implementation of a series of surveillance, control, and test requirements to ensure that the ESWS of all nuclear power plants are in compliance with all applicable licensing requirements.

  During the review of the operational experience data of GI-130, credit was taken for a corrective measure as a result of the resolution of GI-51 by excluding those events that involved biofouling of the ESW. Hence, GI-51 has no direct impact on GI-130.

- o GI-153, "Loss of Essential Service Water in LWRs" has been assigned NRC staff resources for its resolution. Its purpose is to assess this issue for all light-water reactors (LWRs) not already covered by GI-130. Insights gained by the evaluation of GI-153 are expected to be useful in confirming and/or supplementing the technical findings of GI-130.

Of interest to the decision process on this generic issue are the insights and reviews available in related probabilistic risk assessment (PRA) documentation in the open literature. The PRA work available in NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants" (plus supporting documentation) is a source of extensive risk analyses information that might be used for an understanding of ESW vulnerabilities. An examination of the NUREG-1150 documentation of the three PWRs that were studied indicates that the analyst thought that the ESW redundancy for two of the three PWRs was large enough that a complete loss of ESW as an event initiator was deemed not credible (eight pumps are available at Sequoyah, Units 1 and 2). None of the five plants in the NUREG-1150 study is a GI-130 plant; however, it is worthwhile to note that one of the PWRs (Zion) identified the service water contribution to CDF to be substantial (approximately 1.5E-04/RY). This contribution for Zion was approximately 42 percent of the total core damage frequency from all causes.

Another PRA work available in the open literature is NSAC-148, "Service Water Systems and Nuclear Plant Safety," dated May 1990. Although NSAC-148 is only a compilation of earlier PRA results for six plants performed by the industry, it is useful to note that a greater appreciation of the service water system's contribution to plant risk has moved the industry to initiate a program to improve service water performance. The limited guidance available in NSAC-148 is a step in the right direction. The wide range of core damage frequencies (from LOSW) at the six plants studied suggests the large variability in plant-specific ESW configurations. The average CDF from LOSW for the six plants was 6.55E-05/RY, with a range of 2.33E-04/RY-to-"negligible" contribution. Although many details of these six PRAs are not included in NSAC-148, and therefore, must be considered to be used only with great caution, the overall message that the service water system provides an important safety function that could be a substantial contributor to overall plant risk tends to lend added credence to the GI-130 conclusions.

A.2.7 NRC Costs

Implementation of Alternative 5 is estimated at $21,000 (best estimate). This estimate assumes minimal resources for review of the generic letter responses.

A.2.8 Facility Differences

Alternative 5 is applicable to all 14 plants covered by this study, regardless of age or design. Other PWR and BWR plants that are not included under the resolution of GI-130 will be evaluated under GI-153, "Loss of Essential Service Water in LWRs."

A.2.9 Term of Requirements

This represents the final resolution of GI-130. Alternative No. 6 entailing the installation of an independent RCP seal cooling system has been subsumed under the resolution of GI-23.

ENCLOSURE 3

BACKGROUND DISCUSSION OF A DEFERRED SAFETY ENHANCEMENT

FROM GI-130 TO GI-23

(INSTALLATION OF A DEDICATED RCP SEAL COOLING SYSTEM)

As identified in NUREG-1421, "Regulatory Analysis for the Resolution of Generic Issue 130: Essential Service Water System Failures at Multi-Unit Sites," a combination of potential improvements consisting of the installation of a backup, dedicated RCP seal cooling system, and improvements in technical specifications (TS) and procedures are shown to be capable of substantial risk reduction. The specific features of such a backup, dedicated RCP seal cooling system would be as follows:

- o Single high pressure pump, 50-100 gpm capacity
- o Dedicated water storage tank with capacity to last at least 8-10 hours
- o AC-independent (non-seismic) pump
- o No support system cooling required
- o Once-through RCP seal heat removal

Limited plant-specific information obtained through the existing literature (FSARs, and so forth), site visits, or discussions with licensees have indicated that a number of the units covered by GI-130 already have plant-unique features that could be responsive to this generic safety enhancement. Rather than attempting to perform a series of PRAs tailored to each of the 14 units, the NRC encourages each licensee or applicant to review the plant-specific features (if any) that could be credited with departing from the generic (representative) base case plant configuration modelled in NUREG/CR-5526. In addition, other design alternatives may also be considered utilizing arrangements different from that of the high-pressure pump seal injection.

One such alternative would provide flow through the RCP thermal barrier heat exchangers by connecting the fire water system into the component cooling water (CCW) lines. Most fire water systems have one diesel-driven fire water pump, which usually is independent of the ESWS.

Generic Issue 23, "Reactor Coolant Pump Seal Failures," deals with this recommendation also, and specific guidance for resolving that generic issue is given in proposed Regulatory Guide DG-1008. While awaiting completion of public review and comment on draft Regulatory Guide DG-1008, resolution of this GI-130 item has been deferred until GI-23 is resolved. The reason for this deferral relates to the earlier development and promulgation of 10 CFR 50.63 (station blackout rule), which was based on an assumption regarding the magnitude of RCP seal leakage during a station blackout event. While it was

left to GI-23 to validate that assumption, the resolution of GI-130 is also based on a RCP seal failure LOCA model very similar to that of GI-23, but different from the leakage assumption in 10 CFR 50.63.

ENCLOSURE 4

JUSTIFICATION ANALYSIS [10 CFR 50.54(f)]

FOR GENERIC LETTER ON GENERIC ISSUE 130

Section 50.54(f) of 10 CFR Part 50 requires that "... the NRC must prepare the reason or reasons for each information request prior to issuance to ensure that the burden to be imposed on respondents is justified in view of the potential safety significance of the issue to be addressed in the requested information." Further, Revision 4 of the Charter of the Committee To Review Generic Requirements (CRGR), dated April 1989, specifies that, at a minimum, such an evaluation shall include the following:

a. A problem statement that describes the need for the information in terms of potential safety benefit,

b. The licensee actions required and the cost to develop a response to the information request, and

c. An anticipated schedule for NRC use of the information.

The staff's 10 CFR 50.54(f) evaluation of the information request addressing the above elements follows:

a. Problem Statement That Describes the Need for the Information in Terms of Potential Safety Benefit

The recommended resolution of Generic Issue 130 (GI-130), "Essential Service Water System Failures at Multi-Unit Sites," applies to 14 reactor units at seven sites and indicates that essential service water system (ESWS) failures at these plants may significantly contribute to the overall plant risk. As a consequence of these technical findings, and based on the cost/benefit analyses performed, the staff has determined that these 14 plants may need to modify technical specifications (TS) to enhance the availability of the ESWS and to institute procedures to assure the integrity of the HPI pump in the event of RCP seal failure as a result of loss of essential service water (LOSW), as well as procedures to test and manipulate the ESWS crosstie between the two units during a LOSW accident.

The estimated benefit from the identified safety enhancements is a reduction in the core damage frequency and a reduction in the associated risk of offsite radioactive releases as a result of ESW failure. The reduction of risk to the public (per plant lifetime) is estimated to be 4141 person-rem (best estimate numbers used) and supports the conclusion that these safety enhancements provide a substantial increase in the overall protection of the public health and safety. Also, the direct and indirect costs of implementation are justified in view of this increased protection. The staff recognizes the uncertainties in these estimates, and in recognition of the potentially substantial risk reductions, the staff believes that significant safety improvements can be achieved by low cost changes in TS and procedures, consistent with the provisions of the backfit rule.

As discussed in NUREG-1421, when considered individually, most of the alternatives analyzed for reducing the risk associated with this issue would be cost-effective in meeting the $1000/person-rem guideline. The objective of the GI-130 resolution is that the risk from the loss of the ESWS be reduced consistent with the two basic requirements of the backfit rule that the corrective alternatives be both substantial and cost-effective.

One of the potential improvements consisting of improvements in TS and emergency procedures was shown to be capable of reducing the CDF as a result of loss of ESW (1.5E-04/RY) by 17 percent (or by approximately 3.0E-05/RY) in a cost-effective manner. As discussed earlier, this is deemed to be consistent with the provisions of the backfit rule.

The overall approach to arriving at the proposed resolution considered both the numerical results of the cost-benefit analysis and the spectrum and type of potential improvements available for potential risk reduction for loss-of-service-water sequences. Those alternatives that could reduce the number of occurrences of the LOSW initiators would be desirable from the prevention perspective. Those alternatives that would help to reduce the consequences of a LOSW would be desirable from the mitigation perspective. The improvements in the TS would assist on the prevention side, while the improved procedures would provide a blend of both prevention and mitigation capabilities.

The conclusion of our analysis is that a substantial increase in the protection of the public health and safety will be derived from the improvements in the TS and procedures, which are justified by the favorable cost/benefit ratio. Hence, in view of the safety significance of the recommended resolution of GI-130, the issuance of this generic letter under 10 CFR 50.54(f) is justified. (See also Item b. below.)

b. <u>The Licensee Response Required and the Cost to Develop the Response to the Information Request</u>

All the recipient licensees or applicants of this generic letter would be requested to review the TS and procedures improvements identified as part of our evaluation of GI-130 and to assess the applicability of these improvements to their respective facilities.

We estimate that the cost of reviewing and evaluating the contents of this generic letter and preparing a response will cost no more than $2500 per licensee or applicant. It is expected that this cost may

vary from site to site, depending on the degree to which the TS and procedures improvements apply to individual plants. This cost is insignificant compared to the cost-justified improvements (see cost estimates presented in NUREG-1421), which represent a substantial safety improvement.

c. An Anticipated Schedule for the NRC Use of the Information

We expect that the responses to this generic letter would be submitted within the 180-day schedule required by the generic letter, and that NRC staff review of the responses will be completed within 180 days from their receipt.

ENCLOSURE 7

LIST OF RECENTLY ISSUED GENERIC LETTERS

Generic Letter No.	Subject	Date of Issuance	Issued To
91-12	OPERATOR LICENSING NAT. EXAMINATION SCHEDULE	08/27/91	ALL PWR REACTOR AND APPLICANTS FOR AN OPERATING LICENSE
91-11	RESOLUTION OF GENERIC ISSUES 48, "LCOs FOR CLASS 1E VITAL INSTRUMENT BUSES," and 49, "INTERLOCKS AND LCOs FOR CLASS 1E TIE BREAKERS" PURSUANT TO 10CFR50.54(f)	07/18/91	ALL HOLDERS OF OPERATING LICENSES
91-10	EXPLOSIVES SEARCHES AT PROTECTED AREA PORTALS	07/08/91	TO ALL FUEL CYCLE FACILITY LICENSEES WHO POSSESS, USE, IMPORT OR EXPORT FORMULA QUANTITIES OF STRATEGIC SPECIAL NUCLEAR MATERIAL
88-20 SUPP. 4	INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS (IPEEE) FOR SEVERE ACCIDENT VULNERABILITIES - 10 CFR 50.54 (f)	06/28/91	ALL HOLDERS OF OLs AND CPs FOR NUCLEAR POWER REACTORS
91-09	MODIFICATION OF SURVEILLANCE INTERVAL FOR THE ELECTRICAL PROTECTIVE ASSEMBLIES IN POWER SUPPLIES FOR THE REACTOR PROTECTION SYSTEM	06/27/91	ALL HOLDERS OF OLs FOR BWRs
91-08	REMOVAL OF COMPONENT LISTS FROM TECHNICAL SPECIFICATIONS	05/06/91	ALL HOLDERS OF OLs OR CPs FOR NUCLEAR POWER REACTORS
91-07	GI-23 "REACTOR COOLANT PUMP SEAL FAILURES" AND ITS POTENTIAL IMPACT ON STATION BLACKOUT	05/02/91	ALL POWER REACTOR LICENSEES AND HOLDERS OF CPs
91-06	RESOLUTION OF GENERIC ISSUE A-30, "ADEQUACY OF SAFETY-RELATED DC POWER SUPPLIED," PURSUANT TO 10 CFR 50.54(f)	04/29/91	ALL HOLDERS OF OLs
91-05	LICENSEE COMMERCIAL-GRADE PROCUREMENT AND DEDICATION PROGRAMS	04/09/91	ALL HOLDERS OF OLs AND CPs FOR NUCLEAR POWER REACTORS

If you have any questions on this matter, please contact your Project Manager.

Sincerely,
Original signed:
James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Draft Technical Specifications (3/4.7.4)
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5. NUREG-1421
6. NUREG/CR-5526
7. List of Recently Issued NRC Generic Letters

Reviewed by Barbara Calure, Technical Editor, on 7/12/91.

DISTRIBUTION
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NRC PDR
PDIII-1 r/f
MGamberoni

OFC	:PE:PDIII-1	:D:PDIII-1	:TA:DRPW	:TA:DRPE	:BC:SPLB
NAME	:MGAMBERONI	:TMARSH	:ELEEDS	:MBOYLE	:CMcCRACKEN
DATE	:8/6/91	:8/6/91	:8/7/91	:8/7/91	:8/8/91

OFC	:D:DST	:A:ADT	:C:OGCB:DOEA	:ADP:NRR
NAME	:ATHADANI	:WRUSSELL	:CBERLINGER	:JPARTLOW
DATE	:8/15/91	:8/16/91	:8/16/91	:9/12/91

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