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

September 20, 1989

TO: ALL LICENSEES OF OPERATING REACTORS, APPLICANTS FOR OPERATING LICENSES AND HOLDERS OF CONSTRUCTION PERMITS FOR LIGHT WATER REACTOR NUCLEAR POWER PLANTS

SUBJECT: REQUEST FOR ACTION RELATED TO RESOLUTION OF UNRESOLVED SAFETY ISSUE A-47 "SAFETY IMPLICATION OF CONTROL SYSTEMS IN LWR NUCLEAR POWER PLANTS" PURSUANT TO 10 CFR 50.54(f) - GENERIC LETTER 89-19

As a result of the technical resolution of USI A-47, "Safety Implications of Control Systems in LWR Nuclear Power Plants," the NRC has concluded that protection should be provided for certain control system failures and that selected emergency procedures should be modified to assure that plant transients resulting from control system failures do not compromise public safety.

The NRC has provided to all utility and reactor vendor executives copies of NUREG-1217, "Evaluation of Safety Implications of Control Systems in LWR Nuclear Power Plants" and NUREG-1218, Regulatory Analysis for Resolution of USI A-47." These reports are identified as items 1 and 2 in Enclosure 1. These reports summarize the results of the analyses conducted for USI A-47. During the A-47 review a number of different designs for reactor vessel and steam generator overfill protection were evaluated. Plant specific features such as: power supply interdependence, sharing of sensors between control and trip logic, operator training, and designs for indication and alarms available to the operator were considered in developing risk estimates associated with failures of the feedwater trip system. The results of NRC's studies of the A-47 issue including the analysis for other events evaluated, such as overheat and overcool events, are provided for information. It is expected that each licensee and applicant will review the information for applicability to its facility. The results of the analyses and the technical bases for the NRC conclusions are documented in the references listed in Enclosure 1.

The staff has concluded that all PWR plants should provide automatic steam generator overfill protection, all BWR plants should provide automatic reactor vessel overfill protection, and that plant procedures and technical specifications for all plants should include provisions to verify periodically the operability of the overfill protection and to assure that automatic overfill protection is available to mitigate main feedwater overfeed events during reactor power operation. Also, the system design and setpoints should be selected with the objective of minimizing inadvertant trips of the main feedwater system during plant startup, normal operation, and protection system surveillance. The Technical Specifications recommendations are consistent with the criteria and the risk considerations of the Commission Interim Policy Statement on Technical Specification Improvement. In addition, the staff recommends that all BWR recipients reassess and modify, if needed, their operating procedures and operator training to assure that the operators can mitigate reactor vessel overfill events that may occur via the condensate

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booster pumps during reduced system pressure operation. Enclosure 2 (Sections 1 through 4, a and b) describes the requested action for the different NSSS designs.

Enclosure 2 outlines a number of designs that satisfy the objectives for overfill protection and provides guidance for an acceptable design. The staff believes that a significant number of plants already provide satisfactory designs for overfill protection; many plants also have technical specifications dealing with overfill protection system surveillance which were previously approved by the staff.

The staff also concluded that certain Babcock and Wilcox plants should provide either automatic initiation of auxiliary feedwater on low steam generator level or another acceptable design to prevent steam generator dryout on a loss of power to the control system. Most B&W plants have already incorporated automatic initiation circuits for this purpose. Enclosure 2, Section 3c, identifies the plants that have not, and describes the requested action.

The staff also concluded that certain Combustion Engineering plants should reassess their emergency procedures and operator training to assure safe shutdown of the plants during any postulated small break loss of coolant accident. Enclosure 2, Section 4c, identifies these plants and describes the requested action.

On the basis of the technical studies the staff requests that the recommendations in Enclosure 2 be implemented by all LWR plants to enhance safety. These recommendations result from the staff interpretation of General Design Criteria 13, 20, and 33, identified in 10CFR50, Appendix A.

The implementation schedule for actions on which commitments are made by licensees or applicants in response to this letter should be prior to start-up after the first refueling outage, beginning nine (9) months following receipt of the letter.

In order to determine whether any license or construction permit for facilities covered by this request should be modified, suspended or revoked, we require, pursuant to Section 182 of the Atomic Energy Act and 10 CFR 50.54(f), that you provide the NRC, within 180 days of the date of this letter, a statement as to whether you will implement the recommendations in Enclosure 2 and, if so, that you provide a schedule for implementation of the items in Enclosure 2 and the basis for the schedule. If you do not plan to implement these recommendations, provide appropriate justification. This information shall be submitted to the NRC, signed under oath and affirmation. The licensee should retain, supporting documentation consistent with the records retention program for their facility.

With regard to the recommendations in Enclosure 2 that specify modification to plant procedures and Technical Specifications, the intent is that the appropriate plant procedures be modified in the short-term to provide periodic verification and testing of the overfill protection system. As part of future upgrades to Technical Specifications, licensees should consider including appropriate limiting conditions of operation and surveillance requirements in future Technical Specification improvements.

This request is covered by Office of Management and Budget Clearance Number 3150-0011 which expires December 31, 1989. The estimated average burden hours is 240 person hours per licensee response, including assessment of the new recommendations, searching data sources, gathering and analyzing the data, and the required reports. These estimated average burden hours pertain only to these identified response-related matters and do not include the time for actual implementation of the requested actions. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Record and Reports Management Branch, Division of Information Support Services, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; and to the Paperwork Reduction Project (3150-0011), 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. Enclosure 1, List of References
2. Enclosure 2, Control System Design and Procedural Modification for Resolution of USI A-47
3. Enclosure 3, List of Recently Issued NRC Generic Letters

Enclosure 1

REFERENCE

LIST OF SIGNIFICANT INFORMATION RELATED TO RESOLUTION OF USI A-47

1. NUREG-1217 "Evaluation of Safety Implications of Control Systems in LWR Nuclear Power Plants" - Technical Findings Related to USI A-47.

2. NUREG-1218 "Regulatory Analysis for Resolution of USI A-47."

3. NUREG/CR-4285 "Effects of Control System Failures on Transients, Accidents and Core-Melt Frequencies at a Westinghouse PWR."

4. NUREG/CR-4386 "Effects of Control System Failures on Transients, Accidents and Core-Melt Frequencies at a Babcock and Wilcox Pressurized Water Reactor."

5. NUREG/CR-4387 "Effects of Control System Failures on Transients, Accidents and Core-Melt Frequencies at a General Electric Boiling Water Reactor."

6. NUREG/CR-3958 "Effects of Control System Failures on Transients, Accidents and Core-Melt Frequencies at a Combustion Engineering Pressurized Water Reactor."

7. NUREG/CR-4326 "Effects of Control System Failures on Transients and Accidents at a 3 Loop Westinghouse. Pressurized Water Reactor." Vol. 1 and 2.

8. NUREG/CR-4047 "An Assessment of the Safety Implications of Control at the Oconee 1 Nuclear Plant-Final Report."

9. NUREG/CR-4262 "Effects of Control System Failures on Transients and Accidents At A General Electric Boiling Water Reactor." Vol. 1 and 2.

10. NUREG/CR-4265 "An Assessment of the Safety Implications of Control at the Calvert Cliffs - 1 Nuclear Plant" Vol. 1 and 2.

11. Letter Report ORNL/NRC/LTR-86/19 "Generic Extensions to Plant Specific Findings of the Safety Implications of Control Systems Program."

Enclosure 2

CONTROL SYSTEM DESIGN AND PROCEDURAL MODIFICATION FOR RESOLUTION OF USI A-47

As part of the resolution of USI A-47, "Safety Implications of Control Systems," the staff investigated control system failures that have occurred, or are postulated to occur, in nuclear power plants. The staff concluded that plant transients resulting from control system failures can be mitigated by the operator, provided that the control system failures do not also compromise operation of the minimum number of protection system channels required to trip the reactor and initiate safety systems. A number of plant-specific designs have been identified, however, that should provide additional protection from transients leading to reactor vessel or steam generator overfill or reactor core overheating.

Reactor vessel or steam generator overfill can affect the safety of the plant in several ways. The more severe scenarios could potentially lead to a steamline break and a steam generator tube rupture. The basis for this concern is the following: (1) the increased dead weight and potential seismic loads placed on the main steamline and its supports should the main steamline be flooded; (2) the loads placed on the main steamlines as a result of the potential for rapid collapse of steam voids resulting in water hammer; (3) the potential for secondary safety valves sticking open following discharge of water or two-phase flow; (4) the potential inoperability of the main steamline isolation valves (MSIVs), main turbine stop or bypass valves, feedwater turbine valves, or atmospheric dump valves from the effects of water or two-phase flow; and (5) the potential for rupture of weakened tubes in the once-through steam generator on B&W nuclear steam supply system (NSSS) plants due to tensile loads caused by the rapid thermal shrinkage of the tubes relative to the generator shell. These concerns have not been addressed in a number of plant designs, because overfill transients normally have not been analyzed.

To minimize some of the consequences of overfill, early plant designs provided commercial-grade protection for tripping the turbine or relied on operator action to control water level manually in the event the normal-water-level control system failed. Later designs, including the most recent designs, provide overfill protection which automatically stops main feedwater flow on vessel high-water-level signals. These designs provide various degrees of coincident logic and redundancy to initiate feedwater isolation and to ensure that a single failure would not inhibit isolation. A large number of plants provide safety-grade designs for this protection.

On the basis of the technical studies conducted by the staff and its contractors, the staff recommends that certain actions should be taken by some plants to enhance plant safety. These actions are described in the material that follows, and include design and procedural modifications to ensure that (1) all plants provide overfill protection, (2) all plants provide plant procedures and

technical specifications for periodic surveillance of the overfill protection, (3) certain Babcock and Wilcox plants provide an acceptable design to prevent steam generator dryout on a loss of power to the control system, and (4) certain Combustion Engineering plants reassess their emergency procedures and operator training to ensure safe shutdown during any postulated small break loss of coolant accident. With regard to the recommendations that specify modification to plant procedures and Technical Specifications, the intent is that the appropriate plant procedures be modified in the short-term to provide periodic verification and testing of the overfill protection system. As part of future upgrades to Technical Specifications, licensees should consider including appropriate limiting conditions of operation and surveillance requirements in future Technical Specification improvements.

(1) GE Boiling-Water-Reactor Plants

(a) It is recommended that all GE boiling-water-reactor (BWR) plant designs provide automatic reactor vessel overfill protection to mitigate main feedwater (MFW) overfeed events. The design for the overfill-protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a reactor high-water-level signal when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur. Common-mode failures that could disable overfill protection and the feedwater control system, but would still result in a feedwater pump trip, are considered acceptable failure modes.

It is recommended that plant designs with no automatic reactor vessel overfill protection be upgraded by providing a commercial-grade (or better) MFW isolation system actuated from at least a 1-out-of-1 reactor vessel high-water-level system, or justify the design on some defined basis.

In addition, it is recommended that all plants reassess their operating procedures and operator training and modify them if necessary to ensure that the operators can mitigate reactor vessel overfill events that may occur via the condensate booster pumps during reduced pressure operation of the system.

(b) It is recommended that plant procedures and technical specifications for all BWR plants with main feedwater overfill protection include provisions to verify periodically the operability of overfill protection and ensure that automatic overfill protection to mitigate main feedwater overfeed events is operable during power operation. The instrumentation should be demonstrated to be operable by the performance of a channel check, channel functional testing, and channel calibration, including setpoint verification. The technical specifications should include appropriate limiting conditions for operation (LCOs). These technical specifications should be commensurate with the requirements of existing plant technical specifications for channels that initiate protective actions. Previously approved technical specifications for surveillance intervals and limiting conditions for operation (LCOs) for overfill protection are considered acceptable.

Designs for Overfill Protection

Several different designs for overfill protection have already been incorporated into a large number of operating plants. The following discussion identifies the different groups of plant designs and provides guidance for acceptable designs.

Group I: Plants that have a safety-grade or a commercial-grade overfill protection system initiated on a reactor vessel high-water-level signal based on a 2-out-of-3 or a 1-out-of-2 taken twice (or equivalent) initiating logic. The system isolates MFW flow by tripping the feedwater pumps.

The staff concludes that this design is acceptable, provided that (1) the overfill protection system is separate from the control portion of the MFW control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems and (2) the plant procedures and technical specifications include requirements to periodically verify operability of this system. Licensees of plants that already have these design features that have been previously approved by the staff should state this in their response.

Group II: Plants that have safety-grade or commercial-grade overfill-protection systems initiated on a reactor vessel high-water-level signal based on a 1-out-of-1, 1-out-of-2, or a 2-out-of-2 initiating logic. The system isolates MFW flow by tripping the feedwater pumps.

The staff concludes that these designs are acceptable provided conditions (1) and (2) stated for Group I are met. Licensees of plants that already have these design features that have been previously approved by the staff should state this in their response. Plant designs with a 1-out-of-1 or a 1-out-of-2 trip logic for overfill protection should provide bypass capabilities to prevent feedwater trips during channel functional testing when at power operation.

Group III: Plants without automatic overfill protection.

It is recommended that the licensee have a design to prevent reactor vessel overfill and justify the adequacy of the design. The justification should include verification that the overfill protection system is separated from the feedwater control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems. Common-mode failures that could disable overfill protection and the feedwater control system, but would still result in a feedwater pump trip, are considered acceptable failure modes. The staff review identified three plants; i.e., Big Rock, LaCrosse (permanently shutdown), and Oyster Creek; that fall into this group. If any of these plants wish to justify not including overfill protection, part of the requested justification should demonstrate that the risk reduction in implementing an automatic overfill protection system is significantly less than the staff's generic estimates of risk reduction. In determining the risk reduction, specific factors such as low plant power and population density should be considered. Other applicable factors that are plant unique should also be addressed.

(2) Westinghouse-Designed PWR Plants

(a) It is recommended that all Westinghouse plant designs provide automatic steam generator overfill protection to mitigate MFW overfeed events. The design for the overfill protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a reactor high-water-level signal when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur. Common-mode failures that could disable overfill protection and the feedwater control system, but would still result in the feedwater pump trip, are considered acceptable failure modes.

(b) It is recommended that plant procedures and technical specifications for all Westinghouse plants include provisions to periodically verify the operability of the MFW overfill protection and ensure that the automatic overfill protection is operable during reactor power operation. The instrumentation should be demonstrated to be operable by the performance of a channel check, channel functional testing, and channel calibration, including setpoint verification. The technical specifications should include appropriate LCOs. These technical specifications should be commensurate with existing plant technical specification requirements for channels that initiate protective actions. Plants that have previously approved technical specifications for surveillance intervals for overfill protection are considered acceptable.

Designs for Overfill Protection

Several different designs for overfill-protection are already provided in most operating plants. The following discussion identifies the different groups of plant designs and provides guidance for acceptable designs.

Group I: Plants that have an overfill-protection system initiated on a steam generator high-water-level signal based on a 2-out-of-4 initiating logic which is safety grade, or a 2-out-of-3 initiating logic which is safety grade but uses one out of the three channels for both control and protection. The system isolates MFW by closing the MFW isolation valves and tripping the MFW pumps.

The staff concludes that the design is acceptable, provided that (1) the overfill protection system is sufficiently separate from the control portion of the MFW control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems, and (2) the plant procedures and technical specifications include requirements to periodically verify operability of this system.

Group II: Plants with a safety-grade or a commercial-grade overfill protection system initiated on a steam generator high-water-level signal based on either a 1-out-of-1, 1-out-of-2, or 2-out-of-2 initiating logic. The system isolates MFW by closing the MFW control valves.

The staff finds that only one early plant (i.e., Haddam Neck) falls into this group; therefore, a risk assessment was not conducted. Considering the successful operating history of the plant regarding overfill transients (i.e., no overfill events have been reported), this design may be found acceptable, provided that (1) justification for the adequacy of the design on a plant-specific basis is included and (2) plant procedures and technical specifications are modified to include requirements to periodically verify operability of this system. As part of the justification, it is requested that the licensee include verification that the overfill-protection system is separate from the feedwater-control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems. Common-mode failures that could disable overfill protection and the feedwater-control system, but would still cause a feedwater pump trip, are considered acceptable failure modes.

Group III: Plants without automatic overfill protection.

It is recommended that the licensee have a design to prevent steam generator overfill and justify the adequacy of the design. The justification should include verification that the overfill-protection system is separated from the feedwater-control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems. Common-mode failures that could disable overfill protection and the feedwater-control system, but would still result in a feedwater pump trip, are considered acceptable failure modes. The staff's review identified two plants; i.e., Yankee Rowe and San Onofre 1; that fall into this category. If either of these plants wish to justify not including overfill protection, part of the requested justification should demonstrate that the risk reduction in implementing an automatic overfill protection system is significantly less than the staff's generic estimates of risk reduction. In determining the risk reduction, specific factors such as low plant power and population density should be considered. Other applicable factors that are plant unique should also be addressed.

(3) Babcock and Wilcox-Designed PWR Plants*

(a) It is recommended that all Babcock and Wilcox plant designs have automatic steam generator overfill protection to mitigate MFW overfeed events.

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*On December 26, 1985, an overcooling event occurred at Rancho Seco Nuclear Generating Station, Unit 1. This event occurred as a result of loss of power to the integrated control system (ICS). Subsequently, the B&W Owners Group initiated a study to reassess all B&W plant designs including, but not limited to, the ICS and support systems such as power supplies and maintenance. As part of the USI A-47 review, failure scenarios resulting from a loss of power to control systems were evaluated; and the results were factored into the A-47 requirements. However, other recommended actions for design modifications, maintenance, and any changes to operating procedures (if any) developed for the utilities by the B&W owners group is being resolved separately.

The design for the overfill-protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a steam generator high-water-level signal (or other equivalent signals) when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the main feedwater control system should occur. Common failure modes that could disable overfill protection and the feedwater-control system, but would still result in a feedwater pump trip, are considered acceptable failure modes.

It is recommended that plants that are similar to the reference plant design (i.e., Oconee Units 1, 2, and 3) have a steam generator high-water-level feedwater-isolation system that satisfies the single-failure criterion. An acceptable design would be to provide automatic MFW isolation by either (1) providing an additional system that terminates MFW flow by closing an isolation valve in the line to each steam generator (this system is to be independent from the existing overfill protection which trips the main feedwater pumps on steam generator high-water level); (2) modifying the existing overfill-protection system to preclude undetected failures in the trip system and facilitate online testing; or (3) upgrading the existing overfill-protection system to a 2-out-of-4 (or equivalent) high-water-level trip system that satisfies the single-failure criterion.

(b) It is recommended that plant procedures and technical specifications for all B&W plants include provisions to periodically verify the operability of overfill protection and ensure the automatic main feedwater overfill protection is operable during reactor power operation. The instrumentation should be demonstrated to be operable by the performance of a channel check, channel functional testing, and channel calibration, including setpoint verification. Technical specifications should include appropriate LCOs. These technical specifications should be commensurate with the requirements of existing technical specifications for channels that initiated protective actions.

(c) It is recommended that plant designs with no automatic protection to prevent steam generator dryout upgrade their design and the appropriate technical specifications and provide an automatic protection system to prevent steam generator dryout on loss of power to the control system. Automatic initiation of auxiliary feedwater on steam generator low-water level is considered an acceptable design. Other corrective actions identified in Section 4.3(4) of NUREG-1218 could also be taken to avoid a steam generator dryout scenario on loss of power to the control system. The staff believes that only three B&W plants, i.e., Oconee 1, 2, and 3, do not have automatic auxiliary feedwater initiation on steam generator low water level).

Designs for Overfill Protection

Several different designs for overfill protection are already provided on most operating plants. The following discussion identifies the different groups of plant designs and provides guidelines for acceptable designs.

Group I: Plants that provide a safety-grade overfill-protection system initiated on a steam generator high-water-level signal based on either a 2-out-of-3 or a 2-out-of-4 (or equivalent) initiating logic. The system isolates main feedwater (MFW) by (1) closing at least one MFW isolation valve in the MFW line to each steam generator and (2) tripping the MFW pumps.

The staff concludes that this design is acceptable, provided that (1) the overfill protection system is sufficiently separated from the feedwater control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems (common-mode failures that could disable overfill protection and the feedwater control system, but still result in a feedwater pump trip are considered acceptable failure modes) and (2) the plant procedures and technical specifications include requirements to periodically verify operability of this system.

Group II: Plants that have a commercial-grade overfill-protection system initiated on a steam generator high-water level based on coincident logic that minimizes inadvertent initiation. The system isolates MFW by tripping the MFW pumps.

This design may be found acceptable, provided that (1) the overfill-protection system is sufficiently separate from the feedwater control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems and (2) the design modifications are implemented per the guidelines identified in the second paragraph of item (3)(a) above and that the plant procedures and technical specifications include requirements to periodically verify operability of this system. The technical specifications should be commensurate with existing plant technical specification requirements for channels that initiate protection actions.

It is also recommended that plant designs that provide a separate 1-out-of-1 or a 1-out-of-2 trip logic to close the feedwater isolation valves for additional overfill protection provide bypass capabilities to prevent feedwater trips during channel functional testing when at power or during hot-standby operation.

(4) Combustion Engineering-Designed PWR Plants

(a) It is recommended that all Combustion Engineering plants provide automatic, steam generator overfill protection to mitigate main feedwater (MFW) overfeed events. The design for the overfill-protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a steam generator high-water-level signal when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur. Common failure modes that could disable overfill protection and the feedwater control system, but would still result in a feedwater pump trip, are considered acceptable failure modes.

(b) It is recommended that plant procedures and technical specifications for all Combustion Engineering plants include provisions to verify periodically the operability of overfill protection and ensure that automatic MFW overfill protection is operable during reactor power operation. The instrumentation should be demonstrated to be operable by the performance of a channel check, channel functional testing, and channel calibration, including setpoint verification, and by identifying the LCOs. These technical specifications should be commensurate with existing plant technical specifications requirements for channels that initiate protection actions.

(c) It is recommended that all utilities that have plants designed with high-pressure-injection pump-discharge pressures less than or equal to 1275 psi reassess their emergency procedures and operator training programs and modify them, as needed, to ensure that the operators can handle the full spectrum of possible small-break loss-of-coolant accident (SBLOCA) scenarios. This may include the need to depressurize the primary system via the atmospheric dump valves or the turbine bypass valves and cool down the plant during some SBLOCA. The reassessment should ensure that a single failure would not negate the operability of the valves needed to achieve safe shutdown.

The procedure should clearly describe any actions the operator is required to perform in the event a loss of instrument air, or electric power prevents remote operation of the valves. The use of the pressurizer PORVs to depressurize the plant during an SBLOCA, if needed, and the means to ensure that the R_TNDT (reference temperature, nil ductility transition) limits are not compromised should also be clearly described. Seven plants have been identified that have high pressure injection pump discharge pressures less than or equal to 1275 psi that may require manual pressure-relief capabilities using the valves to achieve safe shutdown. They are: Calvert Cliffs 1 and 2, Fort Calhoun, Millstone 2, Palisades, and St. Lucie 1 and 2.

Designs for Overfill Protection

CE-designed plants do not provide automatic steam generator overfill protection that terminates MFW flow. Therefore, it is recommended that licensees and applicants for CE plants provide a separate and independent safety-grade or commercial-grade steam generator overfill-protection system that will serve as backup to the existing feedwater runback, control system. Existing water-level sensors may be used in a 2-out-of-4 initiating logic to isolate MFW flow on a steam generator high-water-level signal. The proposed design should ensure that the overfill protection system is separate from the feedwater-control system so that it is not powered from the same power source, is not located in the same cabinet, and is not routed so that a fire is likely to affect both systems (common-mode failures described above are considered acceptable) and the plant procedures and technical specifications should include requirements to periodically verify operability of the system. The information that is requested to be addressed in the plant procedures and the technical specifications is provided in item (4)(b) above.

LIST OF RECENTLY ISSUED GENERIC LETTERS

Generic Letter No.	Subject	Date of Issuance	Issued To
89-19	REQUEST FOR ACTION RELATED TO RESOLUTION OF UNRESOLVED SAFETY ISSUE A-47 "SAFETY IMPLICATION OF CONTROL SYSTEMS IN LWR NUCLEAR POWER PLANTS" PURSUANT TO 10 CFR 50.54(f)	09/20/89	ALL LICENSEES OF OPERATING REACTORS, APPLICANTS FOR OPERATING LICENSES AND HOLDERS OF CONSTRUCTION PERMITS FOR LIGHT WATER REACTOR NUCLEAR POWER PLANTS
89-18	RESOLUTION OF UNRESOLVED SAFETY ISSUE A-17, "SYSTEMS INTERACTIONS IN NUCLEAR POWER PLANTS	09/06/89	ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR NUCLEAR POWER PLANTS
	ACCESSION NUMBER IS 8909070029		
89-17	PLANNED ADMINISTRATIVE CHANGES TO THE NRC OPERATOR LICENSING WRITTEN EXAMINATION PROCESS - GENERIC LETTER 89-17	09/06/89	ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR PWRS AND BWRS AND ALL LICENSED OPERATORS
89-16	INSTALLATION OF A HARDENED WETWELL VENT (GENERIC LETTER 89-16)	09/01/89	ALL GE PLANTS
88-20 SUPPLEMENT 1	GENERIC LETTER 88-20 SUPPLEMENT NO. 1 (INITIATION OF THE INDIVIDUAL PLANT EXAMINATION FOR SEVERE VULNERABILITIES 10 CFR 50.54(f))	08/29/89	ALL LICENSEES HOLDING OPERATING LICENSES AND CONSTRUCTION PERMITS FOR NUCLEAR POWER REACTOR FACILITIES
89-15	EMERGENCY RESPONSE DATA SYSTEM GENERIC LETTER NO. 89-15	08/21/89	ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR NUCLEAR POWER PLANTS
	CORRECT ACCESSION NUMBER IS 8908220423		
89-07	SUPPLEMENT 1 TO GENERIC LETTER 89-07, "POWER REACTOR SAFEGUARDS CONTINGENCY PLANNING FOR SURFACE VEHICLE BOMBS"	08/21/89	ALL LICENSEES OF OPERATING PLANTS, APPLICANTS FOR OPERATING LICENSES, AND HOLDERS OF CONSTRUCTION PERMITS

This request is covered by Office of Management and Budget Clearance Number 3150-0011 which expires December 31, 1989. The estimated average burden hours is 240 person hours per licensee response, including assessment of the new recommendations, searching data sources, gathering and analyzing the data, and the required reports. These estimated average burden hours pertain only to these identified response-related matters and do not include the time for actual implementation of the requested actions. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Record and Reports Management Branch, Division of Information Support Services, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; and to the Paperwork Reduction Project (3150-0011), Office of Management and Budget, Washington, D.C. 20503.

If you have any questions on this matter, please contact your project manager.

Sincerely,

ORIGINAL SIGNED BY JAMES PARTLOW

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

Enclosures:
1. Enclosure 1, List of References
2. Enclosure 2, Control System Design and Procedural Modification for Resolution of USI A-47
3. Enclosure 3, List of Recently Issued NRC Generic Letters

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