



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

MAY 05 1994

MEMORANDUM FOR: William Russell, Director
Office of Nuclear Reactor Regulation

FROM: Eric S. Beckjord, Director
Office of Nuclear Regulatory Research

SUBJECT: LICENSE RENEWAL IMPLICATIONS OF GENERIC SAFETY ISSUES (GSIs)
PRIORITIZED AND/OR RESOLVED BETWEEN OCTOBER 1990 AND MARCH
1994

RES has completed its review of generic issue actions related to license renewal, as committed in my memorandum to you on March 23, 1994. Our comprehensive review of all GSIs prioritized and/or resolved up to October 1990 showed that consideration of a license renewal period of twenty years did not change the staff's resolution of these issues; this review was documented in NUREG/CR-5382. With the issuance of the Rule on Nuclear Power Plant License Renewal (56 FR 64943, December 13, 1991), GSI resolution efforts started or in progress after October 1990 were to "... examine renewal-term effects as part of the original issue resolution process."

RES has reviewed the 84 generic issues that were prioritized and/or resolved between October 1990 and March 1994 and found that the conclusions reached on the 80 GSIs will not change with the consideration of a license renewal period of twenty years. The remaining 4 issues were classified as non-safety issues with no impact on license renewal: three Licensing Issues (A-19, 147, 148) and one Regulatory Impact Issue (155.2). With respect to the prioritization of the issues, the reevaluation considered the additional 20-year license renewal term (an approximate factor of two increase in the potential risk reduction) and the revised prioritization guidelines proposed in SECY-93-108 and approved by the Commission. These guidelines raised the threshold for HIGH and MEDIUM priority GSIs. A summary of the RES findings on the 80 GSIs is listed in Enclosure 1 to this memorandum. Enclosure 2 provides a list of the 21 GSIs that have been through the resolution process.

It should be noted that the license renewal period was considered in the impact/value analyses for 6 of the 80 GSIs listed in Enclosure 1; an additional 6 GSIs are undergoing resolution and will have to address license renewal in accordance with RES Office Letter No. 3. However, in order to facilitate the NRR identification of GSIs for consideration in plant license renewal applications, RES will revise the Introduction of NUREG-0933 to reflect: (1) the findings of NUREG/CR-5382; and (2) the RES findings for those GSIs completed between October 1990 and March 1994. RES Office Letters No.

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RES-18-8

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William Russell

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1 and 3 have been revised to include a line item on license renewal and future prioritization evaluations and resolution regulatory analyses will more clearly state the impacts on license renewal.

Original Signed By:
C. J. Hillmes, Jr.

Eric S. Beckjord, Director
Nuclear Regulatory Research

Enclosures:

- 1. 80 GSIs Prioritized and/or Resolved
Between October 1990 and March 1994
- 2. 21 GSIs Resolved Between October 1990
and March 1994

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80 GSIs PRIORITIZED AND/OR RESOLVED BETWEEN OCTOBER 1990 AND MARCH 1994

- 2 Failure of Protective Devices on Essential Equipment
License renewal was not considered in the prioritization of this issue which was placed in the DROP category because of its negligible risk reduction potential. Consideration of license renewal did not change the priority of the issue.
- 24 Automatic ECCS Switchover to Recirculation
License renewal was not considered in the MEDIUM priority ranking of this issue but, in accordance with RES Office Letter No. 3, will be addressed during resolution.
- 29 Bolting Degradation or Failure in Nuclear Power Plants
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with no backfit based on the actions taken by licensees to address the safety concern. Consideration of license renewal did not affect this resolution.
- 38 Potential Recirculation System Failure as a Consequence of Ingestion of Containment Paint Flakes or Other Fine Debris
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on a finding of insignificant risk in the plant analyses of Comanche Peak Units 1 and 2. Consideration of license renewal did not change the priority of the issue.
- 39 Potential for Unacceptable Interaction Between the CRD System and Non-Essential Control Air System
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the backfit that was made to address the safety concern, prior to prioritization. Consideration of license renewal did not change the priority of the issue.
- 73 Detached Thermal Sleeves
License renewal was not considered in the prioritization of this issue which was placed in the NEARLY-RESOLVED category and then resolved with backfits to the affected Westinghouse plants. Consideration of license renewal did not affect this resolution.
- 76 Instrumentation and Control Power Interactions
License renewal was considered in the prioritization of this issue which was placed in the DROP category.
- 78 Monitoring of Fatigue Transient Limits for Reactor Coolant System
License renewal was not considered in the MEDIUM priority ranking of this issue. This issue will provide technical information to the overall resolution of the safety concern under Issue 166, for which NRR has the lead responsibility. Resolution of Issue 166 will consider license renewal.

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- 79 Unanalyzed Reactor Vessel Thermal Stress During Natural Convection
Cooldown
License renewal was not considered in the MEDIUM priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- 81 Impact of Locked Doors and Barriers on Plant and Personnel Safety
License renewal was considered in the prioritization of this issue which was given a LOW priority ranking.
- 87 Failure of HPCI Steam Line Without Isolation
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with backfit. Consideration of license renewal did not affect this resolution.
- 89 Stiff Pipe Clamps
License renewal was not considered in the LOW priority ranking of this issue for operating plants based on the potential risk reduction (2,500 man-rem) and the high cost of resolution (\$95.5M). Consideration of license renewal did not change the priority of the issue.
- 100 Once-Through Steam Generator Level
License renewal was considered in the prioritization of this issue which was placed in the DROP category.
- 105 Interfacing Systems LOCA at LWRs
License renewal was not considered in the HIGH priority ranking of this issue but was considered in the resolution which resulted in no backfit. Consideration of license renewal did not affect this resolution.
- 110 Equipment Protective Devices on Engineered Safety Features
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the potential risk reduction (negligible). Consideration of license renewal did not change the priority of the issue.
- 113 Dynamic Qualification Testing of Large Bore Hydraulic Snubbers
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- 118 Tendon Anchorage Failure
License renewal was not considered in the prioritization of this issue which was placed in the RESOLVED category based on the voluntary actions taken by licensees to address the safety concern. Consideration of license renewal did not change the priority of the issue.

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- 120 On-Line Testability of Protection Systems
License renewal was not considered in the MEDIUM priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- 121 Hydrogen Control for Large, Dry PWR Containments
License renewal was not considered in HIGH priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- 123 Deficiencies in the Regulations Governing DBA and Single-Failure Criteria Suggested by the Davis-Besse Event of June 9, 1985
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concerns either had been or were being addressed in other GSIs or NRC programs. Consideration of license renewal did not change the priority of the issue.
- 128 Electrical Power Reliability
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with backfit. Consideration of license renewal did not affect this resolution.
- 130 Essential Service Water Pump Failures at Multiplant Sites
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with backfit. Consideration of license renewal did not affect this resolution.
- 132 RHR System Inside Containment
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the conclusion that the potential reduction in core damage frequency was not substantial enough to meet the Backfit Rule (10 CFR 50.109). Consideration of license renewal did not change the priority of the issue.
- 135 Steam Generator and Steam Line Overfill
License renewal was not considered in the MEDIUM priority ranking of this issue which was resolved with no backfit based on the low public risk associated with steam generator tube rupture and steam line overfill events. Consideration of license renewal did not affect this resolution.
- 138 Deinerting of BWR MARK I and II Containments During Power Operations Upon Discovery of RCS Leakage or a Train of a Safety System Inoperable
License renewal was considered in the LOW priority ranking of this issue.

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- 142 Leakage Through Electrical Isolators in Instrumentation Circuits
License renewal was not considered in the MEDIUM priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- 143 Availability of Chilled Water Systems and Room Cooling
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- 144 Scram Without a Turbine/Generator Trip
License renewal was not considered in the LOW priority ranking of this issue based on the potential risk reduction (52 man-rem). Consideration of license renewal did not change the priority of the issue.
- 145 Actions to Reduce Common Cause Failures
License renewal was considered in the prioritization of this issue which was placed in the NEARLY-RESOLVED category. In accordance with RES Office Letter No. 3, license renewal will have to be addressed again in the resolution of the issue.
- 146 Support Flexibility of Equipment and Components
License renewal was not considered in LOW priority ranking of this issue for operating plants based on the findings that the safety concern had been addressed in another GSI and an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 149 Adequacy of Fire Barriers
License renewal was not considered in the LOW priority ranking of this issue based on the potential risk reduction (500 man-rem). Consideration of license renewal did not change the priority of the issue.
- 150 Overpressurization of Containment Penetrations
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the potential risk reduction (40 man-rem). Consideration of license renewal did not change the priority of the issue.
- 151 Reliability of Anticipated Transient Without SCRAM Recirculation Pump Trip in BWRs
License renewal was not considered in the MEDIUM priority ranking of this issue which was resolved with no backfit; a more detailed analysis showed very little risk reduction potential. Consideration of license renewal did not affect this resolution.

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- 152 Design Basis for Valves That Might Be Subjected to Significant Blowdown Loads
License renewal was not considered in the LOW priority ranking of this issue based on the potential risk reduction (110 man-rem). Consideration of license renewal did not change the priority of the issue.
- 153 Loss of Essential Service Water in LWRs
License renewal was not considered in the HIGH priority ranking of this issue. However, license renewal was considered in the resolution of this issue which was resolved with no backfit.
- 154 Adequacy of Emergency and Essential Lighting
License renewal was not considered in the LOW priority ranking of this issue based on the potential risk reduction (1,854 man-rem) and the high cost of resolution (\$18.75M). Consideration of license renewal did not change the priority of the issue.
- 155.1 More Realistic Source Term Assumptions
This issue involves developing a new licensing basis source term to replace TID-14844. This new source term is being based on recent severe accident research findings. Accordingly, consideration of license renewal will not impact the resolution of this issue.
- 155.3 Improve Design Requirements for Nuclear Facilities
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the findings that the safety concerns either had negligible risk reduction potential or were addressed or being addressed in other NRC programs. Consideration of license renewal did not change the priority of the issue.
- 155.4 Improve Criticality Calculations
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 155.5 More Realistic Severe Reactor Accident Scenario
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed by an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 155.6 Improve Decontamination Regulations
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.

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- 155.7 Improve Decommissioning Regulations
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.1.1 Settlement of Foundations and Buried Equipment
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.1.2 Dam Integrity and Site Flooding
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.1.3 Site Hydrology and Ability to Withstand Floods
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.1.4 Industrial Hazards
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.1.5 Tornado Missiles
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.1.6 Turbine Missiles
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern had been previously addressed in Issue A-37 (evaluated in NUREG/CR-5382). Consideration of license renewal did not change the priority of the issue.

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- 156.2.1 Severe Weather Effects on Structures
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.2.2 Design Codes, Criteria, and Load Combinations
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.2.3 Containment Design and Inspection
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in Issue 118 (evaluated above). Consideration of license renewal did not change the priority of the issue.
- 156.2.4 Seismic Design of Structures, Systems, and Components
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.3.1.1 Shutdown Systems
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.3.1.2 Electrical Instrumentation and Controls
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.3.2 Service and Cooling Water Systems
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in Issues 51 (evaluated in NUREG/CR-5382), and 130, 143, and 153 (evaluated above). Consideration of license renewal did not change the priority of the issue.

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- 156.3.3 **Ventilation Systems**
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in Issues 136 (evaluated in NUREG/CR-5382), 143 (evaluated above), and 83 and 106 (currently being resolved). Consideration of license renewal did not change the priority of the issue.
- 156.3.4 **Isolation of High and Low Pressure Systems**
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in Issue 105 (evaluated above). Consideration of license renewal did not change the priority of the issue.
- 156.3.5 **Automatic ECCS Switchover**
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in Issue 24 (evaluated above). Consideration of license renewal did not change the priority of the issue.
- 156.3.6.1 **Emergency AC Power**
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in Issues 128 (evaluated above) and B-56 (evaluated below). Consideration of license renewal did not change the priority of the issue.
- 156.3.6.2 **Emergency DC Power**
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was being addressed in an ongoing NRC program. Consideration of license renewal did not change the priority of the issue.
- 156.3.8 **Shared Systems**
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in Issues 43 and A-44 (evaluated in NUREG/CR-5382) and 130 (evaluated above). Consideration of license renewal did not change the priority of the issue.
- 156.4.1 **RPS and ESFS Isolation**
License renewal was not considered in the prioritization of this issue which was incorporated into the resolution of Issue 142 (evaluated above). Consideration of license renewal did not change the priority of the issue.

80 GSIs PRIORITIZED AND/OR RESOLVED BETWEEN OCTOBER 1990 AND MARCH 1994

- 156.4.2 Testing of the RPS and ESFS
License renewal was not considered in the prioritization of this issue which was incorporated into the resolution of Issue 120 (evaluated above). Consideration of license renewal did not change the priority of the issue.
- 157 Containment Performance
License renewal was not considered in the prioritization of this issue which was placed in the RESOLVED category based on the finding that the safety concern was addressed in a completed NRC program. Consideration of license renewal did not change the priority of the issue.
- 158 Performance of Power-Operated Valves Under Design Basis Conditions
License renewal was not considered in the MEDIUM priority ranking of this issue but, in accordance with RES Office Letter No. 3, will be addressed during resolution.
- 159 Qualification of Safety-Related Pumps While Running on Minimum Flow
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern had been addressed by Bulletin 88-04. Consideration of license renewal did not change the priority of the issue.
- 160 Spurious Actions of Instrumentation Upon Restoration of Power
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the potential risk reduction (4,320 man-rem) and the high cost of resolution (\$46M). Consideration of license renewal will only move the issue to a LOW priority ranking.
- 161 Use of Non-Safety-Related Power Supplies in Safety-Related Circuits
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was one of compliance with existing regulations. Consideration of license renewal did not change the priority of the issue.
- 162 Inadequate Technical Specifications for Shared Systems at Multiplant Sites When One Unit Is Shutdown
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in other NRC programs. Consideration of license renewal did not change the priority of the issue.

80 GSIs PRIORITIZED AND/OR RESOLVED BETWEEN OCTOBER 1990 AND MARCH 1994

- 164 **Neutron Fluence in Reactor Vessel**
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the finding that the safety concern was addressed in other NRC programs. Consideration of license renewal did not change the priority of the issue.
- 165 **Spring-Actuated Safety and Relief Valve Reliability**
License renewal was not considered in the HIGH priority ranking of this issue but, in accordance with RES Office Letter No. 3, will be addressed during resolution.
- 166 **Adequacy of Fatigue Life of Metal Components**
License renewal was not considered in the prioritization of this issue which was placed in the NEARLY-RESOLVED category. NRR has the lead responsibility for resolving this issue and would be expected to follow the Statement of Consideration in the License Renewal Rule (56 FR 64943) in considering license renewal during resolution.
- 168 **Environmental Qualification of Electrical Equipment**
License renewal was not considered in the prioritization of this issue which was placed in the NEARLY-RESOLVED category. NRR has the lead responsibility for resolving this issue and would be expected to follow the Statement of Consideration in the License Renewal Rule (56 FR 64943) in considering license renewal during resolution.
- B-22 **LWR Fuel**
License renewal was not considered in the prioritization of this issue which was placed in the DROP category based on the negligible risk reduction potential. Consideration of license renewal did not change the priority of the issue.
- B-56 **Diesel Reliability**
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with the issuance of Regulatory Guide 1.9, Rev. 3 and incorporation of diesel generator maintenance by the Maintenance Rule. Consideration of license renewal did not affect this resolution.
- HF4.4 **Guidelines for Upgrading Other Procedures**
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- HF5.1 **Local Control Stations**
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.

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- HF5.2 **Review Criteria for Human Factors Aspects of Advanced Controls and Instrumentation**
License renewal was not considered in the HIGH priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- I.D.3 **Safety System Status Monitoring**
License renewal was not considered in the MEDIUM priority ranking of this issue which was resolved with no backfit. Consideration of license renewal did not affect this resolution.
- II.J.4.1 **Revise Deficiency Reporting Requirements**
License renewal was not considered in the prioritization of this issue which was placed in the NEARLY-RESOLVED category and resolved with no backfit; procedure changes do not qualify as backfit. Consideration of license renewal did not affect this resolution.

ENCLOSURE 2

21 GSIs RESOLVED BETWEEN OCTOBER 1990 AND MARCH 1994
(SEE TITLES IN ENCLOSURE 1)

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B-56
HF4.4
HF5.1
HF5.2
I.D.3
II.J.4.1