

May 1, 1996

FOR: The Commissioners  
 FROM: James M. Taylor /s/  
 Executive Director for Operations  
 SUBJECT: PROGRESS OF RESOLUTION OF GENERIC SAFETY ISSUES

- PURPOSE:
- DISCUSSION:
- CONCLUSION:

#### PURPOSE:

To provide a status report on the progress in resolving generic safety issues (GSIs) since the last report to the Commission (SECY-95-109) on May 1, 1995.

#### DISCUSSION:

Resolution of GSIs is an integral part of the Generic Issue Program which consists of six stages: identification, prioritization, resolution, imposition, implementation, and verification. The Office of Nuclear Regulatory Research (RES) is responsible for the management of the first three stages of the program (identification, prioritization, and resolution) and the Office of Nuclear Reactor Regulation (NRR) is responsible for the management of the remaining stages. A complete description of this program was forwarded to the Commission in SECY-93-108 on April 28, 1993. This report focuses on the progress made by RES in identifying, prioritizing, and resolving generic issues since the last report to the Commission.

The staff continued to prioritize generic issues using the revised methodology approved by the Commission in 1993 and later published in Supplement 16 to NUREG-0933, "A Prioritization of Generic Safety Issues." During the last 12 months, the total inventory of unresolved GSIs remained unchanged at eighteen. One new generic issue was identified by the staff, bringing the total number of all generic issues identified so far to 820: 630 GSIs and 190 other issues

(Licensing, Regulatory Impact, and Environmental). Two GSIs were prioritized: one HIGH-Priority and one Planned and in Progress (Nearly-Resolved). Thus, with the identification of one new issue, the number of unprioritized issues was reduced to three. In addition, one GSI was resolved; this is listed in [Attachment 1](#). Progress since May 1, 1995 in identifying, prioritizing, and resolving GSIs is summarized in [Attachment 2](#). The following is the current disposition of the 630 GSIs:

<b>RESOLVED</b>			
LOW-PRIORITY	-	31	
DROP	-	100	
INTEGRATED	-		217
RESOLVED	-	264	
			612
<b>UNRESOLVED</b>			
HIGH-PRIORITY	-	4	
MEDIUM-PRIORITY	-	5	
PLANNED AND IN PROGRESS	-		6
UNPRIORITIZED	-	<u>3</u>	
			<u>18</u>
TOTAL:			630

Overall, 612 out of 630 or 97% of all GSIs have been resolved. A list of the fifteen GSIs currently being resolved as well as the three unprioritized issues is given in [Attachment 1](#). The schedule for completion of these eighteen unresolved issues is provided in [Attachment 2](#). In accordance with SRM 871021A, a review of the 31 LOW-priority GSIs was completed with the result that new significant information was identified that will warrant the reassessment of four issues. The following is a summary of the current status of the four HIGH-Priority GSIs listed in [Attachment 1](#).

**GSI 15, Radiation Effects on Reactor Vessel Supports:** As reported to the Commission in its 1995 annual report, the staff did not envision any new requirements for licensees with the resolution of this issue. Research conducted on the High Flux Isotope Reactor (HFIR) at the Oak Ridge National Laboratory showed that the unique HFIR environment had an exceptionally high gamma radiation component, relative to the neutron flux component, that contributed significantly to embrittlement. Since currently operating light water power reactors have very low gamma radiation environments in the cavity adjacent to the reactor pressure vessel supports, the HFIR embrittlement effect does not apply. The research conducted showed clearly that any embrittlement prediction should employ the complete displacement per atom (dpa) energy spectrum so that the contribution to damage from neutrons of any energy level, including low energy neutrons, can be accurately included. Further internal review led to the conclusion that issuance of an Information Notice was not necessary. Therefore, this issue will be formally closed in June 1996 with the publication of the staff's technical findings in NUREG-1509, "Radiation Effects on Reactor Vessel Supports (GSI-15)," which will be made available directly to all operating reactor licensees.

**GSI 23, Reactor Coolant Pump Seal Failures:** In its response to the staff's Rule proposed in SECY-94-225, the Commission noted that there was a "wide range of plant-specific considerations for PWRs, some of which would result in expending excessive resources without a commensurate benefit. In some cases, licensees appear to be planning to address the pump seal failure and other plant improvements identified under their IPE program including use of accident management strategies." The Commission believed that there was insufficient basis for gains in safety and expressed concerns with seal evaluation models. Thus, issuance of the proposed Rule for public comment was disapproved and the staff was directed to communicate this decision to reactor licensees; as a result, Information Notice 95-42 was issued. The staff is expected to formally close this issue by the end of September 1996 with the dissemination of its technical findings to licensees.

**GSI 165, Spring-Actuated Safety and Relief Valve Reliability:** Piping and instrument drawings from selected PRAs

have been reviewed to identify those systems with spring-actuated relief valves, and analyses were performed to determine the extent of valve failure that is required to fail the systems in which they operate. LERs are also being reviewed to more accurately estimate the failure probability of spring-actuated relief valves. Resolution of this issue is expected in June 1998.

**GSI 171, Engineered Safety Feature Failure from Loss of Offsite Power Subsequent to a LOCA:** This issue arose from an identified deficiency in the Surry Power Station emergency diesel generator (EDG) loading logic that could have resulted in overloading the EDGs, if a Loss of Coolant Accident (LOCA) occurred followed by a Loss of Offsite Power (LOOP) prior to reset of the safety injection signal. Study of this issue involves selection of several representative plants in order to evaluate LOCA/LOOP delay interval effects and estimate the conditional probability of non-recoverable damage to EDGs or ECCS pumps due to out-of-phase loading. Then, models are to be developed to estimate loss of ECCS due to LOCA plus delayed LOOP in order to re-estimate the safety significance of GSI 171 and develop a proposed resolution. Resolution of this issue is expected by June 1997.

In addition to the above four HIGH-Priority GSIs, the staff expended considerable effort on the blockage of BWR ECCS suction strainers related to GSI A-43, a former unresolved safety issue (USI) that was resolved in October 1985. The following is a summary of the staff's work on this issue.

**BWR ECCS Suction Strainer Blockage:** Studies focused on the possible blockage of ECCS suction strainers in the suppression pools of BWRs by LOCA-induced debris, following the three strainer clogging events that occurred: Barseback (Sweden), July 1992, and Perry, January and April 1993. Experimental research was conducted to establish the parameters that contribute to plugging of strainers by both fibrous and reflective metallic insulation debris. The resultant data will be used in the development of a computer Code (BLOCKAGE.2X) for predicting the rate and extent of strainer plugging in BWRs. Extensive efforts were also conducted in the review of BWR Owners' Group activities, in the writing of NRC Bulletin 96-XX, "Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling Water Reactors," and in the preparation of Regulatory Guide 1.82, Revision 2, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident," as guidance for compliance with the Bulletin. Both the Bulletin and Regulatory Guide are to be published in May 1996. Follow-up staff work related to licensee compliance is expected to extend through FY-1997.

In response to SRM 951219A, RES, NRR, AEOD, and NMSS have taken steps to exercise more consistency in prioritizing generic issues, and to consolidate all issues being pursued independently by each office into one agency-wide generic issue resolution tracking system; these activities are described in a separate Commission Paper.

**CONCLUSION:**

The staff expects to continue using the current procedures and methodology to identify, prioritize, and resolve generic issues and will keep the Commission informed of any significant developments in these areas.

James M. Taylor  
Executive Director for Operations

- Attachments: 1. [Listing of Resolved and Unresolved GSIs](#)  
2. [Progress Since 5/1/95 and Schedule for Completion of Unresolved Issues](#)

Contact: Ronald C. Emrit, RES  
(301) 415-6447

ATTACHMENT 1

**LISTING OF RESOLVED AND UNRESOLVED GSIs**

- A. 1 GSI RESOLVED BETWEEN 5/1/95 AND 4/15/96  
MEDIUM-PRIORITY (1)  
24 AUTOMATIC ECCS SWITCH TO RECIRCULATION

B.	18 GSIs TO BE RESOLVED AS OF 4/15/96
	HIGH-PRIORITY (4)
	15 RADIATION EFFECTS ON REACTOR VESSEL SUPPORTS
	23 REACTOR COOLANT PUMP SEAL FAILURES
	165 SPRING-ACTUATED SAFETY AND RELIEF VALVE RELIABILITY
	171 ENGINEERED SAFETY FEATURE FAILURE FROM LOSS OF OFFSITE POWER SUBSEQUENT TO A LOCA
	MEDIUM-PRIORITY (5)
	78 MONITORING OF FATIGUE TRANSIENT LIMITS FOR REACTOR COOLANT SYSTEM
	158 PERFORMANCE OF POWER-OPERATED VALVES UNDER DESIGN BASIS CONDITIONS
	B-17 CRITERIA FOR SAFETY-RELATED OPERATOR ACTIONS
	B-55 IMPROVE RELIABILITY OF TARGET ROCK SAFETY RELIEF VALVES
	B-61 ALLOWABLE ECCS EQUIPMENT OUTAGE PERIODS
	PLANNED AND IN PROGRESS (6)
	83 CONTROL ROOM HABITABILITY
	145 IMPROVE SURVEILLANCE AND STARTUP TESTING PROGRAMS
	166 ADEQUACY OF FATIGUE LIFE OF METAL COMPONENTS
	168 ENVIRONMENTAL QUALIFICATION OF ELECTRICAL EQUIPMENT
	170 REACTIVITY TRANSIENTS AND FUEL DAMAGE CRITERIA FOR HIGH BURN-UP FUEL
	172 MULTIPLE SYSTEM RESPONSES PROGRAM

	UNPRIORITIZED (3)
156.6.1	PIPE BREAK EFFECTS ON SYSTEMS AND COMPONENTS
163	MULTIPLE STEAM GENERATOR TUBE LEAKAGE
169	BWR MSIV COMMON MODE FAILURE DUE TO LOSS OF ACCUMULATOR PRESSURE

ATTACHMENT 2

**PROGRESS SINCE 5/1/95 AND SCHEDULE FOR COMPLETION OF UNRESOLVED ISSUES**

<b>A.</b>	<b>PROGRESS OF GSIs BETWEEN 5/1/95 AND 4/15/96</b>					
		<b>5/1/95</b>	<b>IDENTIFIED</b>	<b>PRIORITIZED</b>	<b>RESOLVED</b>	<b>4/15/96</b>
	HIGH	3	-	+1	0	4
	MEDIUM	6	-	0	-1	5
	PLANNED AND IN PROGRESS	5	-	+1	0	6
	UNPRIORITIZED	4	+1	-2	-	3
	<b>NET:</b>	<b>18</b>	<b>+1</b>	<b>0</b>	<b>-1</b>	<b>18</b>

<b>B.</b>	<b>SCHEDULE FOR COMPLETION OF 18 UNRESOLVED ISSUES</b>				
	<ul style="list-style-type: none"> <li>• 3 ISSUES TO BE PRIORITIZED BY THE END OF FY-96</li> <li>• 12 GSIs (4 HIGH, 5 MEDIUM, 3 PLANNED AND IN PROGRESS) SCHEDULED TO BE RESOLVED BY FY-99</li> <li>• 3 GSIs (PLANNED AND IN PROGRESS) TO BE SCHEDULED</li> <li>• COMPLETION BY FISCAL YEAR:</li> </ul>				
	<b>FY 1996</b>	<b>FY 1997</b>	<b>FY 1998</b>	<b>FY 1999</b>	<b>TBD</b>
	10	3	1	1	3