

# **DIRECTOR'S STATUS REPORT**

**on**

## **GENERIC ACTIVITIES**

### **Action Plans**

### **Generic Communication and Compliance Activities**

**OCTOBER 1996**

**Office of Nuclear Reactor Regulation**

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## INTRODUCTION

The purpose of this report is to provide information about generic activities, including generic communications, under the cognizance of the Office of Nuclear Reactor Regulation. This report, which focuses on compliance activities, complements NUREG-0933, "A Prioritization of Generic Safety Issues."

This report includes two attachments: 1) action plans and 2) generic communications under development and other generic compliance activities. Generic communications and compliance activities (GCCAs) are potential generic issues that are safety significant, require technical resolution, and possibly require generic communication or action.

Attachment 1, "NRR Action Plans," includes generic or potentially generic issues of sufficient complexity or scope that require substantial NRC staff resources. The issues covered by action plans include concerns identified through review of operating experience (e.g. Boiling Water Reactor Internals Cracking and Thermolag), and issues related to regulatory flexibility and improvements (e.g. New Source Term and Probabilistic Risk Assessment (PRA) Implementation Plan). For each action plan, the report includes a description of the issue, key milestones, discussion of its regulatory significance, current status, and names of cognizant staff.

Attachment 2, "Generic Communications and Compliance Activities," consists of three monthly status reports. 1) open GCCAs, 2) GCCAs added since the previous report, and 3) GCCAs closed since the previous report. The generic communications listed in the attachment includes bulletins, generic letters, and information notices. Compliance activities listed in the attachment do not rise to the level of complexity that require an action plan, and a generic communication is not currently scheduled. For each GCCA, there is a short description of the issue, scheduled completion date, and name of cognizant staff.

## **NRR ACTION PLANS**

## TABLE OF CONTENTS

<b>DE</b>		
	BOILING WATER REACTOR INTERNALS CRACKING .....	1
	REACTOR PRESSURE VESSEL FRACTURE TOUGHNESS .....	4
	MOTOR-OPERATED VALVES ACTION PLAN .....	8
<b>DRCH</b>		
	UPDATE OF SRP CHAPTER 7 TO INCORPORATE DIGITAL INSTRUMENTATION AND CONTROLS (I&C) GUIDANCE .....	11
	GRADED QUALITY ASSURANCE ACTION PLAN .....	13
<b>DRPM</b>		
	NEW SOURCE TERM FOR OPERATING REACTORS .....	18
	ENDANGERED SPECIES ACTION PLAN .....	21
	EFFECT OF HURRICANE ANDREW ON TURKEY POINT .....	23
	ENVIRONMENTAL SRP REVISION ACTION PLAN .....	25
	10 CFR 50.59 ACTION PLAN DEVELOPMENT .....	27
	INDUSTRY DEREGULATION AND UTILITY RESTRUCTURING .....	30
<b>DRPW</b>		
	GENERAL ELECTRIC EXTENDED POWER UPRATE ACTION PLAN .....	33
	DRY CASK STORAGE ACTION PLAN .....	35
<b>DSSA</b>		
	ACCIDENT MANAGEMENT IMPLEMENTATION .....	38
	FIRE PROTECTION TASK ACTION PLAN .....	40
	THERMO-LAG ACTION PLAN .....	42
	PRA IMPLEMENTATION ACTION PLAN .....	44
	ENVIRONMENTAL QUALIFICATION TASK ACTION PLAN .....	48
	GENERIC SPENT FUEL STORAGE POOL PART A: OPERATING FACILITIES .....	50
	GENERIC SPENT FUEL STORAGE POOL PART B: PERMANENTLY SHUTDOWN FACILITIES .....	53
	CORE PERFORMANCE ACTION PLAN .....	55
	HIGH BURNUP FUEL ACTION PLAN .....	58
	RRG TOPIC AREA 55: CYCLE SPECIFIC PARAMETER LIMITS IN TECH SPECS .....	60
	WOLF CREEK DRAINDOWN EVENT ACTION PLAN .....	62



## BOILING WATER REACTOR INTERNALS

TAC Nos. M91898, M93925, M93926, M94959, Last Update: 09/24/96  
M94975, M95369, M96219, M96539 Lead NRR Division: DE  
GSI: Not Available Supporting Division: DSSA

MILESTONES	DATE (T/C)
<b>PART I: REVIEW OF GENERIC INSPECTION AND EVALUATION CRITERIA</b>	
1. Issue summary NUREG-1544	03/96 C
2. Review BWRVIP Re-inspection and Evaluation Criteria <ul style="list-style-type: none"> <li>○ Reactor Pressure Vessel and Internals Examination Guidelines (BWRVIP-03)</li> <li>○ BWRVIP-03, Section 6A, Standards for Visual Inspection of Core Spray Piping, Spargers, and Associated Components</li> <li>○ BWR Vessel Shell Weld Inspection Recommendations (BWRVIP-05)</li> <li>○ Guidelines for Reinspection of BWR Core Shrouds (BWRVIP-07)</li> </ul>	10/96 T 12/96 T 08/96 T 08/96 T
3. Review of generic repair technology, criteria and guidance	TBD
4. Review generic mitigation guidelines and criteria	TBD
5. Review of generic NDE technologies developed for examinations of BWR internal components and attachments	TBD
6. Other Internals reviews (safety assessments, evaluations, mitigation measures, inspections and repairs) <ul style="list-style-type: none"> <li>○ Safety Assessment of BWR Reactor Internals (BWRVIP-06)</li> <li>○ Evaluation of Crack Growth in BWR Stainless Steel RPV Internals (BWRVIP-14)</li> <li>○ BWR Core Spray Internals Inspection and Flaw Evaluation Guidelines (BWRVIP-18)</li> <li>○ Internal Core Spray Piping and Sparger Repair Design Criteria (BWRVIP-19)</li> </ul>	10/96 T 12/96 T 03/97 T 04/97 T

Description: Many components inside boiling water reactor (BWR) vessels (i.e., internals) are made of materials such as stainless steel and various alloys that are susceptible to corrosion and cracking. This degradation can be accelerated by stresses from temperature and pressure changes, chemical interactions, irradiation, and other corrosive environments. This action plan is intended to encompass the evaluation and resolution of issues associated with intergranular stress corrosion cracking (IGSCC) in BWR internals. This includes plant specific reviews and the assessment of the generic criteria that have been proposed by the BWR Owners Group and the BWRVIP technical subcommittees to address IGSCC in core shrouds and other BWR internals

Historical Background: Significant cracking of the core shroud was first observed at Brunswick, Unit 1 nuclear power plant in September 1993. The NRC notified licensees of Brunswick's discovery of significant circumferential cracking of the core shroud welds. In 1994, core shroud cracking continued to be the most significant of reported internals cracking. In July 1994, the NRC

issued Generic Letter 94-03 which requires licensees to inspect their shrouds and provide an analysis justifying continued operation until inspections can be completed.

A special industry review group (Boiling Water Reactor Vessels and Internals Project--BWRVIP) was formed to focus on resolution of reactor vessel and internals degradation. This group was instrumental in facilitating licensee responses to NRC's Generic Letter. The NRC evaluated the review group's reports, submitted in 1994 and early 1995, and all plant responses.

All of the plants evaluated have been able to demonstrate continued safe operation until inspection or repair on the basis of: 1) no 360° through-wall cracking observed to date, 2) low frequency of pipe breaks, and 3) short period of operation (2-6 months) before all of the highly susceptible plants complete repairs of or inspections to their core shrouds.

In late 1994, extensive cracking was discovered in the top guide and core plate rings of a foreign reactor. The design is similar to General Electric (GE) reactors in the U.S., however, there have been no observations of such cracking in U.S. plants. GE concluded that it was reasonable to expect that the ring cracking could occur in GE BWRs with operating time greater than 13 years. In the special industry review group's report, that was issued in January 1995, ring cracking was evaluated. The NRC concluded that the BWRVIP's assessment was acceptable and that top guide ring and core plate ring cracking is not a short term safety issue.

Proposed Actions: The staff will continue to assess the scopes that have yet to be submitted by licensees concerning inspections or re-inspections of their core shrouds. The staff will also continue to assess core shroud inspection results and any appropriate core shroud repair designs on a case-by-case basis. The staff will issue separate safety evaluations regarding the acceptability of core shroud inspection results and core shroud repair designs. The staff has been interacting with the BWRVIP and individual licensees. In an effort to lower the number of industry and staff resources that will be needed in the future, it is important for the staff to continue interacting with the industry on a generic basis in order to encourage them to continue their proactive efforts to resolve IGSCC of BWR internals. The BWRVIP has submitted nine generic documents, supporting plant-specific submittals, for staff review. The staff is ensuring that the generic reviews are incorporating recent operating experience on all BWR internals.

Originating Document: Generic Letter 94-03, issued July 25, 1994, which requested BWR licensees to inspect their core shrouds by the next outage and to justify continued safe operation until inspections can be completed.

Regulatory Assessment: In July 1994, the NRC issued Generic Letter 94-03 which required licensees to inspect their shrouds and provide an analysis justifying continued operation until inspections could be performed. The staff has concluded in all cases that licensees have provided sufficient evidence to support continued operation of their BWR units to the refueling outages in which shroud inspections or repairs have been scheduled. In addition, in October 1995, industry's special review group submitted a safety assessment of postulated cracking in all BWR reactor internals and attachments to assure continuing safe operation.

Current Status: Almost all BWRs completed inspections or repairs of core shrouds during refueling outages in the fall of 1995. Various repair methods have been used to provide alternate load carrying capability, including preemptive repairs, installation of a series of clamps and use of a series of tie-rod assemblies. The NRC has reviewed and approved all shroud modification proposals that have been submitted by BWR licensees. Review by NRC continues on individual inspection results and plant-specific assessments.

In October 1995, industry's special review group issued a report (BWRVIP-06) which the NRC staff's preliminary review indicates was not comprehensive. The NRC staff has sent a request for additional information. In addition, the industry group submitted a report on reinspection of repaired and non-repaired core shrouds (BWRVIP-07) in February 1996. The staff is currently reviewing this report and has sent a request for additional information. The NRC is also reviewing information submitted by GE on the safety significance of and recommended inspections for top guide and core plate ring cracking. Review of the "Reactor Pressure Vessel and Internals Examination Guidelines (BWRVIP-03)" has slipped to allow for review by NRC contractor.

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References:

Generic Letter 94-03, "Intergranular Stress Corrosion Cracking of Core Shrouds in Boiling Water Reactors," July 25, 1994

Action Plan dated April 1995

## REACTOR PRESSURE VESSEL FRACTURE TOUGHNESS ACTION PLAN

TAC Nos. M92310, M92313, M93329, Last Update: 09/30/96  
M93330, M93331 Lead NRR Division: DE

GSI: Not Available

MILESTONES	DATE (T/C)
1. ISSUE SUPPLEMENT TO GL 92-01	5/95 (C)
2. COORDINATION WITH RESEARCH	7/97 (T)
3. NRC/INDUSTRY WORKSHOP ON RPV ISSUES	7/95 (C)
4. REVIEW OF GL 92-01 SUPPLEMENT 1, 1ST ROUND	10/95 (C)
5. NUREG 1511 RPV STATUS REPORT SUPPLEMENT 1	10/96 (T)
6. REVIEW OF GL 92-01 SUPPLEMENT 1, 2ND ROUND	12/96 (T)
7. NUREG 1511 RPV STATUS REPORT SUPPLEMENT 2	6/97 (T)
8. ISSUE OF RVID REVISION 1	6/96 (C)
9. ISSUE OF RVID REVISION 2	6/97 (T)
10. OBSERVE INDUSTRY ANNEALING DEMONSTRATION	12/96 (T)
11a. REVIEW PALISADES HAZ FRACTURE PROGRAM TEST RESULTS	12/96 (T)
11b. REVIEW PALISADES HAZ CHARPY IMPACT TEST RESULTS	12/97 (T)
11c. NRC RESEARCH HAZ SIMULATION TEST PROGRAM	12/96 (T)
11d. NRC RESEARCH HAZ WELD TEST PROGRAM	12/97 (T)
11e. NUREG 1511 RPV STATUS REPORT SUPPLEMENT 3	7/98 (T)
12. PREPARE RECOMMENDATIONS TO REVISE PROCESS FOR ESTIMATING EMBRITTLEMENT	7/98 (T)
13. INDUSTRY BEGINS MAINTENANCE OF RVID	12/99 (T)

Description: Appendix G to 10 CFR 50 and 10 CFR 50.61 establish requirements to prevent fracture of the reactor pressure vessel (RPV). These rules require licensees to project the amount of embrittlement of RPV materials. As a result of the review of responses to Generic Letter (GL) 92-01, the review of Palisades PTS issue, and recent inspections conducted at Combustion Engineering, several issues related to RPV evaluations have been identified. These issues can be summarized as follows:

- (1) It appears that licensees may not have been aware of or considered all relevant information and data in previous assessments of their RPVs,
- (2) The variability in copper and nickel chemical composition may be independent of weld heat number and is greater than previously recognized by the staff,

- (3) The Palisades reactor vessel will be the first commercial nuclear vessel annealed in the U.S. to improve its fracture toughness.

Historical Background: In March 1992, the NRC issued Generic Letter (GL) 92-01, Revision 1, "Reactor Vessel Structural Integrity, 10 CFR 50.54(f)." As a result of the information provided by the licensees in response to GL 92-01, Revision 1, the staff issued NUREG-1511, "Reactor Pressure Vessel Status Report," and the Reactor Vessel Integrity Database (RVID). NUREG-1511 provides a summary of the critical issues and regulatory requirements involved in RPV structural integrity and the status of each RPV with respect to the regulatory requirements. The RVID contains all the data that was submitted by licensees to demonstrate compliance with the regulatory requirements. Since licensees provide data during the life of the plant to demonstrate their compliance with regulatory requirements, NUREG-1511 and the RVID will require periodic upgrading.

In April 1995, the staff completed its evaluation of the Palisades plant compliance with the pressurized thermal shock (PTS) rule, 10 CFR 50.61. The staff concluded that the Palisades RPV could be operated in compliance with the requirements of the PTS rule through the plant's 14th refueling outage, which was scheduled for late 1999. To extend the life of the Palisades RPV beyond 1999, the licensee for Palisades has begun to plan for annealing of the Palisades RPV. The staff will review the licensee's annealing plan prior to its implementation. The Palisades anneal is scheduled for the 1998 refueling outage. Prior to this anneal the industry will be performing demonstration anneals at the Marble Hill and Midland-2 sites.

As a result of information received during the Palisades PTS review, a meeting with Combustion Engineering and two inspections at the Combustion Engineering offices in Windsor, Connecticut, the staff determined that licensees may not have been aware of or considered all relevant information and data in previous RPV assessments. Based on the above finding, the staff concluded that the most effective way to resolve this issue was through a supplement to GL 92-01 requiring the licensees to collect all data relevant to their RPVs, and if there are data that they had not previously considered, to perform a reassessment of their RPV.

As a result of the data supplied in response to GL 92-01 and the Palisades PTS review, the Office of Nuclear Reactor Regulation requested in a letter dated August 11, 1995 that the Office of Nuclear Regulatory Research evaluate whether changes to the PTS rule or Regulatory Guide 1.99 are necessary.

Charpy impact and hardness tests by AEA Technology on simulated coarse grain heat affected zone (HAZ) material indicates that irradiated and annealed HAZ RPV material could be susceptible to temper embrittlement. In these tests, annealing did not result in a recovery of embrittlement (decrease in transition temperature), but resulted in an increase in transition temperature. This effect must be investigated for the Palisades RPV prior to its anneal.

Proposed Actions: Specific actions included in the generic action plans are: (1) issue Supplement 1 to GL 92-01, (2) coordination with RES on RPV integrity issues, (3) hold an NRC/Industry workshop on RPV issues, (4) review first and second round of responses to GL 92-01 Supplement 1, (5) issue supplement 1 to NUREG-1511 in 1996 and issue supplement 2 to NUREG-1511 in 1997, (6) issue revision 1 of the RVID in 1996 and issue revision 2 of the RVID in 1997, (7) observe industry annealing demonstrations, (8) review and evaluate the Palisades annealing plan, and (9) review the Palisades anneal.

The investigation of the effect of irradiation and annealing on fracture resistance of HAZ material will consist of five phases. Consumers Power will examine the fracture surface of irradiated and annealed HAZ material from the Palisades surveillance weld to determine whether its HAZ material is susceptible to temper embrittlement. If the Palisades HAZ surveillance weld material is



susceptible to temper embrittlement, the licensee will need to conduct Charpy impact tests of irradiated and annealed HAZ material. This phase of the program would need to be completed by 12/97 (prior to the thermal anneal in 1998). These tests are not presently included in the licensee's program. A schedule for this program is being discussed with the licensee. This phase of the program is not necessary if the Palisades HAZ surveillance weld material is not susceptible to temper embrittlement.

The NRC confirmation research on the effect of irradiation and annealing on the fracture resistance of HAZ material will consist of two phases. The initial phase will consist of tests on simulated HAZ material to determine whether the materials are susceptible to temper embrittlement and to determine whether annealing results in a recovery of embrittlement. The second phase will test HAZ material from submerged arc welds removed from a RPV.

The test results from the Consumer Power and NRC programs on the effect of irradiation and annealing on fracture resistance of HAZ material will be published in the Safety Assessment of the Palisades annealing program and in a supplement to NUREG 1511.

After reviewing the licensee and owners groups responses to GL 92-01, Supplement 1 and programs to define the best-estimate chemistry, the staff will provide recommendations to revise the process for estimating embrittlement and update the RVID. After differences between the RVID and the industry database are resolved, the staff/industry will develop procedures to permit industry representatives to maintain the database with NRC oversight.

Originating Document: Memorandum from Jack R. Strosnider to Ashok C. Thadani, NRR, August 9, 1995.

Regulatory Assessment: This plan would allow for resolution of the issues discussed above in about two years. The staff anticipates that it will take the industry and the NRC this long to collect and assess all the relevant data. The staff assessed the impact of increased variability in chemistry on the  $RT_{PTS}$  value of PWR reactor vessels in a memorandum from J.R. Strosnider to A.C. Thadani dated May 5, 1995. The staff's assessment indicates that there is no immediate cause for concern and that there is adequate time to perform a more rigorous assessment of the issue. Based on the staff's generic assessment of the impact of increased variability, the staff has concluded that this is an acceptable schedule.

Current Status: GL 92-01, Supplement 1 has been issued. NRC/Industry workshop has been completed. A request for research on RPV integrity issues has been issued. The Reactor Vessel Integrity Database (RVID) has been issued (NRC Administrative Letter 95-03) to all licensees and to all individuals requesting a copy. The staff has completed the review of licensees' initial responses to Supplement 1 to GL 92-01. The licensee for Kewaunee in a letter from Clark R. Steinhardt dated August 21, 1995 provided the only notable response. They provided three methods of analysis of their surveillance data that indicate the Kewaunee reactor vessel will be below the PTS screening criteria at the expiration of its license. The licensee for Ginna in a letter from dated October 11, 1995 has also submitted a revised PTS evaluation. The Kewaunee PTS evaluation is being reviewed by the staff. The staff has completed the review of the Ginna PTS evaluation, which is documented in a March 22, 1996 letter to the licensee. Based on the currently available chemistry and surveillance data, the Ginna reactor vessel is projected to be below the PTS screening criteria at the expiration of its license.

The industry is currently conducting the Marble Hill annealing demonstration project and will conduct another annealing demonstration at Midland later this year. The demonstration at the Marble Hill site used a gas-fired heating method and was completed in July 1996. Preliminary evaluation of the Marble Hill anneal indicates that temperatures, stresses and displacements were maintained within the expected ranges and that there were no measurable permanent dimensional

changes to the RPV nor damage to key components from the anneal. A detailed report on the Marble Hill anneal is expected by October 1996. The second demonstration at the Midland site will employ an electric resistance heating approach and is tentatively scheduled for November 1996.

Issued Reactor Pressure Vessel Integrity Database (RVID) Revision 1 on World Wide Web (WWW) on June 26, 1996. Issued Administrative Letter that describes changes to RVID and informs licensees that RVID is on the WWW.

This action plan will be closed out. All tasks will be scheduled as part of individual plant reviews or as multi-plant action items.

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NRR Lead PM:	Daniel G. McDonald, PD1-1, 415-1408
	Marsha K. Gamberoni, PD3-1, 415-3024

References:

Memorandum to Ashok C. Thadani from Jack R. Strosnider, "Plan for Addressing Generic Reactor Pressure Vessel Issues," August 9, 1995.

NUREG-1511, "Reactor Vessel Status Report," December, 1994.

Generic Letter 92-01, Revision 1, (and Supplement 1) March 6, 1992 and May 19, 1995.

Memorandum to Ashok C. Thadani from Jack R. Strosnider, "Assessment of Impact of Increased Variability in Chemistry of the  $RT_{PTS}$  Value of PWR Reactor Vessels," May 5, 1995.

NRC Administrative Letter 95-03, August 4, 1995

"Temper Embrittlement, Irradiation Induced Phosphorus Segregation and Implications for Post Irradiation Annealing of Reactor Pressure Vessels," R.J. McElroy et. al.

## MOTOR-OPERATED VALVES ACTION PLAN

TAC Nos. M80330, M82J72,  
M75089, M88898

Last Update: 9/30/96  
Lead NRR Division: DE

GSI: II.E.6.1

MILESTONES	DATE (T/C)
Regulatory Improvements: (1) Staff is working with ASME to improve the inservice testing requirements in the ASME Code and (2) Staff is working with OM to develop guidelines for periodic verification of MOV design-basis capability to replace stroke-time testing.	1/96-9/96 (T)
New Generic Letter on MOV Periodic Verification: Staff preparing generic letter to provide recommendations on the periodic verification of MOV design-basis capability.  Issue for public comment  Final issuance	2/96 (C) 9/96 (C)
MOV Inspection Module: the staff will prepare an inspection module for inspecting MOV programs over the long-term and provide appropriate training for inspectors.	10/96 (T)
Review of EPRI MOV Performance Prediction Program: NRR and RES are currently reviewing a topical report submitted by NEI on the EPRI MOV Performance Prediction Program.  SER  SER SUPPLEMENT	2/96 (C) 10/96 (T)

**Description:** Appendices A and B to 10 CFR Part 50 and 10 CFR 50.55(a) require nuclear power plant licensees to establish programs to ensure that structures, systems, and components important to the safe operation of the plant are designed, installed, tested, operated, and maintained in a manner that provides assurance of their ability to perform their safety functions. GL 89-10 and its supplements, asked licensees to help ensure the capability of MOVs in safety-related systems by reviewing MOV design bases, verifying MOV switch settings initially and periodically, testing MOVs under design-basis conditions where practicable, improving evaluations of MOV failures and necessary corrective action, and looking for trends in MOV problems. EMEB has programmatic oversight responsibility of regional inspection activities conducted to verify that licensee MOV programs are being implemented. EMEB provides support to the regions, either by staff or contractor expertise, for the conduct of inspections in this area and closure of licensee actions pursuant to GL 89-10.

**Historical Background:** In 1985, the Davis-Besse nuclear power plant experienced a total loss of feedwater when, following a loss of main feedwater, safety-related MOVs in the auxiliary feedwater system could not be reopened after their inadvertent closure. As a result of this and other information, the NRC staff issued Bulletin 85-03 (November 15, 1985) requesting that licensees verify the design-basis capability of safety-related MOVs used in high pressure systems.



The information from the implementation of Bulletin 85-03, additional operating events, and NRC-sponsored research indicated the need to expand the scope of Bulletin 85-03 to all safety-related systems.

In Generic Letter (GL) 89-10 (June 28, 1989) and its supplements, the NRC staff asked licensees to help ensure the capability of MOVs in safety-related systems by reviewing MOV design bases, verifying MOV switch settings initially and periodically, testing MOVs under design-basis conditions where practicable, improving evaluations of MOV failures and implementing necessary corrective action, and looking for trends in MOV problems. The NRC staff requested that licensees complete the verification of the design-basis capability of MOVs included in the scope of GL 89-10 within three refueling outages or five years from the date of issuance of the generic letter, whichever was later. The NRC staff has issued seven supplements to GL 89-10 that provide additional guidance and information on GL 89-10 program scope, design-basis reviews, switch settings, testing, periodic verification, trending, and schedule extensions.

In June 1990, the NRC staff issued NUREG-1352, "Action Plans for Motor-Operated Valves and Check Valves," describing actions to organize the activities aimed at resolving the concerns about the performance of MOVs and check valves. These actions included evaluating the current regulatory requirements and guidance for MOVs, preparing guidance for and coordinating NRC inspections, completing NRC MOV research programs and implementing the research results, and providing the nuclear industry with information on MOVs.

Proposed Actions: Specific activities included in the generic action plan to improve MOV performance are:

(1) Regulatory Improvements - The staff is working with ASME to improve the inservice testing requirements in the ASME Code and the staff is working with OM to develop guidelines for periodic verification of MOV design-basis capability to replace stroke-time testing. Recently, ASME issued Code Case OMN-1, "Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor Operated Valve Assemblies in LWR Power Plants OM - Code - 1995 Edition; Subsection ISTC." The staff references the code case in recently issued Generic Letter 96-05.

(2) EPRI MOV Performance Prediction Program - On March 15, 1996, the staff issued the Safety Evaluation on the topical report on EPRI MOV Performance Prediction Program. The staff is reviewing the hand-calculation models for two unique gate valve designs.

(3) MOV Periodic Verification Generic Letter - The staff prepared a generic letter to provide recommendations on the periodic verification of MOV design-basis capability. On September 18, 1996, the staff issued GL 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves."

(4) MOV Inspection Module - The staff plans to prepare an inspection module for inspecting MOV programs over the long-term and provide appropriate training for inspectors.

Originating Document: NRC Bulletin 85-03 issued November 15, 1985.

Regulatory Assessment: While it is important for the licensee to take steps to ensure that MOVs will operate reliably under design-basis conditions, the probability of any individual MOV failure is small and safety systems are robust enough to provide reasonable assurance of public health and safety.

Current Status: Coordination with industry and support to NRC regional staff, efforts on codes and standards, and MOV research and analysis are ongoing activities. On September 18, 1996,

the staff issued GL 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves."

On March 15, 1996, the staff issued a non-proprietary Safety Evaluation on the EPRI MOV Performance Prediction Program. The staff is reviewing the remaining EPRI models for two unique gate valve designs and plans to issue a supplement to the SE addressing these two models later in 1996. The staff has been alerting licensees, NEI and EPRI to the staff's findings from the EPRI program review, and has been communicating staff views with industry regarding periodic verification. On August 21, 1996, the staff issued Information Notice 96-48 to alert licensees to lessons learned from the EPRI MOV program. In addition, the staff has been factoring the overall findings from the EPRI program into staff activities.

With the issuance of Generic Letter 96-05, EMEB is working to complete the supplement to the SE on the EPRI MOV Topical Report before closing the MOV Action Plan and will complete the remaining tasks as part of the implementation phase of the generic letter.

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NRR Lead PM: Allen G. Hansen, DRPW, 415-1390

References:

Bulletin 85-03, November 15, 1985  
Generic Letter 89-10, June 28, 1989, and 7 supplements  
NUREG-1352, "Action Plans for Motor-Operated Valves and Check Valves," June, 1990  
Generic Letter 96-05, September 18, 1996.

# **UPDATE OF SRP CHAPTER 7 TO INCORPORATE DIGITAL INSTRUMENTATION AND CONTROLS (I&C) GUIDANCE**

TAC Nos. M86387, M86392, M86423,  
M86769, M86997, and M87680  
GSI: Not Available

Last Update: 9/30/96  
Lead NRR Division: DRCH

MILESTONES	DATE (T/C)
1. Develop Update of SRP Chapter 7	10/96T
2. ACRS Subcommittee Briefings	3/96C, 5/96C, 10/96T
3. Incorporate new Regulatory Guides (provided by RES) in SRP Chapter 7 Update	8/96C
4. Incorporate results from National Academy of Sciences study	02/97T
5. Draft SRP to Chairman	9/19/96C
6. Publish Draft SRP Chapter 7 for Public Comment	12/96T
7. Incorporate Public Comments	3/97T
8. Final ACRS/CRGR Review of SRP Chapter 7	4/97T
9. Final SRP to Chairman	3/31/97T
10. Publish Final SRP Chapter 7	5/97T

**Description:** This task action plan is used to track and manage the final phase of codifying the digital I&C regulatory approach and criteria by updating the existing Standard Review Plan (SRP) Chapter 7.

**Historical Background:** By a staff requirements memorandum (SRM) dated November 30, 1995, from the Chairman, Shirley Ann Jackson, to the Executive Director of Operations, James M. Taylor, the Chairman requested that the staff develop an action plan in the area of digital instrumentation and controls. The action plan is for the expeditious development of a Standard Review Plan (SRP) to ensure that safety margins are addressed and that NRC regulatory requirements are available and ready for use when reviewing licensee proposed installation of digital instrumentation and control systems in nuclear power plants. The staff has an ongoing effort for updating Chapter 7 of the SRP that deals with instrumentation and control systems to accomplish the requested action and this task action plan was initiated to track and manage the final phase of that effort in response to the SRM.

**Proposed Actions:** Specific actions included in this task action plan are: (1) to develop the update of SRP Chapter 7, (2) to periodically brief the ACRS as sections of the SRP update are completed, (3) to incorporate new regulatory guides on digital I&C that will be provided by the Office of Nuclear Regulatory Research (RES), (4) to incorporate results from the National Academy of Sciences study of digital I&C at nuclear plants, (5) to publish the draft SRP Chapter 7 for public comments, (6) to incorporate the public comments, (7) to have final ACRS and CRGR review of the SRP Chapter 7 update, and (8) to publish the final revised SRP Chapter 7.

Originating Document: The memorandum from the EDO to Chairman Jackson dated January 3, 1996, "Improvements Associated with Managing the Utilization of Probabilistic Risk assessment (PRA) and Digital Instrumentation and Control Technology."

Regulatory Assessment: The approach and criteria that form the current regulatory framework for review and acceptance of digital I&C systems in nuclear power plants is being codified in the update to SRP Chapter 7. This framework has been communicated to the industry and public in safety evaluations for digital modifications to operating plants and design certification of the advanced reactor designs, and in Generic Letter 95-02, "Use of NUMARC/EPRI Report TR-102348, 'Guideline on Licensing Digital Upgrades,' in Determining the Acceptability of Performing Analog-to-Digital Replacements Under 10 CFR 50.59 dated" dated April 26, 1995. This action plan tracks and manages the codification of the existing framework by updating SRP Chapter 7. Consequently, this is not an urgent regulatory action, and continued plant operation is justified.

Current Status: The staff and its contractor, Lawrence Livermore National Laboratories (LLNL), are currently revising the seven existing sections of SRP Chapter 7 and developing two new sections and several new branch technical positions (BTPs) to incorporate criteria and guidance related to digital I&C systems. In parallel, the Office of Nuclear Regulatory Research (RES) is developing several regulatory guides that endorse national standards related to digital I&C.

By the letter dated June 6, 1996, the ACRS stated their agreement with the staff approach to the update of SRP Chapter 7, and their plan to continue to interact with the staff on the remaining changes to SRP Chapter 7. By memorandum dated September 16, 1996, NRR requested CRGR review of the complete draft SRP Chapter 7. The complete SRP Chapter 7 update is to be presented to the ACRS in October 1996. Following the review of the complete draft SRP Chapter 7 by CRGR and ACRS, the updated draft SRP Chapter 7 will be published in the Federal Register to provide an opportunity for public comment.

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Joe Joyce, DRCH, 415-2842

**PRA IMPLEMENTATION ACTION PLAN 1.2(d)**  
**Graded Quality Assurance Action Plan**

TAC Nos. M91429, M91431, M92420,  
M92450, M92451, M92447, M92448,  
M92449, M88650, M91431, M91432,  
M91433, M91434, M91435, M91436, M91437  
GSI: Not Available

Last Update: 9/30/96  
Lead NRR Division: DRCH  
Support Division: DSSA

MILESTONES	DATE (T/C)
1. Issued SECY 95-059	03/95C
2. Begin interactions with volunteer licensees - Palo Verde letter dated 4/6/95 - Grand Gulf meeting 5/4/95 - South Texas meetings on 4/19/95 and 5/8/95	05/95C
3. NRC Steering Group meetings to guide working level staff activities - Meetings on: 8/25/95, 10/10/95, 10/25/95	As Needed
4. Staff interactions with Palo Verde - Site visit on 5/23/95 on ranking and QA controls - NRC letter dated 7/24/95 on proposed QA controls - Site visit on 8/29-30/95 on risk ranking - Site visit on 9/6-7/95 on procurement QA controls - NRC letter conveying trip reports issued on 12/4/95 - Meeting on 4/11/96 to discuss the staff evaluation guide - Letter from licensee on 4/24/96 providing comments on staff evaluation guidance - Site visit on 6/5-6/96 to observe expert panel and review revised procurement QA controls, trip report sent to licensee on 8/6/96 - Letter from licensee on 9/12/96 transmitting responses to issues raised in earlier staff trip reports	Ongoing through  6/97
5. Staff interactions with South Texas - Meeting on 7/17/95 on project status - Site meeting on 10/3-4/95 on risk ranking and QA controls - Meeting on 12/7-8/95 to discuss risk ranking and QA controls - South Texas Submittal of QA Plan for implementation of graded QA, dated 3/28/96 is currently under staff review - Meetings on 4/11/96 and 4/25/96 to discuss the staff evaluation guide and future interaction milestones and schedules - Letter from licensee on 4/17/96 providing comments on staff evaluation guidance - Meeting on 6/19/96 to discuss staff comments on the QA plan submittal for graded QA, review questions transmitted to STP on 8/16/96 - Site visit on August 21-22 to observe working group and expert panel meetings, and to discuss staff review items, trip report in preparation - SECY paper to be prepared prior to staff approval of QA program change only if policy positions are taken in the staff approval	Ongoing through  6/97



<p>6. Staff interactions with Grand Gulf</p> <ul style="list-style-type: none"> <li>- Site meeting on 7/11-14/95 to observe expert panel</li> <li>- Meeting at hdqt. on 10/24/95 on QA controls</li> <li>- Meeting at RIV on 11/16/95 on graded QA effort</li> <li>- Site meeting on 11/17/95 to observe expert panel</li> <li>- GGNS system and component ranking criteria under staff evaluation, the comments are scheduled to be provided to GGNS by the end of June</li> <li>- Meeting on 4/11/96 to discuss the staff evaluation guide</li> <li>- Letter to GGNS dated 5/29/96 regarding implementation of QAP commitments</li> <li>- Staff review comments on GGNS safety significance determination process transmitted to licensee on July 15</li> <li>- Meeting on August 27 to discuss staff comments on safety significance process and to discuss GGNS implementation of QAP commitments for low-safety significant items, meeting summary in preparation</li> <li>- Tentative plans to visit site in 1/96 to review procurement activities</li> </ul>	Ongoing through 6/97
7. Revision 3 of Draft Evaluation Guide for Volunteer Plants issued for staff comment	07/95C
8. Revision 4 of Draft Evaluation Guide for Volunteer Plants Issued for Steering Group Review	10/95C
9. Issue letter to 3 volunteer plants outlining program objectives and review expectations. Distribute staff evaluation guide to licensees.	1/96C
<p>10. Evaluation Guide Issued for use by staff in evaluating volunteer plants</p> <ul style="list-style-type: none"> <li>- Meeting held with volunteer plants to receive feedback on staff evaluation guide on 4/11/96.</li> <li>- Industry comments on staff evaluation guide provided by letter dated 5/24/96</li> <li>- The staff will review the industry comments with respect to the need to revise, and finalize, the evaluation guide by the end of October.</li> <li>- Meeting of GQA steering group will be scheduled to discuss finalization of staff evaluation guide for volunteer implementation phase</li> </ul>	<p>1/96C</p> <p>4/96C</p>
<p>11. Regulatory Guide and SRP development milestones per PPA Action Plan</p> <ul style="list-style-type: none"> <li>- Draft SRP and RG for Branch/division review and comment</li> <li>- Draft SRP and RG for inter-office review and concurrence</li> <li>- Draft SRP and RG for ACRS/CRGR review</li> <li>- Draft SRP and RG for public comment</li> <li>- Draft SRP and RG public comment period ends</li> <li>- Final draft SRP and RG for ACRS/CRGR review</li> <li>- Final draft SRP and RG for inter-office concurrence</li> <li>- Publish final SRP and RG</li> </ul>	<p>7/31/96C for RG</p> <p>9/30/96 (SRP) T</p> <p>8/1/96 (RG) C</p> <p>11/1/96T</p> <p>12/31/96T</p> <p>3/3/97T</p> <p>9/1/97T</p> <p>12/1/97T</p> <p>12/31/97T</p>
<p>12. ACRS Briefings</p> <ul style="list-style-type: none"> <li>- Expert Panel and deterministic considerations</li> <li>- graded QA</li> <li>- PRA Implementation Plan and pilot projects</li> <li>- Risk Informed Pilots</li> </ul>	<p>2/27-28/96C</p> <p>4/11/96C</p> <p>7/18/96C</p> <p>8/7/96C</p>

14. Issue Lessons Learned NUREG report regarding Graded QA Programs at volunteer plants	9/97T
15. Public Workshop on Graded QA	2/98T
16. Issue Staff Inspection Guidance (Reactive IP)	12/97T
17. Conduct NRC Staff Training	1/98T
18. Issue SECY Update (close-out of action plan)	4/98T

**Description:** Prepare staff evaluation guidance and regulatory guidance for industry implementation for the grading of quality assurance (QA) practices commensurate with the safety significance of the plant equipment. The development of this guidance will be based on staff reviews of regulatory requirements, proposed changes to existing practices, staff development of a draft regulatory guide with input from a national laboratory, and assessment of the actual programs developed by the three volunteer utilities implementing graded quality assurance programs.

**Historical Background:** The NRC's regulations (10 CFR Part 50, Appendices A & B) require QA programs that are commensurate (or consistent) with the importance to safety of the functions to be performed. However, the QA implementation practices that have evolved have often not been graded. In the development of implementation guidance for the maintenance rule, a methodology to determine the risk significance of plant equipment was proposed by the industry (NUMARC 93-01). During a public meeting on December 16, 1993 the staff suggested that the industry could build on the experience gained from the maintenance rule to develop implementation methodologies for graded QA. The staff had numerous interactions with the Nuclear Energy Institute (NEI) during calendar year 1994 as the graded QA concepts were discussed and the initial industry guidelines were developed and commented on. In early 1995, three licensees (Grand Gulf, South Texas, and Palo Verde) volunteered to work with the staff. The staff has reviewed the licensee developmental graded QA efforts.

**Proposed Actions:** The goal of the action plan is to utilize the lessons learned from the 3 volunteer licensees to modify staff-developed draft guidance to formulate regulatory guidance on acceptable methods for implementing graded QA. The staff will develop a regulatory guide based in part on input from Brookhaven National Laboratory, a standard review plan revision for Chapter 17, and a reactive inspection procedure (IP) for graded QA. An inter-office team has been established to prepare the regulatory guidance documents and test their implementation during the evaluation of volunteer plant activities.

**Originating Document:** Letter from J. Sniezek, NRC to J. Colvin (NUMARC) dated January 6, 1994, describing the establishment of NRC steering group for the graded QA initiative.

**Regulatory Assessment:** Existing regulations provide the necessary flexibility for the development and implementation of graded quality assurance programs. The staff will issue a NUREG report regarding the lessons learned from the volunteer plant implementations. Additional regulatory guidance will be issued to either disseminate staff guidance or endorse an industry approach. Planned guidance for the staff will involve an evaluation guide for application to the volunteer plants, the lessons learned report, training sessions and public workshops, Standard Review Plan revision, and inspection guidance in the form of a reactive IP. The staff is evaluating the appropriate mechanism for inspections of the risk significance determination aspects of graded QA programs.

The safety benefits to be gained from a graded QA program could be significant since both NRC reviews and inspections and the industry's quality controls resources would be focused on the more safety significant plant equipment and activities. Secondly, cost savings to the industry could be realized by avoiding the dilution of resources expended on less safety significant issues. The time frame to complete this action plan is directly related to the overall PRA implementation plan schedules.

Current Status: A draft evaluation guide for NRC staff use has been prepared for application to the volunteer plants implementing graded quality assurance programs. The staff will utilize the guide for the review of the volunteer plant graded QA programs. The guide and the staff's proposed interaction framework has been transmitted in a letter to the three volunteer licensees. The letter seeks licensee comments. Outlines of a draft regulatory guide and SRP for both risk ranking and grading of QA controls have been prepared and circulated for review for the inter-office team. A meeting was held with the three volunteer licensees on April 11, 1996 to receive their feedback on the staff developed evaluation guide. The licensees expressed concerns about the level of detail contained in the guide, particularly that related to PRA and commercial grade item dedication. The licensees contend that existing industry guidance (PSA Application Guide and EPRI-5652) are sufficient for those topics. The staff received written comments from NEI on the evaluation guide by letter dated May 24, 1996. The NEI letter questions the need for additional regulatory guidance for the graded QA application. NEI contends that existing industry guidance is sufficient. STP and PVNGS letters providing comments on the evaluation guide were dated April 17, 1996 and April 24, 1996 respectively. The staff will compile suggested changes to the evaluation guide in response to the industry comments and a meeting will be held to brief the graded QA steering group on the proposed changes. In addition, a presentation on graded QA was made to the full ACRS on April 11th. During the ACRS meeting some questions arose with respect to the staff expectations for the conduct of expert panel activities.

South Texas submitted their QA program revision for their graded QA effort on March 28, 1996. The change has been reviewed by the staff (HQMB, SPSB, RES, RIV, and NRC contractors). A meeting was held with STP on June 19 to discuss the staff's comments and concerns. STP indicated their willingness to re-examine the content of the QA plan with respect to the proposed QA controls for the low safety significant items. The staff visited the site on August 21-22 to receive information from STP in response to earlier staff questions about the STP approach towards determining safety significance categorization and adjustment of QA controls. The staff also observed both a Working Group and Expert Panel meeting at which time licensee safety significance evaluations for 2 systems (Radiation Monitoring and Essential Service Water) were discussed. Staff review will resume when STP submits a revision to the QA program to address staff concerns.

Also, NEI submitted 96-02, "Guideline for Implementing a Graded Approach to Quality" dated March 21, 1996. The staff has performed a cursory review of the document and concluded that it does not reflect the progress and level of detail that has been achieved through the volunteer plant effort. The staff informed NEI by letter dated May 2, 1996 that the guide is not adequate (as a stand alone document) to implement graded QA but that it will be considered as the staff develops the graded QA regulatory guide and standard review plan. By letter dated June 8, NEI indicated that their 96-02 guide will be revised. Further NEI requested a meeting with the staff (in the August time frame) to discuss the changes and to discuss more objective means to assess the adequacy of QA program implementation. NEI has proposed that the amended 96-02 guidelines will be submitted to the staff for endorsement by a regulatory guide. A subsequent letter was received from NEI on July 16 that provided an updated version of NEI 96-02 based on comments they received from the volunteer plants and industry sources. The staff will review the modified document and then brief the steering group on the results.



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R. Gramm 415-1010  
RES Contact: R. Woods 415-6622

References:

- 1) Letter from J. Sniezek (NRC) to J. Colvin (NEI) dated 1/6/94
- 2) Regulatory Guide 1.160
- 3) NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"
- 4) SECY-95-059, "Development of Graded Quality Assurance Methodology", 3/10/95
- 5) Letter from B. Holian (NRC) to W. Stewart (APSCO) dated 7/24/95
- 6) Letter from C. Thomas (NRC) to W. Stewart (APSCO) dated 12/4/95
- 7) Memorandum from S. Black to W. Beckner and W. Bateman dated 1/24/96, Draft Staff Evaluation Guidance
- 8) NEI 96-02, "Guideline for Implementing a Graded Approach to Quality"

# NEW SOURCE TERM FOR OPERATING REACTORS

TAC No. M89586  
GSI No. 155.1

Last Update: 09/30/96  
Lead NRR Division: DRPM  
Supporting Division: DSSA & DE

MILESTONES	DATE (T/C)
1. NEI Letter	7/94C
2. Commission Memo	9/94C
3. NEI Response	9/94C
4. NEI/NRC Meeting	10/94C
5. Publication of NUREG-1465	2/95C
6. NEI/NRC Meetings	10/94C, 6/95C, 10/95C, 1/96C
7. Submittal of Generic Framework Document (from NEI)	11/95C
8. First Pilot Plant Submittal	12/95C
9. Issue Memo to Commission, Updating Status	8/96C
10. Present Commission Paper in E-Team Briefing	9/96C
11. Brief CRGR on Commission Paper	10/96T
12. Send Commission Paper to EDO/Commission	10/96T
13. Brief ACRS on Commission Paper	11/96T
14. Response to NEI Framework Document	11/96T
15. Begin Pilot Plant Reviews	11/96T
a. Issue RAIs on Pilot Plants	1/97T
b. Response to RAIs from Pilot Plants	4/97T
c. Provide Pilot Plant SERs to Projects	6/97T
d. Prepare Exemption Package for Pilot Plants	7/97T

**Description:** More than a decade of research has led to an enhanced understanding of the timing, magnitude and chemical form of fission product releases following nuclear accidents. The results of this work has been summarized in NUREG-1465 and in a number of related research reports. Application of this new knowledge to operating reactors could result in cost savings without sacrificing real safety margin. In addition, safety enhancements may also be achieved.

**Historical Background:** In 1962, the U. S. Atomic Energy Commission published TID-14844, "Calculation of Distance Factors for Power and Test Reactors." Since then licensees and the NRC have used the accident source term presented in TID-14844 in the evaluation of the dose consequences of design basis accidents (DBA).

After examining years of additional research and operating reactor experience, NRC published NUREG-1465, "Accident Source Terms for Light-Water Nuclear Power Plants," in February 1995.

The NUREG describes the accident source term as a series of five release phases. The first three phases (coolant, gap, and early in-vessel) are applicable to DBA evaluations, and all five phases are applicable to severe accident evaluations. The DBA source term from the NUREG is comparable to the TID source term; however, it includes a more realistic description of release timing and composition. Since the NUREG source term results in lower calculated DBA dose consequences, NRC decided not to require current plants to revise their DBA analyses using the new source term. However, many licensees want to use the new source term to perform DBA dose evaluations in support of plant, technical specification, and procedure modifications.

NRC and NEI met several times to discuss the industry's plans to use the new source term. To make efficient use of NRC's review resources, NRC encouraged the industry to approach the issue on a generic basis. The Nuclear Energy Institute (NEI) unveiled its plans for the use of the new source term at operating plants at the Regulatory Information Conference in May 1995. NEI, Polestar (EPRI's consultant), and pilot plant (Grand Gulf, Millstone, Beaver Valley, Browns Ferry, Perry, and Indian Point) representatives met with NRC staff on June 1 and October 12, 1995, to discuss more detailed plans.

Proposed Actions: The staff has reviewed the framework document and is preparing a draft Commission paper and decision letter that describes a generic implementation approach. The staff presented the Commission paper and decision letter to the NRR Executive Team in September, and plans to brief CRGR and then send the Commission paper and decision letter to the Commission and ACRS by November 1996 (SRM M960612). As described in the Commission paper, the plan is to review each pilot plant application and prepare an exemption package addressing the use of each feature of the NUREG-1465 source term while pursuing rulemaking. The current schedule is to prepare the first exemption after the decision letter is issued to industry and the staff completes a technical review of the first pilot plant submittal. The plan for issuing each remaining exemption is to brief the CRGR, issue for public comment, and then issue the exemption.

Originating Document: EPRI Technical Report TR-105909, "Generic Framework Document for Application of Revised Accident Source Term to Operating Plants," transmitted by letter dated November 15, 1995.

Regulatory Assessment: There will be no mandatory backfit of the new source term for operating reactors. The design-basis accident analyses for current reactors based on the TID-14844 source term are still valid. Therefore, non-urgent regulatory action and continued facility operation are justified.

Current Status: NEI submitted its generic framework document in November 1995 for NRC review and approval. TVA submitted part of its pilot plant application for Browns Ferry in December 1995 and Northeast Utilities System submitted its pilot plant application for Millstone in April 1996. The staff met with NEI on January 23, 1996 to discuss the generic framework document and separate meetings were held on February 7, May 30, and August 29, 1996 to discuss the Browns Ferry, Perry, and Grand Gulf pilot plant submittals, respectively. The staff has completed its review of the framework document and is preparing a Commission paper describing how it intends to conduct its generic review of pilot plant submittals. The NRR Executive Team was briefed on the Commission paper in September, and briefings of CRGR and ACRS are being scheduled. A limited number of pilot plants submittals and exemptions are expected, but only two have been received so far (Browns Ferry and Millstone). Remaining pilot plant submittals are expected before the end of 1996. On a related issue, as a result of the June 12, 1996, Commission briefing on the Reactor Site Criteria rulemaking [10 CFR 100 (Seismic and Non-seismic Provisions)], the staff was directed to seek guidance from the Commission regarding the application of the new source term to operating reactors. Consequently, the staff has prepared a memorandum to the Commission, which was issued on August 9, 1996, that summarizes the current status and future actions.

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A. Huffert, PERB, 415-1081  
NRR Lead PM: J. H. Wilson, PGEB, 415-1108

References:

NUREG-1465, "Accident Source Term for Light Water Nuclear Power Plants," February, 1995.

July 27, 1994, letter to A. Marion, NEI, from D. Crutchfield, NRC, "Application of New Source Term to Operating Reactors".

September 6, 1994, letter to the Commission from NRC staff, "Use of NUREG-1465 Source Term at Operating Reactors".

July 21, 1995, letter to the Commission from NRC staff, "Use of NUREG-1465 Source Term at Operating Reactors".

December 22, 1995, pilot plant submittal, letter to Document Control Desk from Tennessee Valley Authority, "Brown's Ferry Nuclear Plant (BFN) - Units 1, 2, and 3 - Technical Specifications (TS) No. 356 and Cost Beneficial Licensing Action (CBLA) 08 - Increase in Allowable Main Steam Isolation Valve (MSIV) Leakage Rate and Request for Exemption from 10 CFR 50, Appendix J... and 10 CFR 100, Appendix A...".

Summaries of public meetings:

- dated November 10, 1994 for public meeting with NEI held on October 6, 1994;
- dated July 26, 1994 for public meeting with NEI held on June 1, 1995;
- dated November 17, 1995 for public meeting with NEI held on October 12, 1995.
- dated February 1, 1996 for public meeting with NEI held on January 23, 1996.

## ENDANGERED SPECIES ACTION PLAN

TAC No. M88282

GSI: EI-184

Last Update: 09/30/96

Lead NRR Division: DRPM

MILESTONE	DATE
1. Development of action plan.	06/95C
2. Develop list of currently listed protected species in the vicinity of each nuclear power plant site	11/95C
3. Identify individual licensee programs and activities being conducted to further the conservation of protected species.	05/96C
4. Determine priority for sites warranting follow-up actions.	10/96T
5. Recommend site-specific follow-up actions to Projects.	11/96T
6. Development and implementation of process for maintaining status and compliance with the ESA at each site.	03/97T

Description: Develop a list of currently listed protected species in the vicinity of each nuclear power plant site, identify individual licensee programs and activities being conducted to further the conservation of protected species, and conduct informal or formal consultation with either the National Marine Fisheries Service or the Fish and Wildlife Service, as warranted for any specific site.

Historical Background: In 1973, Congress passed the Endangered Species Act for the protection of endangered or threatened species. In responding to a Commission memorandum of July 30, 1991, concerning efforts of the Commission, applicants, and licensees for protection of endangered species in the vicinity of nuclear power facilities, it was identified that the NRC may not have completed all the necessary activities required by the Endangered Species Act for some of the facilities that have identified endangered species. This action plan will determine the additional actions, if any, that need to be taken at individual sites so that the NRC can meet its obligations under the act.

Proposed Actions: Conduct evaluations of plant-specific lists of endangered species and existing licensee commitments to further the conservation of the protected species and determine if informal or formal consultation with either the National Marine Fisheries Service or the Fish and Wildlife Service is warranted.

Originating Document: Commission Memorandum of July 30, 1991.

Regulatory Assessment: Continued facility operation is appropriate because this action plan does not involve a health and safety issue.

Current Status: A list of currently listed protected species in the vicinity of each nuclear power plant site was developed by a contractor and delivered to NRC on 4/25/96. This report is now under review. This action plan will be evaluated with respect to separating generic and plant-specific aspects as part of Milestone 4. The contractor will provide a final report in October that prioritizes sites and makes recommendations for follow-up actions.

Contacts:

NRR Technical Contacts:     Mike Masnik, PDND, 415-1191  
                                       Jim Wilson, PGEB, 415-1108  
NRR Lead PM:                     Jim Wilson, PGEB, 415-1108

References:     Commission Memorandum of July 30, 1991.



## EFFECT OF HURRICANE ANDREW ON TURKEY POINT

TAC No. M86716/17  
GSI: LI-178

Last Update: 9/30/96  
Lead NRR Division: DRPM

MILESTONES	DATE (T/C)
1. Evaluate the Adequacy of Licensee Offsite Communications for Natural Disasters Within the Plant Design Basis.	11/96T
Collect information on licensee communication capabilities and vulnerabilities via region inspection.	6/96C
Analyze inspection findings and report on results.	8/96C
Established schedule for issuance of Information Notice.	10/96T
2. Evaluate the Adequacy of NRC Guidance for Reviewing Licensee Preparation and Response to Natural Disasters and Industry Preplanned Support.	5/96C

**Description:** This action plan was developed to address the actions necessary to resolve the issues identified in the "Report on the Effect of Hurricane Andrew on the Turkey Point Nuclear Generating Station from August 20-30, 1992." Two of the issues are still being considered. They are:

1) Whether there is a need for generic guidance to licensees to ensure that their offsite communication circuits can reliably survive or recover from the impact of a severe natural event such as a hurricane. These circuits are required to provide reliable notification to offsite authorities of emergency conditions at the licensee's power reactor facility.

2) Whether there is a need for generic guidance to inspectors to review licensees' preparation for and response to natural disasters, including industry preplanned support.

**Historical Background:** On August 24, 1992, Category 4 Hurricane Andrew hit south Florida and caused extensive onsite and offsite damage at Turkey Point. An NRC/industry team was organized to review the damage that the hurricane caused the nuclear units and the utility actions to prepare for the storm and recover from it, and to compile lessons that might benefit other nuclear reactor facilities. Results of the team review are presented in the report, "Report on the Effect of Hurricane Andrew on the Turkey Point Nuclear Generating Station From August 20-30, 1992," issued in March 1993. This report was distributed to all power reactor licensees by the Institute of Nuclear Power Operations on June 10, 1993.

The EDO requested a review of the NRC/industry report to determine the actions necessary for resolving the issues identified in the report. An action plan was established on July 22, 1993, to perform this function. Annual written status reports are provided until all items are closed. The October, 1995 report contained two open items, listed above.

A temporary instruction (TI 2515/131), issued 1/18/96, incorporating Regional comments, was written to provide Regional inspectors guidance for collecting information on offsite notification circuits. The TI was performed at seventeen plants from February 1, 1996 to June 30, 1996. The results from these seventeen plants, along with data gathered on several plants prior to the TI issuance, was analyzed.

Proposed Actions: For item 1) above, an Information Notice is proposed for distribution to all reactor licensees discussing the results of the Temporary Instruction used to collect information about these circuits. A draft of the IN will be shared with the Federal Emergency Management Agency (FEMA) since these communication circuits are used by offsite emergency management agencies, and FEMA is responsible for oversight of the radiological emergency preparedness of these agencies.

Regulatory Assessment: Justification for non-urgent regulatory action: A qualitative safety assessment of the technical issues being addressed for item 1) demonstrates that the significance of the issue is at a level that will allow both continued facility operation and treatment of the issue as a non-urgent regulatory action.

Current Status: For item 1) the results of the TI were documented in a memorandum to the Director, NRR.

For item 2), the action to provide guidance for inspectors has been incorporated into the PRA Implementation Plan. On that basis, milestone 2 is considered closed.

Also, interim guidance was recently issued to Regional offices and NRR on coordination with FEMA following impact of natural disasters on power reactors and the areas surrounding them. This guidance ensures that offsite preparedness is re-affirmed before authorizing the restart of any power reactor that shuts down in anticipation or as a result of a natural disaster. This effort is related to this action plan because it originated in lessons learned from the Hurricane Andrew disaster.

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NRR Lead PM:

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## ENVIRONMENTAL SRP REVISION ACTION PLAN

TAC No. M80177  
GSI: Not Available

Last Update: 10/02/96  
Lead NRR Division: DRPM

MILESTONES	DATE (T/C)
1. Reflect Potential Impacts and Integrated Impacts in Options for Resolution	
a. Identification of potential impacts	03/96C
b. Identification of integrated impacts	06/96C
c. Proposed options for resolution and develop initial draft of revised ESRP	10/96T
d. Staff/contractor meeting to resolve format and content of revised ESRP	12/96T
2. Prepare Final Draft of ESRP Sections for Public Comment	
a. Draft updated ESRP for staff review	02/97T
b. ACRS and/or CRGR review, if necessary	06/97T
c. Publish (electronic) for public comment	08/97T
3. Disposition Public Comments	01/98T
4. Publish Final NUREG-1555	08/98T
5. Maintenance of program data	Ongoing

**Brief Description:** The Environmental Standard Review Plan (ESRP) Revision Action Plan deals with the revision to NUREG-0555 to reflect changes in the statutory and regulatory arena, to incorporate emerging environmental protection issues (e.g., SAMDA and environmental justice) since originally published in 1979, and to support the review of license renewal applications. The ESRP will take the form of the SRP (including acceptance criteria) and follows the same update criteria outlined under the SRP-UDP project (with the exception of maintaining the MDB at this time). The objective of the tasks outlined in the action plan is to complete the identification of potential impacts by April 1996 (completed in March 1996), the integrated impacts by June 1996 (completed), and the options for resolution beginning in August 1996 with leveling across -ologies occurring earlier at the options stage rather than later at the draft stage. Initial interactions on options stage indicate that, at a minimum, the existing ESRP sections will need restructuring to conform to NUREG-0800 format; contractor is combining resolution options and format restructuring to accelerate schedule. After submittal of the draft by February 1997 for staff and CRGR review, if necessary, the sections will be published for public comment in August 1997. Disposition of public comments and staff review of the update (NUREG-1555) leads to a publication date of August 1998.

**Regulatory Assessment:** NRR has established the ESRP Update Program for use in the life cycle review of environmental protection issues for nuclear power plants, especially license renewal applications, but also operating reactors, and future reactor site approval applications. The ESRP will reflect current NRC requirements and guidance, consider other statutory and regulatory requirements (e.g., the National Environmental Policy Act, Presidential Executive Orders), and incorporate the generic environmental impact work and plant-specific requirements developed during amending of Part 51 for license renewal reviews.

Current Status: Two contracts are currently in place to support the ESRP Program, JCN J-2028 with Pacific Northwest National Laboratory (PNL) for overall coordination and most of the ESRP sections and JCN J-2039 with Lawrence Livermore National Laboratory (LLNL) for the seismology and geology sections. The work approach and detailed procedures rely heavily on the framework established for the SRP-UDP. The project team was established in 1994; resources were diverted twice to work off higher priority activities (i.e., the Watts Bar Environmental Statement Update and the RADTRAD project). Potential Impacts were completed for all existing ESRP sections. Integrated Impacts were completed for most existing ESRP sections and work for new sections (i.e., Environmental Justice, SAMDAs) is underway; Proposed Options for Resolution phase is underway with sections to be delivered beginning in August 1996 leading to a working session on the options for each section of the document scheduled for November 1996.

NRR Technical Contact: B. Zalcman, PGEB, 415-3467

## 10 CFR 50.59 ACTION PLAN

TAC No. M94269

Last Update: 9/30/96  
Lead NRR Division: DRPM  
Supporting Divisions: all

MILESTONES	DATE (T/C)
1. Action plan approval/copy to Commission	04/15/96(C)
2. Identify work group members	05/24/96(C)
3. Brief D/NRR on issues	N/A
4. Conduct workshop	06/18/96(C)
5. Brief D/NRR on proposed positions	07/24/96(C)
6. Draft position papers	08/29/96(C)
7. Obtain regional comments	09/30/96(C)
8. Policy issues and position paper to EDO with Lessons Learned Report	10/96(T)
9. Issue document for public comments	12/96(T)
10. Obtain comments, including ACRS	02/97(T)
11. Revised positions and recommendations issued to NRC management	04/97(T)
12. Commission Paper	06/97(T)
13. Followon Actions	TBD

**Description:** This action plan defines measures to improve licensee implementation and NRC staff oversight of the 10 CFR 50.59 process.

**Historical Background:** 10 CFR 50.59 was promulgated in 1962 to describe the circumstances under which licensees may make changes to their facility (or to make changes to procedures, or to conduct tests and experiments) without prior NRC approval when the change does not involve the Technical Specifications or an unreviewed safety question. Licensees are required to submit periodically information related to changes made pursuant to 50.59. The NRC has programs for monitoring licensee processes for implementing 50.59. In a memorandum dated October 27, 1995, Chairman Jackson raised a number of questions concerning 50.59 implementation and NRC oversight, and proposed a systematic reconsideration and reevaluation of the process.

The December 15, 1995, memorandum from the EDO responded to the specific questions and stated that within 120 days from the date of the memorandum, the staff would review previously issued guidance on implementation of the 50.59 process to define areas where the guidance needs to be amended and to develop an action plan to identify actions to be undertaken to improve both the licensee's implementation and the NRC staff's oversight of the 50.59. The staff has completed its review of existing guidance and has identified certain issues for further examination, which this action plan addresses.

The staff has made the results of its review of guidance, the action plan, and its interim inspection guidance publicly available.

#### Planned Actions:

The staff's approach to development of regulatory guidance would proceed in phases. Over the next several months, the staff will attempt to provide specific positions (guidance) to accomplish the objectives listed below, and will evaluate the feasibility of implementing such guidance within the existing regulatory framework. At the end of the first phase, estimated to take about eight months, the staff would take stock of its progress and make recommendations on issuing guidance, undertaking rulemaking or other actions.

Specifically, the objectives of this effort are to develop guidance that would:

- o define the elements of safety evaluation review or screening processes within the context of various licensee design or change control processes, to provide greater assurance that effects on safety of changes, whether to equipment, procedures, or methods of system operation, are appropriately evaluated.
- o define more specifically the scope of applicability of 50.59 (that is, to identify those changes, tests, or experiments) that need to be evaluated to determine if NRC approval is needed). This would include a more comprehensive description of change, and guidance for broader consideration of "as described."
- o establish the process for resolving nonconforming conditions such that differences from the FSAR are reconciled (from both safety and regulatory viewpoints) in a time frame commensurate with their safety significance. This will also consider when such conditions should be evaluated under 50.59 as temporary modifications because resolution of the nonconforming condition has been delayed.
- o improve USQ determinations in the following respects:
  - address the extent to which short and long term compensating actions may be considered as part of change under 50.59 so that it can be determined that the probability has not increased or margins of safety as defined in the basis for any technical specification has not been reduced. Also address when consideration of compensating actions should be reviewed as part of the basis for approving a proposed license amendment.
  - clarify the extent to which PRA techniques may be useful in evaluating the effects on safety of a change, and in addressing the "probability may be increased" criterion for unreviewed safety questions.
  - clarify what is meant by "margin of safety" in relation to numerical parameters, analysis methods, calculated results of safety analyses, and licensing limits such that changes that might affect the basis for staff's safety conclusions with respect to Technical Specifications are more consistently identified.

Finally, as part of the development of possible guidance, consider whether additional definitions are needed, such as for malfunction of equipment important to safety.

Public comments on the position paper(s) will be obtained. The ACRS will be requested to provide its comments on these positions. Actions, milestones and schedules for further phases of this effort will be developed after the results of the first phase are assessed.

In the area of staff oversight, the staff conducted, on June 18, 1996, a roundtable discussion with regional staff, resident inspectors and NRR staff who have participated in 50.59 inspection efforts to share experiences and to discuss such topics as the mix of programmatic and implementation reviews, sampling and team composition. Appropriate changes to inspection procedures will be made.

Other related efforts are being tracked under other programs.

Originating Document:

April 15, 1996 memorandum from the EDO to Chairman Jackson, Subject: Action Plan for Improvements to 10 CFR 50.59 Implementation and Oversight.

Regulatory Assessment: The action plan was developed to identify actions to improve implementation of the 50.59 process. A number of improvements have been implemented in the last few months, such as directing inspectors conducting all routine inspections to specifically address FSAR compliance, and reviewing spent fuel pool/core offload procedures and practices at all facilities. As stated in the December 15, 1995, memorandum, "The staff concludes that there is currently no indication that implementation of 10 CFR 50.59, as it is carried out today, has led to decreased safety, based on inspection experience. While improvements can be made to achieve a higher degree of uniformity of review, the current process as it is being implemented provides reasonable assurance that plant safety has not been decreased." The above conclusion is confirmed by the additional analysis of inspection experience presented in the staff review document. Therefore, non-urgent regulatory action and continued facility operation are justified.

Current Status:

A revision to the action plan was issued on August 20, 1996, which revised the scheduled milestones such that the Commission will have the opportunity to consider the policy issues associated with 50.59 along with other policy issues from the millstone lessons learned review.

The draft position paper, including policy issues, was issued for internal review and comment on August 29, 1996. A number of comments have been received and are being reviewed for incorporation into the paper. Schedule changes were made to conform with planned dates for submitting Part 2 of the Millstone Lessons-learned report to the EDO by the end of October, 1996. Schedule for submittal to the Commission has not yet been established.

NRR Technical Contact: E. McKenna, PGEB, 415-2189

References:

October 27, 1995 memorandum from Chairman Jackson to EDO

November 30, 1995 memorandum from Chairman Jackson to EDO

December 15, 1995 memorandum from EDO to Chairman Jackson

December 28, 1995 memorandum from EDO to Chairman Jackson

April 15, 1996, memorandum from EDO to Chairman Jackson

August 20, 1996, memorandum from EDO to Commission



# INDUSTRY DEREGULATION AND UTILITY RESTRUCTURING ACTION PLAN

TAC Nos. M78003

Last Update: 09/30/96

Lead NRR Division: DRPM

GSI: Not Available

Supporting Division:

MILESTONES	DATE (T/P/C)
Task 1 - Develop NRC Policy Statement and SRP	06/97T
Draft Policy Statement	05/96C
Office Concurrences	06/96C
EDO Concurrence	06/96C
Commission Paper	07/96C
Draft SRP	07/96C
Publish Draft Policy Statement	09/96C
Office Concurrences on SRP	09/96C
EDO Concurrence on SRP	09/96C
Commission Paper on SRP	09/96C
Publish Draft SRP	10/96T
Public Comment Policy Statement	10/96T
Public Comment SRP	11/96T
Final SRP/Policy Statement	12/96T
Office Concurrences	01/97T
ACRS	02/97T
CRGR	02/97T
EDO Concurrence	03/97T
Commission Approval	05/97T
Publish Final SRP and Policy Statement	06/97T
Task 2 - Issue Administrative Letter to Licensees on Financial Reporting Requirements	06/96C
Draft Administrative Letter	05/96C
Office Concurrences	05/96C
Commission Information Paper	06/96C
Issue Admin Ltr to Licensees w/WTR Letter to CEOs	06/96C
Task 3 - Develop Non-Rulemaking Option for Periodic Reporting Requirements as Necessary	2/97T
Determine Necessity for Action	09/96C
Draft Option	12/96T
Office Concurrence	12/96T
CRGR Review	01/97T
EDO Concurrence	02/97T
Publish Draft	02/97T

<p>Task 4 - Update prior NUREG documents on owners and financial license conditions</p> <p>Issue Task Order Contract Draft NUREG Updated Publish NUREGs Public Comment Revise and Publish Final</p>	<p>02/97T</p> <p>05/96C 09/96C 10/96T 01/97T 02/97T</p>
<p>Task 5 - Institutionalize Staff Level Contact with NARUC, SEC, FERC. Develop MOUs as necessary.</p> <p>Letter to agencies Staff level meetings Draft MOUs to Commission (as required) Sign MOUs</p>	<p>10/96T</p> <p>06/96C 10/96T TBD TBD</p>
<p>Task 6 - Develop and implement rulemaking to clarify 10 CFR 50.80 if necessary</p> <p>Commission determination of need Proposed ANPR or rulemaking package Office Concurrences ACRS Comments CRGR Concurrence EDO Concurrence Commission Approval Publish ANPR or Proposed rule Public Comment Revise Rulemaking Package Office Concurrences ACRS Comments CRGR Concurrence EDO Concurrence Commission Approval Publish Final Rule</p>	<p>TBD</p> <p>TBD TBD TBD TBD TBD TBD TBD TBD TBD TBD TBD TBD TBD TBD TBD TBD</p>
<p>Task 7 - Assist Office of Research (RES) on Decommissioning Funding Assurance Rule.</p> <p>Milestones for this task provided by RES under rulemaking action, "Decommissioning Costs and Funding Evaluations"</p>	<p>ONGOING</p>

Description: The action plan is intended to address the Commission's concerns regarding the impact of utility deregulation and resulting reorganizations and restructuring on licensee's financial qualifications and their ultimate ability to safely operate and decommission their facilities.

Historical Background: In recent years, several restructurings and reorganizations have occurred with the electric utility industry. In addition, State public utility commissions (PUCs) have increased pressure for improvements in economic performance of electric utilities they regulate in order to reduce the rates paid by wholesale and retail consumers. The accelerated pace of this restructuring may affect the ability of power reactor licensees to pay for safe plant operations and decommissioning. Specifically, the restructuring may affect the factual underpinnings of the NRC's previous conclusion that power reactor licensees can reliably accumulate adequate funds for operations and decommissioning over the operating lives of their facilities.

Proposed Actions: Specific actions included in the action plan are: (1) issuing a policy statement delineating NRC's expectations with respect to future financial and anti-trust reviews and developing a standard review plan regarding NRC's current financial review requirements; 2) issuing an administrative letter to all licensees delineating their current responsibilities with respect to getting prior NRC approval for changes that may affect their previous financial qualification determinations or ownership; 3) formulating non-rulemaking periodic reporting requirements, 4) updating NUREG documents containing financial information; 5) establishing staff level contacts with the Securities and Exchange Commission (SEC), the Federal Energy Regulatory Commission (FERC), and the National Association of Utility Regulatory Commissions (NARUC); 6) implementing rulemaking if necessary; and 7) assisting the Office of RES in their decommissioning funding assurance rulemaking.

Current Status: PGEF has developed a draft policy statement, administrative letter, and liaison letters to FERC and SEC. Staff level contacts with NARUC have been identified. The administrative letter was issued with a letter to the CEOs of all licensees on June 21. A Commission Information Paper informed the Commission of our intentions for sending the Admin letter and CEO letter. A Commission Paper forwarding the draft policy statement was submitted on July 2, 1996, as SECY-96-148. The Commission approved publication of the draft policy statement by SRM dated August 16, 1996. The draft policy statement was sent to the Federal Register for publication on September 13, 1996.

NRR Technical Contacts:      R. Wood, PGEB, 415-1255  
   M. Davis, PGEB, 415-1016



## EXTENDED POWER UPRATE ACTION PLAN

Tac No. M91571

Last Update: 10/06/96

Lead NRR Division: DRPW

GSI: RI-182

Supporting Division: DSSA

MILESTONES	DATE (T/C)
1: Receive GE Topical ELTR1 (Generic Review Methodology).	3/95 C
2: Issue Staff Position Paper on ELTR1 <ul style="list-style-type: none"> <li>- Meeting with GE/NSP.</li> <li>- Identify differences between LTR1 and ELTR1.</li> <li>- Issue RAIs as appropriate.</li> <li>- Incorporate information on foreign experience obtained from SRXB.</li> <li>- Develop power uprate database for all U.S. plants.</li> <li>- Issue Staff Position Paper.</li> </ul>	4/95 C 8/95 C 9/95 C 10/95 C 10/95 C 2/96 C
3: Receive GE Topical ELTR2 (Generic Bounding Analyses). GE plans to submit ELTR2 in two parts: the first part in March 96 and the second part in July 1996.	3/96 C 7/96 C
4: Issue Staff SE on GE ELTR2. <ul style="list-style-type: none"> <li>- Meeting with GE/Industry.</li> <li>- Issue RAIs as appropriate.</li> <li>- Input to the SE from technical branches.</li> <li>- Issue SE.</li> </ul>	2/96 C 10/96T 2/97 T 4/97 T
5: Receive Lead Plant Application (Monticello).	7/96 C
6: Issue Staff SE for Lead Plant. <ul style="list-style-type: none"> <li>- Meeting with Monticello.</li> <li>- RAIs input from tech branches.</li> <li>- Issue RAIs as appropriate.</li> <li>- Input to the SE from tech branches.</li> <li>- ACRS Presentation</li> <li>- Issue Secy Information Paper</li> <li>- Issue SE.</li> </ul>	10/96 T 11/96 T 11/96 T 6/97 T 6/97 T 6/97 T 6/97 T
7: Develop a Standard Review Procedure. Incorporate lessons learned from Lead Plant activity.	6/97 T

**Description:** This action plan describes the strategy for completing both the generic and plant-specific reviews for extended power uprate submittals for boiling water reactors (BWRs). General Electric Company (GE) submitted a licensing topical report (ELTR1), which outlines the methodology for implementation of an extended power uprate program. ELTR1 encompasses power uprates of up to 120 percent of the original licensed thermal power. Individual plant submittals for uprates will likely contain requests for an optimum power level specific for that plant which is something less than the full 120 percent.

The technical branches will review the applicable portions of the ELTR2, GE topical report containing generic analyses and the lead plant application, and provide input into both safety evaluation reports. Review criteria from the reviews performed on ELTR1, generic analyses, and

the lead plant submittal will be developed and assembled into a review procedure for individual PMs to use for subsequent plant-specific reviews. If an area in an individual plant submittal is outside the bounds of the previously established criteria, the applicable technical branch will perform a review of that specific area and provide input into the safety evaluation.

Historical Background: The generic BWR power uprate program was created to provide a consistent means for individual licensees to recover additional generating capacity beyond their current licensed limit. In 1990, GE submitted licensing topical reports to initiate this program by proposing to increase the rated thermal power levels of the BWR/4, BWR/5, and BWR/6 product lines by approximately 5 percent. Since 1990, the staff has reviewed and approved at least 9 such power uprate requests under this generic BWR power uprate program. As a follow-on to this program, GE submitted ELTR1 in March 1995 to propose "extended" power uprates of up to 120 percent of the original licensed thermal power.

Proposed Actions: Specific actions included in the generic action plan are: (1) review ELTR1 and issue a staff position paper, (2) review ELTR2 and issue a safety evaluation report, (3) review the lead plant application and issue a safety evaluation report, and (4) develop a standard review procedure based on ELTR1, ELTR2, and the lead plant review.

Originating Document: GE Licensing Topical Report (NEDC-32424), "Generic Guidelines for General Electric Boiling Water Reactor Extended Power Uprate," dated February 1995.

Regulatory Assessment: Not applicable. (A safety assessment is not needed for this action plan because a justification for continued operation of a plant is not required.) This program is an industry initiative that is strictly voluntary.

Current Status:

The lead plant application from Monticello was received on August 1, 1996. Supplement 1 to the GE's ELTR2 was received on July 17, 1996. The staff held a kick-off meeting on August 8, 1996 to initiate the review of the lead plant application.

NRR Lead PM: T. J. Kim, DRPW, 415-1392

## DRY CASK STORAGE ACTION PLAN

TAC Nos. M93821 (issue 2.a)  
M93927 (issue 3.b)  
M94107 (issue 4.c.)  
M94108

Last Update: 10/08/96  
Lead NRR Division: DRPW

GSI: Not Available

MILESTONES	DATE (T/C)
1. Develop action plan	07/95C
2. Near-term technical issues a. Heavy Loads/Cranes - develop working group plan - complete actions b. Cask Trunnions <sup>1</sup> - develop staff position - modify standards/guidance  c. Hydrostatic Testing <sup>1</sup>  d. Seismic Requirements for Pads - issue Information Notice	11/95C 6/97T  09/95C No changes required (C)  12/95C  06/95C
3. Long-term technical issues a. Cask weeping <sup>1</sup> - meet with NEI - determine NRC actions to resolve b. Cask loading/unloading procedures - contact NEI about industry efforts - resolve high priority issues - form working group - complete working group determination on further issues c. Off Loading after fuel pool is decommissioned <sup>1</sup> - develop guidance and modifications to inspection procedures  d. Failed Fuel Storage <sup>1</sup> - review proposed solutions  e. Safeguards Concerns <sup>1</sup> - complete analysis of designs	08/95C As Necessary  08/95C 09/95C 10/95C 04/96C  As required in response to submittals  Reviewing first submittal, ECD 03/97T  12/95C

<sup>1</sup> NMSS has the lead for this issue.

MILESTONES	DATE (T/C)
4. Procedural issues a. Change processes - issue SRP and 50.59 guidance - training for staff b. Reporting Requirements <sup>1</sup> - develop position, communicate to licensees c. Inspection of site activities - issue revised procedures - develop resource estimates and inspection schedule d. Vendor Inspections <sup>1</sup> - issue revised procedures - develop resource estimates and inspection schedule e. Cask and SAR differences <sup>1</sup> - contact vendors	  03/96C 05/96C  09/95C  02/96C 02/96C  02/96C 10/95C  09/95C
5. Communications a. Interface meetings b. Staff training <sup>1</sup> c. Industry workshop <sup>2</sup>	Ongoing 10/95C 07/95C

**Description:** The Plan was developed to identify and resolve major issues and problems in the area of dry cask storage of spent reactor fuel in independent spent fuel storage installations (ISFSIs). Specific issues encompassed by the plan include heavy load control, procedures for cask loading and unloading, failed fuel storage, change processes, inspection activities, and communications (internal and external). Issues have been divided into the following categories: near-term technical, long-term technical, communications, and process issues.

**Historical Background:** Since 1986, several U.S. nuclear power plant licensees have installed independent spent fuel storage installations (ISFSIs), that is, licensee-owned dry cask storage facilities. Other licensees are also planning such installations. In recent years, licensees have encountered a number of problems during the fabrication, installation and licensing of some of these ISFSIs and there has been an inconsistent level of performance by involved licensees and cask fabricators with respect to the use of dry cask storage of spent reactor fuel. Because of the anticipated increased industry effort in this area, the staff needed to fully understand the problems that occurred and take appropriate measures to reduce such problems in the future. Therefore, NMSS and NRR reviewed the lessons learned from past experience with ISFSIs, both our experience and the experience of other headquarters and regional offices, and developed a plan to resolve major issues and problems.

**Proposed Actions:** Actions included in the plan are: (1) review each general issue and identify the specific problems to be addressed, (2) develop corrective actions for each problem, and (3) implement the corrective actions.

**Originating Document:** Memorandum from Carl J. Paperiello and William T. Russell to James M. Taylor, July 28, 1995, "Dry Cask Storage Action Plan".

<sup>2</sup> An additional workshop has been tentatively scheduled for May 1996.

Regulatory Assessment: The plan addresses dry storage of fuel that is several years old. Technical issues have been addressed on a site-specific basis for existing facilities. The action plan will improve guidance, enhance communications with industry and the public, and aid future applicants.

Current Status: The following action plan issues have been completed: cask trunnions, cask weeping, hydrostatic testing, safeguards concerns, Part 72 reporting requirements, inspection of site activities, and vendor inspections. The inspection procedures for dry cask activities (site and vendor) were issued in February, 1996. These procedures included resource estimates for inspection activities. The staff has incorporated additional guidance on seismic issues into Inspection Procedure (IP) 60851 and additional guidance concerning consideration of failed fuel in unloading procedures into IP 60854. The working group has completed its review of the issues associated with cask loading and unloading. The working group is implementing its recommendations, including the preparation of an information notice concerning loading and unloading issues. Recent information (e.g., hydrogen ignition at Point Beach) may require additions to the action plan. The schedule for the remaining technical issue (heavy load control) has been extended to allow resolution of issues related to NRC Bulletin 96-02, issued April 11, 1996. In addition, issues related to Oyster Creek licensing actions and 50.59 evaluations may provide insights into the final resolution of the control of heavy loads. If possible, the issue of potential cask drop events prior to securing the lids will be resolved as part of closure of Bulletin 96-02. The variety of issues related to heavy loads and impact on staff resources may justify a separate action plan. Creation of a heavy loads action plan may also support closure of this ISFSI action plan since most other activities have been incorporated into the NMSS operating plan. A determination of whether to adopt will follow an as of yet unscheduled meeting between the directors of NRR and NMSS. The staff are reviewing and resolving public comments received on the draft dry cask storage SRP. Lessons learned from the hydrogen ignition event at Point Beach are being incorporated into the SRP as well as inspection procedures. All of the communications issues are ongoing efforts with no specific criteria for closure. However, there have been significant improvements in these areas. The Regions, NMSS, and NRR hold regular interface calls to discuss dry cask issues, training has been given to the affected staff, and NRC has established open communications with the newly-formed Nuclear Energy Institute Dry Cask Storage Issue Task Force. Based on these improvements, the staff will review these issues for closure in the coming months. The ECD for the review of the first submittal for the storage of damaged fuel has been changed to 03/97 due to untimely responses from the applicant. NMSS/SFPO sponsored a public workshop on dry cask storage on May 17, 1996. Well over 300 people attended from the plants, states, industry groups, vendors, and the staff. The staff briefed the Commission on the status of the dry cask storage program on May 30, 1996. In response to a hydrogen ignition event at Point Beach on May 28, the staff issued Information Notice 96-34 on May 31, 1996 NRC Bulletin 96-04 on July 5, 1996. The bulletin requires all storage and transportation cask vendors and users to submit a report to the NRC that documents evaluations of cask material compatibility with all environments that the casks are expected to encounter. Staff review of the bulletin responses is ongoing.

Contact: NRR Contact: William Reckley, DRPW, 415-1314  
NMSS Contact: Patricia Eng, SFPO, 415-8577

References:

Memorandum from Robert M. Bernero and William T. Russell to James M. Taylor, March 15, 1995, "Realignment of Reactor Decommissioning Program"  
Memorandum from Carl J. Paperiello and William T. Russell to James M. Taylor, July 28, 1995, "Dry Cask Storage Action Plan"

Memorandum from Carl J. Paperiello and William T. Russell to James M. Taylor, January 25, 1996, "Update to the Dry Cask Storage Action Plan"



## ACCIDENT MANAGEMENT IMPLEMENTATION

TAC #: M91966 - Overall  
M91641 - BWROG SAMG Review

Last Update: 9/26/96  
Lead NRR Division: DSSA

MILESTONES	DATE (T/C)
1. Review BWROG Severe Accident Management Guidance (SAMG) documents	12/96T
2. Review severe accident training materials and BWROG prioritization methodologies	06/95C
3. Develop TI for pilot inspections Initial draft (for internal use) Site visits of "in-progress" activities Revised draft (to NEI and public) Final TI	11/95C 11/96T 12/96T 03/97T
4. Complete pilot inspections and follow-up	12/97T
5. Revise inspection procedures (IP) and hold public workshop Draft IP Public meeting/workshop Final IP	03/98T 05/98T 07/98T
6. Review remaining plants	TBD

Description: This action plan is intended to guide staff efforts to assess the quality of utility implementation of accident management (A/M), and the manner in which insights from the IPE program have been incorporated into the licensees A/M program. Specific review areas will include: development and implementation of plant-specific severe accident management guidelines (SAMG), integration of SAMG with emergency operating procedures and emergency plans, and incorporation of severe accident information into training programs.

Historical Background: The issue of A/M and the potential reduction in risk which could result from developing procedures and training operators to manage accidents beyond the design basis was first identified in 1985 [1]. A/M was evaluated as Generic Issue 116 and subsumed by A/M-related research activities in late 1989. Completion of A/M is a major remaining element of the Integration Plan for Closure of Severe Accident Issues [2]. The development of generic and plant-specific risk insights to support staff inspections utility A/M programs is also identified in the Implementation Plan for Probabilistic Risk Assessment [3]. NRC's goals and objectives regarding A/M were established at the inception of this program [4]. Generic A/M strategies were issued in 1990 for utility consideration in the IPE process [5]. The staff has continued to work with industry to define the scope and content of utility A/M programs and these efforts have culminated in industry-developed A/M guidance for utility implementation. Industry has committed to implement an accident management program at each NPP [6]. NRC has accepted the industry commitment and developed tentative plans for staff inspection of utility implementation [7].

Proposed Actions: Specific actions included in the A/M action plan are: (1) complete the review of BWROG SAMG documents, (2) conduct site visits in late 1996 and early 1997 to observe how the elements of the formal industry position are being implemented, (3) complete the draft Temporary Instruction (TI) using the information and perspectives obtained

through the site visits, (4) complete pilot inspections and follow-up, and (5) develop an inspection procedure for use at remaining plants and hold a public workshop. Based on feedback from the workshop, the staff will finalize the inspection procedure, and the approach and schedule for evaluating A/M implementation for the remaining plants.

Originating Document: SECY-88-147, Integration Plan for Closure of Severe Accident Issues, May 25, 1988.

Regulatory Assessment: Accident management programs are being implemented by licensees as part of an initiative to further reduce severe accident risk below its current, and acceptable, level. Consequently, this is a non-urgent regulatory action and continued facility operation is justified.

Current Status: Severe accident management guideline documents have been submitted by each of the PWR owners groups, and reviewed by the staff. The BWROG submitted a severe accident management overview document on February 3, 1995, and a draft emergency procedure and severe accident guidelines (EPG/SAG) document on April 6, 1995. The BWROG response to staff comments on the overview document was received on March 6, 1996. The BWROG submitted a revised draft version of the EPG/SAG document and an associated draft technical basis document to NRC for information on May 10, 1996. The revised EPG/SAG document was developed by a different contractor than used to develop the April draft, thereby circumventing an issue between GE and their original contractor concerning ownership of the earlier document. A final version of the EPG/SAG document (Rev. 0) and technical basis report was submitted by the BWROG on August 29, 1996. In light of staff commitments on other activities and the need to expedite the review of the BWROG guidelines, the staff has contracted with Oak Ridge National Laboratory to perform a high level review of the EPG/SAG documents. The target date for completing the review of the BWROG material has been rescheduled for December 1996. A meeting to discuss specific questions/concerns regarding the BWROG products is expected in October 1996.

Licensee target dates for completing A/M implementation have been submitted to NRC, and a draft TI for use in the pilot inspections has been completed. Comments on the draft TI have been received from the NRC Region offices. The staff met with industry on February 22, 1996 and ACRS on March 1, 1996 to discuss plans for inspecting utility implementation of the formal industry position on severe accident management and major elements of the draft TI. The staff will visit approximately 2 to 4 sites in late 1996 and early 1997 for the purpose of obtaining an early understanding of how the various elements of the formal industry position are being implemented. A meeting with NEI to discuss the scope and schedules of the information gathering visits is anticipated in the October 1996 timeframe. The information and perspectives obtained through these visits as well as comments from the Region offices will be used to update the draft TI. The draft TI will be made available to NEI and the public after the information-gathering visits.

#### References:

1. Memorandum from F. Rowsome to W. Minners, "A New Generic Safety Issue: Accident Management," April 16, 1985
2. SECY-88-147, Integration Plan for Closure of Severe Accident Issues
3. SECY-95-079, Implementation Plan for Probabilistic Risk Assessment
4. SECY-89-012, Staff Plans for A/M Regulatory and Research Programs
5. Generic Letter 88-20, Supplement 2, April 4, 1990
6. Letter from W. Rasin to W. Russell, November 21, 1994
7. Letter from W. Russell to W. Rasin, January 9, 1995

NRR Technical Contact: R. Palla, SCSB, 415-1095  
NRR Lead PM: Ramin Assa, DRPW, 415-1391

## FIRE PROTECTION TASK ACTION PLAN

TAC Nos. M86652, M82809, M84592, Last Update: 09/26/96  
M85142, and M89509 Lead NRR Division: DSSA

GSI: LI-181

MILESTONES	DATE (T/C)
1. Semiannual Commission status reports	Last: 04/03/96C Next: 10/96T
2. Recommendations for action (Part I)	01/97T
3. Recommendations for future study (Part II)	05/97T
4. Confirmation issues (Part III)	05/97T
5. Other issues (Part IV)	08/95C

**Description:** The Fire Protection Task Action Plan (FP-TAP) is used to track and manage implementation of the recommendations made in the "Report on the Reassessment of the NRC Fire Protection Program," of February 27, 1993.

**Historical Background:** In February 1993, the Office of Nuclear Reactor Regulation (NRR) completed a reassessment of the reactor fire protection review and inspection programs in response to programmatic concerns raised during the review of Thermo-Lag fire barriers. The results of the reassessment were documented in the "Report on the Reassessment of the NRC Fire Protection Program," of February 27, 1993. The staff prepared the FP-TAP to implement the recommendations made as a result of the reassessment report.

**Proposed Actions:** The FP-TAP tracks the implementation of a wide range of technical and programmatic fire protection issues. It includes recommendations for action (Part I), recommendations for further study (Part II), confirmation issues (Part III), and lessons learned (Part IV). The staff is implementing the recommendations, in priority order, as resources allow. The staff focus is now on implementing its plan for future direction of the NRC fire protection program with emphasis on the fire protection functional inspection (FPFI) program and centralizing the management, by NRR, of the FPFI program and all other reactor fire protection work. The principal objective of these efforts is to ensure that the NRC has a strong, broad-based and coherent fire protection program which is commensurate with the safety significance of the subject.

**Originating Document:** "Report on the Reassessment of the NRC Fire Protection Program," February 27, 1993.

**Regulatory Assessment:** Each operating reactor has an NRC-approved fire protection plan that, if properly implemented and maintained, satisfies 10 CFR 50.48, "Fire protection," and General Design Criterion 3, "Fire protection." Therefore, each plant has an adequate level of fire safety and the individual action plan items are receiving appropriate priority.

**Current Status:** The staff issued a semiannual report to the Commission on the status of the FP-TAP on April 3, 1996. The next status report is due October 1996.

The Plant Systems Branch (SPLB) continued to work with Probabilistic Risk Assessment (PRA) Branch staff and Brookhaven National Laboratory (BNL), its technical assistance contractor, to evaluate the risk associated with the post-fire safe-shutdown methodology that imposes a self-induced station blackout. The staff plans to apply the PRA model for assessing the risk significance of the self-induced station blackout methodology to two plant-specific cases during FY 97. The staff is working on an issue recommended for further study regarding fire barrier reliability, under Generic Safety Issue (GSI) 149, "Adequacy of Fire Barriers." The staff and BNL have performed scoping analyses, using fault trees and event trees, to assess the effectiveness of a degraded fire barrier in mitigating the consequences of a fully developed fire in a plant area that is important to post-fire safe shutdown. The staff and BNL discussed the preliminary results of these two studies and future plans with the Advisory Committee on Reactor Safeguards (ACRS) on February 29, 1996. By letter of March 15, 1996, the ACRS submitted its comments to the Commission. The staff responded to the ACRS by letter of April 25, 1996. Technical assistance funding to complete these two projects has been budgeted for FY 97.

Sciencetech and BNL are providing technical assistance for developing the FPFi procedures. Sciencetech and BNL submitted the first draft of their work product on September 6 and September 16 respectively.

Several tasks are on hold until an expected increase of fire protection resources is implemented. The tasks that need to be rescheduled include (1) a fire protection training program, (2) two recommendations for further study, shutdown operability requirements, and (3) several remaining confirmation issues.

Contact: D. Oudinot, DSSA, 301-415-3731

References:

"Report on the Reassessment of the NRC Fire Protection Program," of February 27, 1993.

SECY-95-034, "Status of Recommendations Resulting From the Reassessment of the NRC Fire Protection Program," February 13, 1995.

Memorandum of April 3, 1996, from J. M. Taylor, EDO, to the Commission, "Semiannual Report on the Status of the Thermo-Lag Action Plan and Fire Protection Task Action Plan."

## THERMO-LAG ACTION PLAN

### \*\*\*FINAL REPORT\*\*\*

TAC Nos. M82809, M90203, M90284  
GSI: Not Available

Last Update: 09/26/96  
Lead NRR Division: DSSA

MILESTONES	DATE (T/C)
1. Semi-annual Commission status reports	Last: 04/03/96C Next: 10/96T
2. Resolve technical issues (Part I)	09/96C
3. Testing (Part II)	04/95C
4. Assess NRC fire prot. program (Part IV)	02/93C

Description: Evaluation and resolution of generic Thermo-Lag fire barrier issues regarding toxicity, construction and installation, fire endurance, ampacity derating, combustibility, seismic capabilities, and uniformity of materials. Includes special review team findings, public concerns, coordinating with Nuclear Energy Institute (NEI) and licensees, conducting fire endurance and ampacity derating tests, and assessing NRC reactor fire protection program. The staff has issued 16 generic communications regarding Thermo-Lag fire barriers.

Historical Background: In June 1991, the Office of Nuclear Reactor Regulation (NRR) established a special team to review the safety significance and generic applicability of technical issues regarding the use of Thermo-Lag fire barriers. In April 1992, the special review team issued its final report, which identified concerns about fire endurance, combustibility, and ampacity derating. Subsequently, the NRR staff prepared an action plan to address the issues associated with Thermo-Lag and the NRC fire protection program. The scope of the action plan includes coordination with industry and testing by the staff.

Proposed Actions: Specific actions include (1) the resolution of concerns and generic issues raised by the special review team and (2) resolution of plant-specific issues that emerge from the generic issues. In June 1994, the Commission approved a staff recommendation to resolve Thermo-Lag concerns by requiring compliance with existing NRC requirements and to permit plant-specific exemptions, where justified.

Originating Document: Final Report of the Special Review Team for the Review of Thermo-Lag Fire Barrier Performance, April 1992.

Regulatory Assessment: In response to Bulletin 92-01 and its supplement, licensees with Thermo-Lag fire barriers established NRC-approved measures, such as fire watches, to compensate for possibly inoperable fire barriers. The combination of compensatory measures and the defense-in-depth fire protection features provides an adequate level of fire protection until licensees implement permanent corrective actions.

Current Status: The staff issued the semiannual report to the Commission on the status of the Thermo-Lag Action Plan on April 3, 1996. The next report, due during October 1996, will be the final report on the status of the Thermo-Lag Action Plan.



Work on the final generic issue—mechanical properties test program—has been completed. NIST submitted its final report in July 1996. The staff evaluated the test results and is considering issuing an information notice to inform industry of the test results.

In June 1996, NIST submitted its final report regarding the feasibility of developing fire curves for rating fire barriers on the basis of representative nuclear power plant fire hazards rather than the fire curves specified in existing fire test standards. The study was published as NUREG-1547, "Methodology for Developing and Implementing Alternative Temperature-Time Curves for Testing the Fire Resistance of Barriers for Nuclear Power Plant Applications," August 1996. Staff action on the feasibility study is complete.

The staff is reviewing plant-specific corrective actions as a multiplant action (MPA) under Generic Letter 92-08 (MPA-L208), and the review of related plant-specific issues, such as exemption requests, as licensing actions. The MPA and plant-specific licensing actions are tracked by the Workload Information and Scheduling Program (WISP) and are not a part of the Thermo-Lag Action Plan. The plant specific activities also appear in the Chairman's Tracking List as Item II.N.1.

Contacts: D. Oudinot, SPLB, 301-415-3731  
L. Tran, DRPW, 301-415-1361

## PRA IMPLEMENTATION ACTION PLAN

TAC Nos. M90370, M90371, M90227,  
M90977, M91787-M91802

Last Update: 9/30/96  
Lead NRR Division: DSSA

GSI: Not Available

MILESTONES	DATE(T/C)
1. ACRS Meeting	07/94C 08/96C 11/96T
2. Commission Briefing	08/94C 04/95C 04/96C 10/96T
3. Publish PRA Policy Statement for 60-day comment period	12/94C
4. ACRS Subcommittee Meeting	09/94C 07/96C
5. Conduct Public Workshop on PRA Implementation Plan	12/94C
6. Publish final PRA policy statement	08/95C
7. Detailed Implementation	NA
1.1(a) Develop draft Standard Review Plans for risk-informed regulation for ACRS review	11/96T
1.1(b) Publish draft Standard Review Plans for Public comment	12/96T
1.1(c) Final draft Standard Review plans for ACRS review	9/97T
1.1(d) Publish final Standard Review Plans	12/97T
1.2 Pilot Applications to Specific Regulatory Initiatives: (a) MOVs (b) IST (c) ISI (d) Graded QA (e) Maintenance Rule (f) Technical Specifications (g) Other applications to be identified later	(a) 2/96C (b) 3/97T (c) 6/97T (d) 6/97T (e) 09/95C (f) 12/96T
1.3(a) Develop Inspection Guidance to Use IPEs and Plant-Specific PRAs	12/96T
1.3(b) Develop training course for inspectors	12/96T
1.3(c) Support regional inspection activities	Ongoing
1.4 Operator Licensing - Revise Examiner's Handbook to Reflect Revised Knowledge & Abilities Based on Risk Insights	12/96T
1.5 Event Assessment - (a) Conduct event assessment of reactor events (b) Assess desirability of risk assessment on non-power reactors	(a) Ongoing (b) TBD

MILESTONES	DATE(T/C)
1.6 Review Adequacy of Licensee Analysis in IPEs/IPEEEs	6/97T
1.7 Apply Guidance to Assess Effectiveness of SBO and ATWS Rules	09/97T
1.8(a) Staff review of PRAs for design certification applications	Ongoing
1.8(b) Develop SRP for Review of PRAs for Evolutionary Reactor Designs	12/99T
1.8(c) Develop Guidance for Use of Risk in Simplification of Emergency Planning Requirements	12/96T
1.9 Accident Management - Develop Risk Insights to Review and Inspect Industry Accident Management Programs	TBD
1.10 Evaluate IPE insights to determine followup activities	TBD

**Description:** This action plan is intended to describe the process for the staff to use PRA method and technology in the agency's effort toward risk-informed regulatory approach. The plan encompasses methods development, pilot applications, and staff training. The plan will be used to ensure timely and integrated agency-wide effort that is consistent with the PRA Policy Statement.

**Historical Background:** The NRC has been making use of PRA technology to varying degrees in its regulatory activities since WASH-1400. Prior to 1991, this had been an ad hoc application, depending on the availability of expertise in various technical groups. Since 1991, there have been a number of high-level studies within NRC that have focused on the status of PRA use and its role in the regulatory process. Collectively, the findings and recommendations from these studies support the view that there is a need for increased emphasis on PRA technology applications. For the full value of our investment in risk assessment methodology to be achieved, it is important that consistent high-level agency guidance be provided on the appropriate use of PRA. To this end, in November 1993, the Office Directors of NRR, AEOD, NMSS, and RES proposed to take the initiative in providing guidance on coordination and expectations for PRA efforts. Specifically, they proposed to develop an integrated plan for the staff's risk assessment and risk management practices. In August 1994, the staff submitted SECY-94-219, "Proposed Agency-Wide Implementation Plan For Probabilistic Risk Assessment," for the Commission's information. On March 30, 1995, The staff submitted SECY-95-079, "Status Update of the Agency-Wide Implementation Plan for PRA," and briefed the Commission on the subject on April 5, 1995. On May 18, 1995, the staff forwarded SECY-95-126, "Final Policy Statement on the Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities," for Commission vote. On June 8, 1995, the staff briefed the ACRS on the PRA policy statement. The final PRA policy statement was published in the *Federal Register* on August 16, 1995.

**Proposed actions:** The PRA Implementation Plan includes activities for NRR, RES, AEOD, and NMSS staff to increase the use of PRA methods in all regulatory matters. NRR focuses on the PRA applications in reactor regulations, the development of standard review plans, the pilot programs to use PRA technology in specific regulatory initiatives, events assessment, and working with regions on risk-informed inspections. RES focuses on the IPE/IPEEE reviews, PRA method and quality, and the development of PRA regulatory guides for the industry. AEOD focuses on risk-informed trends and patterns analysis, reliability data for PRA applications, and staff training. NMSS focuses on using PRA in high and low level waste issues. The detailed actions are described in the PRA Implementation Plan.

Originating Document: Memorandum dated November 2, 1993, T. Murley et al. to J. Taylor, "Agency Directions For Current and Future Uses of Probabilistic Risk Assessment".

Regulatory Assessment: This action plan is meant to improve the regulatory process by developing state-of-the-art PRA tools that will expand the use of PRA technologies in making regulatory decisions. The plan is not intended to correct safety problems at licensed facilities. Therefore, continued facility operation is justified.

Current Status: On February 27 and 28, 1996, the staff met with the ACRS PRA subcommittee to discuss technical issues related to risk-informed regulation. This was followed by a meeting with the ACRS full committee on March 8, 1996. On March 26, 1996, the EDO forwarded a memorandum to the Commission updating the progress and status of the PRA Implementation Plan. On April 4, 1996, the staff briefed the Commission on the status of and progress made regarding the activities in the PRA Implementation Plan. On May 15, 1996, the Commission issued an SRM directing the staff to prepare a policy paper to address the four emerging policy issues raised in the March 26, 1996 PRA Implementation Plan update. The staff was also asked to update the Commission on the use of the Safety Goal subsidiary objectives and to clarify how it intends to address uncertainties in risk-informed and performance-based regulation. On June 20, 1996, the EDO forwarded the quarterly status update of the PRA Implementation Plan to the Commission. The staff met with the ACRS PRA subcommittee on July 18, 1996, to discuss resolution for the four policy issues. The subcommittee meeting continued on August 7 to discuss the risk-informed pilot applications. An ACRS full committee meeting was conducted on August 8 to discuss the options and staff proposed recommendations for resolution of the four policy issues. On August 15, 1996, the ACRS forwarded a letter to Chairman Jackson expressing its agreement with the staff proposed recommendation for resolution of the key policy issues raised in the March 26 update of the PRA Implementation Plan.

The staff has prepared an "Issues List" encompassing the key technical, policy and process issues related to risk-informed regulation. The staff continues to work toward resolution of these issues and these issues will be addressed in the RGs and SRPs. This "Issues List" and the staff response to the SRM dated May 15, 1996, were attached to the most recent PRA Implementation Plan update forwarded to the EDO's office on September 27.

NRR Technical Contacts: Tony Hsia, SPSB, 415-1075

References:

SECY-94-219, "Proposed Agency-Wide Implementation Plan for Probabilistic Risk Assessment"

SECY-95-C79, "Status Update of The Agency-Wide Implementation Plan for Probabilistic Risk Assessment"

SECY-95-126, "Final Policy Statement on The Use of Probabilistic Risk Assessment Methods In Nuclear Regulatory Activities"

SECY-95-280, "Framework For Applying Probabilistic Risk Analysis In Reactor Regulation"

Memorandum from James M. Taylor to Chairman Jackson, "IMPROVEMENTS ASSOCIATED WITH MANAGING THE UTILIZATION OF PROBABILISTIC RISK ASSESSMENT (PRA) AND DIGITAL INSTRUMENTATION AND CONTROL TECHNOLOGY," January 3, 1996.

Memorandum from James M. Taylor to the Commission, "Status Update of the Agency-Wide Implementation Plan for Probabilistic Risk Assessment (PRA) (From March 30, 1995 to February 29, 1996)," March 26, 1996.

Staff Requirements - Briefing on PRA Implementation Plan, 10:00 a.m., Thursday, April 4, 1996, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to Public Attendance), May 15, 1996.

Memorandum from James M. Taylor to the Commission, "Status Update of the Agency-Wide Implementation Plan for Probabilistic Risk Assessment (PRA) (From March 1, 1996 to May 31, 1996)," June 20, 1996.

Letter from T. S. Cress, ACRS Chairman to Chairman Jackson, NRC, "Risk-informed, performance-based regulation and related matters" dated August 15, 1996.



## ENVIRONMENTAL QUALIFICATION TASK ACTION PLAN

TAC No. M85648  
GSI: 168

Last Update: 09/26/96  
Lead NRR Division: DSSA

MILESTONE	DATE (T/C)
1. Inform Commission	05/93C
2. Meet With Industry	Ongoing
3. Programmatic Review	TBD
4. Risk Assessment	TBD
5. Data Collection and Analysis	4/96C
6. Review and Evaluation of the Status	TBD
7. Technical Issues	10/98T
8. Options for Resolution	TBD
9. Implementation	TBD

Description: This action plan will evaluate environmental qualification (EQ) issues, including operating experience, testing methodology, and adequacy of current rule and guidance for operating reactors. It will resolve EQ issues for aging operating reactors and license renewal.

Historical Background: A review of environmental qualification requirements for license renewal and failures of qualified cables during research tests led to the development of the EQ Task Action Plan (TAP), which was issued in July 1993. The EQ TAP was developed to address: (1) staff concerns regarding the differences in EQ requirements for older and newer plants; (2) concerns raised by some research tests which indicate that qualification of some electric cables may have been non-conservative; and (3) concerns that programmatic problems identified in the staff Fire Protection Reassessment Report might also exist in the NRC EQ Program.

Proposed Actions: The EQ TAP includes meetings with industry, a program review of EQ, data collection and analysis, a risk assessment, and research on aging and condition monitoring. Annual Commission papers are written to update the status of the EQ TAP. The staff will develop options for resolving EQ concerns, which may include issuing a generic letter, changing the rule, or documenting the acceptability of the current EQ rule and standards. The basis for the appropriate regulatory action will be documented.

Originating Document: June 28, 1993, memorandum from Samuel J. Chilk to James M. Taylor (SECY 93-049); May 27, 1993, letter to the Commission from J. Taylor on Environmental Qualification of Electric Equipment.

Regulatory Assessment: Depending on the application, failure of these cables during or following design-basis events could affect the performance of safety functions in nuclear power plants. There is no immediate safety issue because of the degree of conservatism already included in the EQ qualification test margins.

Current Status: Members of RES, NRR, and BNL met at BNL to discuss the comments from the public meeting held August 6-7, 1996. During the public meeting, several members of the public indicated that certain unresolved issues included in the RES research program have been resolved.

and that reports are available. RES is currently in the process of obtaining the reports and evaluating them for their impact on the EQ cable test program.

The draft reports on the programmatic review and risk issues regarding EQ are currently under management review (Milestones 3 and 4).

BNL is continuing with the cable testing program, which includes investigating condition monitoring methodologies (Milestone 7). The cable test program began in May 1996 and is expected to continue for two years. In addition to aging cable samples, several condition monitoring methodologies are being investigated. Results from the test program are expected in fiscal years 1998 and 1999.

The staff is preparing an evaluation to resolve whether differences that currently exist in EQ requirements between older and newer plants are safety significant. This is one of three fundamental task action plan issues. The evaluation is scheduled to be completed by November 8, 1996. The evaluation will be forwarded to the Commission in the next EQ-TAP update, which is also expected to be completed by November 8, 1996.

SPLB will continue as the lead branch for the EQ Task Action Plan, and will continue to be responsible for coordinating this monthly update. EELB has responsibility for all other EQ issues.

<u>Contacts:</u> NRR Technical Contact:	G. Hubbard, SPLB, 415-2870
RES Contact:	S. Aggarwal, EMEB, 415-5849
NRR Lead PM:	L. Olshan, DRPE, 415-3018

#### References:

Letter to the Commission from J. Taylor on Environmental Qualification of Electric Equipment dated May 27, 1993 (Accession No. 9308180153).

Staff requirements memorandum (SECY 93-049) dated June 28, 1993 (Accession No. 9409010107).

Task Action Plan for Environmental Qualification and updates, Task Action Plan for Environmental Qualification and updates, July 1, 1993, April 8, 1994, November 16, 1994, and June 27, 1995 (Accession Nos. 9308120145, 9404260206, 950110431, 9507110203, respectively).

RES Program Plan for Environmental Qualification, July 7, 1994 (Accession No. 9407250066).

## GENERIC SPENT FUEL STORAGE POOL PART A: OPERATING FACILITIES

TAC No. M88094  
GSI: GI-173.A

Status: Complete  
Lead NRR Division: DSSA

Description: The action plan encompassed Spent Fuel Pool (SFP) issues identified through a 1994 special inspection at Dresden 1, the staff's review of loss of SFP cooling concerns at Susquehanna Steam Electric Station (SSES), and other SFP concerns identified as part of this plan. Specific review areas identified through implementation of this action plan include plant design features and administrative controls that affect the probability of spent fuel pool boiling, adverse environmental effects on essential equipment due to boiling, significant loss of spent fuel pool coolant inventory, adverse radiological conditions, unplanned spent fuel pool reactivity changes, undetected spent fuel pool events, and adverse effects of control system actuations.

Historical Background: In November 1992, two engineers, who formerly worked under contract for the Pennsylvania Power and Light Company (PP&L), filed a report contending that the design of the Susquehanna station failed to meet regulatory requirements with respect to sustained loss of the cooling function to the SFP that mechanistically results from a loss-of-coolant accident (LOCA) or a loss of offsite power (LOOP). The licensee (PP&L) and the engineers each made a series of additional submittals to the NRC and participated in public meetings with the NRC staff to describe their respective positions on a number of technical and licensing issues. In order to inform the nuclear power industry of the issues, the agency issued Information Notice (IN) 93-83 on October 7, 1993. The staff evaluated these issues as they related to Susquehanna using a probabilistic safety assessment, a deterministic engineering assessment, and a licensing basis analysis. The staff issued their final safety evaluation report on June 19, 1995. This closed the Susquehanna action plan (TAC No. M85337).

A generic action plan was developed and adopted on October 13, 1994, with two parts. Part A (TAC No. M88094) encompasses the staff's review of generic issues relating to the SFP at operating reactor facilities. Part B (TAC Nos. M40004, M90441, and M93805) includes applicable issues from the Part A review and concerns from the Dresden 1 special inspection particular to permanently shutdown facilities with stored, irradiated fuel to establish evaluation criteria for spent fuel pools at permanently shutdown facilities. Part B was included after the special inspection at Dresden 1 determined that problems in implementing the facility's decommissioning plan combined with certain SFP design features created the potential for a substantial loss of SFP water inventory. Dresden 1, which is permanently shutdown, experienced containment flooding due to freeze damage to the service water system on January 25, 1994, and the licensee for Dresden 1 reported a similar threat to SFP integrity. This licensee report resulted in the special inspection.

The principal concerns included in Part A of the generic action plan involve the potential for a sustained loss of SFP cooling capability, which was identified through the report filed with the NRC relating to Susquehanna, and the potential for a substantial loss of SFP coolant inventory, which was given renewed emphasis following the Dresden 1 special inspection. Postulated adverse conditions that may develop following a LOCA or a sustained loss of power to SFP cooling system components could prevent restoration of SFP decay heat removal. The heat and water vapor added to the building atmosphere by subsequent SFP boiling could cause failure of accident mitigation or other safety equipment and an associated increase in the consequences of the initiating event. Incomplete administrative controls combined with certain design features, particularly at the oldest facilities, may create the potential for a substantial loss of SFP coolant inventory and the associated consequences, which include high local radiation levels due to loss of shielding, unmonitored release of radiologically contaminated coolant, and inadequate cooling of stored fuel.

Originating Documents: (1) Letter from D.A. Lochbaum and D.C. Prevatte to T. Martin, NRC, November 27, 1992, "Susquehanna Steam Electric Station Docket No. 50-387, License No. NPF-14, 10 CFR 21 Report of Substantial Safety Hazard;" (2) Inspection Report No. 50-010/94001.

Regulatory Assessment: The postulated events do not pose an undue risk to the public based on the availability of common design features that help protect stored irradiated fuel, protect essential reactor safety systems, and prevent development of adverse radiological conditions. These design features include the provision of diverse means of cooling, the strong structural design of the spent fuel pool, the absence of drainage paths from the pool, the anti-syphon protection on piping within the spent fuel pool, the availability of multiple sources of make-up water, spent fuel pool instrumentation with control room annunciation, the maintenance of a substantial shutdown reactivity margin in the pool, radiation shielding provided by coolant inventory, and spent fuel pool water purification systems. Additionally, the relatively slow evolution of these events in the spent fuel pool resulting from the initial large cooling water inventory creates significant opportunity for operator recovery prior to experiencing adverse conditions or consequences. Therefore, continued facility operation is justified.

Resolution: The staff identified concerns for evaluation and reviewed existing guidance documents. On the basis of the identified concerns, the staff developed plans for on-site safety assessments of spent fuel storage. The on-site assessments were conducted at Brunswick, Monticello, Comanche Peak, and Ginna. The assessment teams concluded that the potential for a sustained loss of spent fuel pool cooling or a significant loss of spent fuel pool coolant inventory at the sites visited was remote on the basis of certain design features and operational controls. The teams found that other identified concerns within the scope of the action plan review were much less significant than a sustained loss of spent fuel pool cooling or a significant loss of spent fuel pool coolant inventory in terms of risk at the plants visited. The staff completed individual assessment reports documenting the findings from visits to Brunswick, Monticello, Comanche Peak, and Ginna.

The staff then performed an FSAR-based review to identify facilities whose design was not well represented by any of the facilities reviewed through the on-site assessments. On the basis of this FSAR review of 16 sites in addition to the sites visited, the staff determined that the significant spent fuel pool issues are best resolved through a site-specific evaluation because of the small number of facilities affected by each particular concern and because of site-specific variations in design and operation of the spent fuel pool and associated systems. To accomplish this task, the staff expanded the FSAR-based review to encompass development of a data-base specifying the current licensing basis for the SFP cooling system, selected design basis parameters, and current operating procedures relevant to SFP cooling for all facilities. The staff initiated this expanded review on January 16, 1996. Project managers conducted the data collection function, which was performed under TAC M94480. In order to develop a consistent licensing basis determination, the technical staff devoted substantial resources to a plant-by-plant licensing basis review, which was forwarded to the respective project managers prior to on-site visits.

The staff briefed Chairman Jackson regarding SFP issues on February 1, 1996, and on April 4, 1996. Following these briefings, the staff committed to provide results of the plant-specific licensing basis review effort to the Chairman. Additionally, the staff committed to prepare a course of action for resolution of significant issues and identify plant-specific and generic areas for regulatory analysis. The licensing basis review effort was completed on May 21, 1996.

The staff completed its evaluation of significant spent fuel pool issues and its identification of plant-specific and generic areas for regulatory analysis. These findings were transmitted to the Commission in a report dated July 26, 1996. The staff identified 38 plants at 22 sites having spent fuel pool design features from seven categories that the staff found to warrant regulatory analysis for potential safety enhancement backfits. Also, plants with SFP related design features in three additional categories were identified for further review. Generic areas identified for regulatory



analysis include application of the shutdown operations rule to spent fuel pool refueling activities and revision to NRC design review guidance.

During separate public meetings, the staff presented its findings to the Commission on August 1, 1996, and to the Advisory Committee on Reactor Safeguards on August 9, 1996. In response to comments received from the Commission in a staff requirements memorandum dated August 26, 1996, the staff committed to complete regulatory analyses associated with plant-specific design features by May 1997, implement plant specific backfits by October 1997, and complete revisions to Regulatory Guide 1.13, and Standard Review Plan sections 9.1.2 and 9.1.3 by October 1998.

The staff is currently conducting the regulatory analyses supporting application of the shutdown operations rule to the spent fuel pool under the action plan for that rulemaking activity. Revisions to Regulatory Guide 1.13, and Standard Review Plan sections 9.1.2 and 9.1.3 will be managed under separate TACs for each document. Similarly, plant specific regulatory analyses will be managed under individual TACs for each affected plant.

Contacts: S. Jones, 415-2833  
J. Shea, 415-1428

References:

Letter from Lochbaum and Prevatte, November 1992

Task Action Plan for Spent Fuel Storage Pool Safety, October 13, 1994 (publicly available, Accession No. 9410190155)

SER for Susquehanna, June 19, 1995 (publicly available, Accession No. 9507070008)

Information Notice 95-54, December 1, 1995 (SFP cooling design basis at Millstone 1 and Cooper)

Information Notice 93-83 (and Supplement 1), October 7, 1993 and August 24, 1995.

Information Notice 94-38, May 27, 1994 (Dresden 1 Special Inspection Results)

Inspection Report No. 50-010/94001, April 14, 1994 (Dresden 1 Special Inspection)

Report to the Commission, "Report on Survey of Refueling Practices," from J. M. Taylor, May 21, 1996 (publicly available)

Report to the Commission, "Resolution of Spent Fuel Storage Pool Action Plan Issues," from J. M. Taylor, July 26, 1996 (publicly available)



**GENERIC SPENT FUEL STORAGE POOL  
PART B: PERMANENTLY SHUTDOWN FACILITIES**

TAC Nos. M90441 & M93805  
GSI: GI-173.B

Status: Complete  
Lead NRR Division: DSSA

Description: This Part B effort will use the results of Part A activities to establish evaluation criteria for spent fuel pools (SFPs) at permanently shutdown plants to support rulemaking and other generic activities initiated by the Decommissioning and Non-Power Reactor Project Directorate (PDND).

Historical Background: A generic action plan was developed and adopted on October 13, 1994, with two parts. Part A (TAC No. M88094) encompasses the staff's review of generic issues relating to the SFPs at operating reactor facilities. Part B (TAC Nos. M40004, M90441, and M93805) includes applicable issues from the Part A review and concerns from the Dresden 1 special inspection particular to permanently shutdown facilities with stored, irradiated fuel to establish evaluation criteria for SFPs at permanently shutdown facilities. Part B was included after the special inspection at Dresden 1 determined that problems in implementing the facility's decommissioning plan combined with certain SFP design features created the potential for a substantial loss of SFP water inventory. Dresden 1, which is permanently shutdown, experienced containment flooding due to freeze damage to the service water system on January 25, 1994, and the licensee for Dresden 1 reported a similar threat to SFP integrity. This licensee report resulted in the special inspection.

The staff issued NRC Bulletin 94-01, "Potential Fuel Pool Draindown Caused by Inadequate Maintenance Practices at Dresden Unit 1," on April 14, 1994. This bulletin requested all holders of licenses for nuclear power reactors that are permanently shut down with spent fuel in the spent fuel pool to take actions to ensure the quality of the SFP coolant, the ability to maintain an adequate coolant inventory for cooling and shielding, and the necessary support systems are not degraded. In order to evaluate the management controls and SFP activities at permanently shutdown reactors, the NRC staff initiated a series of special team inspections at permanently shutdown facilities with stored, irradiated fuel in the SFP. These inspections were completed at all of the subject facilities by the first quarter of 1995.

Originating Documents: Inspection Report No. 50-010/94001 for Dresden Unit 1.

Regulatory Assessment: The postulated events involving a loss of cooling do not pose undue risk to the public, because of the low residual decay heat in the spent fuel at permanently shutdown reactors and the associated long period of time available for recovery. Concerns involving maintenance of the coolant quality and ability to control coolant inventory have been addressed through the special inspection activities. Therefore, continued facility operation is justified.

Resolution: The staff determined that all significant identified concerns from Part A applicable to permanently shutdown facilities were encompassed by the special inspection activities. The special inspections found no significant deficiencies other than at Dresden 1. In response to the Dresden 1 Special Inspection findings, PDND will issue decommissioning guidance consistent with the newly revised decommissioning regulations. The Division of Systems Safety and Analysis will provide technical support for these activities. Staff resources will be tracked through related TACs assigned to PDND.

Contacts:

NRR Technical Contact: S. Jones, SPLB, 415-2833  
NRR Lead PM: R. Dudley, PDND, 415-1116

References:

Task Action Plan for Spent Fuel Storage Pool Safety, October 13, 1994 (publicly available, Accession No. 9410190155)

Information Notice 94-38, May 27, 1994 (Dresden 1 Special Inspection Results)

NRC Bulletin 94-01, April 14, 1994.

Inspection Report No. 50-010/94001, April 14, 1994 (Dresden 1 Special Inspection)

## CORE PERFORMANCE ACTION PLAN

TAC Nos.      M91257 - DSSA  
                   M91602 - DISP

Last Update: 09/26/96  
 Lead NRR Division: DSSA  
 Supporting Division: DISP

GSI: LI-179

MILESTONES		DATE (T/P/C)
Task 1 -	Inspection of Nuclear Fuel Vendors (DISP)	03/97T
	Siemens Power Corporation [PWR AIT followup]	06/94C
	ABB/Combustion Engineering [PWR reloads]	11/94C
	Teledyne-Wah Chang (TWC)	12/94C
	Sandvik Specialty Metals (SSM)	12/94C
	Westinghouse CNFD	07/95C
	General Electric NEP	10/95C
	Framatome/Cogema Fuels (B&W Fuels)	09/96C
	GE (SLMCPR & low density pellets)*	09/96C
	ABB/CE [BWR] (WNP-2 transition core)*	12/96T
	SPC (comprehensive re-inspection of open items)*	02/97T
Task 2 -	Inspection of Licensee Reload Analyses (DSSA)	ongoing*
	RI - GPU [TMI-1];	12/95C
	RII - Duke [Oconee];	03/95C
	RIII - ComEd [Zion];	10/94C
	RIV - APS [Palo Verde] (original pilot audit)	04/93C
Task 3 -	Core Performance Data Gathering/Evaluation (DSSA)	12/96T
	Regions - Morning Reports & Event Notification	ongoing
	Other - Data Acquisition and Collation	ongoing
	PNL - Core Performance Evaluation Analysis (CY95)	12/96T
Task 4 -	Participation of Regions in Action Plan (DSSA)	ongoing
	Identification of Vendor Issues	
	Feedback from Licensee Inspections	
	Counterparts Meetings (RI-RIV)	
Task 5 -	Evaluate Inspection Guidance (DSSA/DISP)	12/96T
	Evaluate Results of Vendor/Licensee Inspections	
	Incorporate Feedback from Regions	
	Draft Guidance for Residents	
	Draft Inspection Criteria and Plan Outline	
Task 6 -	Evaluate Lead Test Programs for Identification of Core Performance Problems (DSSA/DISP)	12/96T
Task 7 -	Workshop on Core Performance Issues (TAC No. M95674)	
	Identify issues	07/96C
	Conduct workshop	10/96T

\* Issue Driven

Description: The action plan is intended to assess the impact of reload core design activities on plant safety through inspections of fuel vendors, evaluation of licensee's reload analyses, independent evaluation of core performance information, with regional training and interaction.

Historical Background: The action plan addresses the review of fuel fabrication, core design, and reload analysis issues that were discussed during the March 29, 1994, briefing given to James M. Taylor, Executive Director for Operations. The briefing presented by the Reactor Systems Branch (SRXB), Division of Systems Safety and Analysis (DSSA), covered generic fuel and core performance issues and related evaluations of fuel failures. Representatives of the Vendor Inspection Branch (VIB), Division of Reactor Inspection and Licensee Performance (DRIL), participated in the briefing. As a result of this briefing, the Office of Nuclear Reactor Regulation (NRR) was requested to prepare an action plan for a proactive approach to monitor and improve core performance in operating reactors.

Proposed Actions: Specific actions included in the action plan are: (1) evaluate fuel vendors' performance through performance-based inspections that evaluate the reload core design, safety analysis, licensing process, fuel assembly mechanical design, and fuel fabrication activities; (2) evaluate the performance of licensees that perform core reload analysis functions; (3) identify, document, and categorize core performance problems and root cause evaluations that will be further evaluated during these inspections and provide input to SALP evaluations as well as regional enforcement actions, as appropriate; (4) train and coordinate regional support staff participating in these activities; and (5) evaluate the results of these activities for use in formulating generic communications, revisions of regulatory guidance and guidance for regional inspectors, and other appropriate regulatory actions. In addition, as a result of recent generic concerns, including the failure of control rods to fully insert, the action plan is being expanded to review the adequacy of vendor lead testing programs for new fuel designs (Task 6); and to conduct a workshop on core performance issues (Task 7) in the fall of 1996, as stated at the recent Regulatory Information Conference.

DSSA — The action plan identifies that licensee inspections in each region shall be performed, in coordination with the regional inspectors, to assess licensee performance in reload core analysis oversight and participation. Licensee inspections will normally be issue-driven. The data acquired through licensee/vendor inspections will be integrated with information supplied by the regions and other sources and will be evaluated for generic core performance indicators and industry conformance to current regulatory requirements. The end product of the initial assessment will include guidance for resident inspectors and regional staff. These activities are scheduled to be completed in FY96. The ongoing activities to capture and address early warning of emerging issues will continue into FY97, and the action plan will be updated to reflect the planned inspection of 10 licensee/plants, 5 vendor LTA program inspections, and four anticipated event-reactive inspections.

DISP — The action plan currently identifies 8 completed and two planned vendor inspections that shall be performed by multi-disciplined inspection teams lead by the Special Inspection Branch (PSIB) with contracted technical assistance. These inspections are currently scheduled to be completed in 1997. In addition, DISP will support the FY97 vendor LTA and licensee inspections, as required.

Originating Document: Memorandum from Gary M. Holahan and R. Lee Spessard to Ashok C. Thadani, dated October 7, 1994, "Action Plan to Monitor, Review, and Improve Fuel and Core Components Operating Performance" and the revision, in progress.

Regulatory Assessment: Core design is a fundamental component of plant safety because maintaining fuel integrity is the first principal safety barrier (i.e., fuel cladding, reactor coolant system boundary, or the containment) against serious radioactive releases. Likewise, the safety analyses must be properly performed in order to verify, in conjunction with startup tests and normal plant parameter monitoring, that the core reload design is adequate and provide assurance that the reactor can safely be operated. Evaluation of activities that affect the quality of fuel and core components are important to ensure that safety and quality are not degraded and that the core performs as designed.

Current Status:

DSSA — The data being acquired from the ongoing vendor inspections are being evaluated for generic impact and identification of emerging issues. The issue-driven inspection at GE, conducted in May 1996, was supported by SRXB/DSSA staff and contract specialists in reload design. The first part of the Framatome inspection was supported, with the final phase to be conducted during actual fuel fabrication campaigns. Interaction with the regions is ongoing to participate in region-led licensee inspections. However, due to diversion of resources to review lead test assembly programs, it is unlikely that licensee inspections in each region can be supported this year. SRXB participated in the Region I inspector counterparts meetings in December 1995 and May 1996. DSSA is re-evaluating the action plan to better integrate and prioritize its activities, consistent with the available TA funding. Options and recommendations for management review are being prepared.

DISP — The inspection of Framatome Cogema Fuels (formerly Babcock and Wilcox Fuel Company), located in Lynchburg, Virginia, began in March 1996; however, FCF production scheduling delays will result in delaying the manufacturing end of the inspection. An assessment of GE SLMCPR errors and the low density pellet issue was conducted in May. The remaining planned issue-driven inspections include ABB Combustion Engineering's supply of a BWR transition core reload for WNP-2, and a comprehensive follow-up inspection of Siemens Power Corporation issues.

NRR Technical Contacts:           E. Kendrick, SRXB, 415-2891  
  S. Matthews, PSIB, 415-3191

\* time spent on-site at vendor inspections (Task 1) is allocated to appropriate fuel vendor docket #



# HIGH BURNUP FUEL ACTION PLAN

TAC No. M91256

Last Update: 10/2/96

Lead NRR Division: DSSA

Supporting Office: RES

GSI: 170

MILESTONES	DATE (T/C)
1. Issue User Need Letter to RES	10/93C
2. Contracts Issued by RES	03/94C
3. Schedule and Coordinate Meetings with Foreign Experimenters and Regulatory Authorities	09/95C
4. Issue Information Notice (IN 94-64) Announcing New RIA Data	08/94C
5. Present High Burnup Data at Water Reactor Safety Meeting	10/94C
6. Schedule/Coordinate Industry Meetings to Discuss Actions	10/94C
7. Determine Need for Further Generic Communications	11/94C
8. Issue Letter to Vendors	11/94C
9. Issue IN 94-64, Suppl. 1, Providing Data and Vendor Letter	03/95C
10. RES Update NUREG-0933 on Generic Issue* and Plan of Action	03/95C* 01/96C
11. Review Industry (NEI) Response	09/95C
12. Assess Effects on Design Basis Accidents of Reduced Failure Threshold for High Burnup Fuel	09/95C
13. Committee on the Safety of Nuclear Installations <u>Specialists Meeting on the Transient Behavior of High Burnup Fuel</u>	09/95C
14. CNRA (OECD) Committee on Nuclear Regulatory Activities and CSNI annual meetings.	11/95C
15. Issue Letter to NEI Assessing Industry Actions (Vendor/EPRI response to IN)	11/96T
16. Water Reactor Safety Information Meetings (High Burnup session) Core Performance Issues Workshop	10/95C 10/96T
17. RES Briefs ACRS and Completes Response to NRR User Need Letters	04/96C 02/97T
18. Complete Review of Available Fuel Transient Data Relevant to Design Basis Event	12/96T
19. Develop Interim Acceptance Criteria (e.g., based on cladding oxide)	12/96T
20. Issue GL to Define Interim Criteria and Request post-LOCA Evaluation	02/97T
21. Establish Schedule for LOCA Resolution and Final Assessment Determine Need for Further Regulatory Action	010/96T

\*RES has prioritized as Generic Issue #170 NUREG-0933.

Description: The action plan covers assessment of fuel performance for high burnup fuel and evaluation of the adequacy of SRP licensing acceptance criteria.

Historical Background: Recent experimental data on performance of high burnup ( $> 50$  GWd/MTU) under reactivity insertion conditions became available in mid-1993. The unexpectedly low energy deposition (30 cal/gm) to initiation of fuel failure in the first test rod (at 62 GWd/MTU) led to a re-evaluation of the licensing basis assumptions in the SRP. As a result, the Office of Nuclear Reactor Regulation (NRR) was requested to prepare an action plan, in coordination with the Office of Nuclear Regulatory Research (RES).

Proposed Actions: After a preliminary safety assessment was performed, an action plan was developed, to include a user need letter to RES and the issuance of contracts to assess all aspects of the high burnup fuel issue. Concurrently, meetings would be scheduled with the non-domestic experimenters and regulatory authorities to discuss the experimental data and to assess potential consequences and regulatory actions. Meetings with industry would be scheduled to discuss their planned actions and to solicit cooperation with the safety evaluations. Based on a complete review of all available fuel transient data, relevant to design basis events, NRR/RES would define acceptance criteria, establish a schedule for final assessment, and state need for further regulatory action.

Originating Documents: Commission memorandum from James M. Taylor (EDO), "Reactivity Transients and High Burnup Fuel," dated September 13, 1994, including IN 94-64, 'Reactivity Insertion Transient and Accident Limits for High Burnup Fuel,' dated August 31, 1994. Commission Memorandum from James M. Taylor, "Reactivity Transients and Fuel Damage Criteria for High Burnup Fuel," dated November 9, 1994, including an NRR safety assessment and the joint NRR/RES action plan.

Regulatory Assessment: There is no immediate safety issue, because of the low to medium burnup in currently operating cores. Since the fuel failure threshold declines with increasing burnup, the licensing basis design acceptance criteria may need to be redefined as a function of burnup. The end product of the plan will determine the need for regulatory action and will establish and define the need for further action on extended burnup cycles and high burnup fuel issues.

Current Status: An ACRS subcommittee meeting on the status of RES contractor programs was held in 4/96. An NEI letter summarizing the industry position was received in April, and the EPRI report supporting this position was sent by NEI on 9/20/96. These documents will be reviewed to prepare the NRR response. A Commission paper on the status of the High Burnup issue and planned actions has been prepared by NRR, has been reviewed by RES, and is in concurrence.

NRR Technical Contacts: Laurence Phillips, NRR/DSSA/SRXB, 415-3232  
Shih-Liang Wu, NRR/DSSA/SRXB, 415-3284  
Edward Kendrick, NRR/DSSA/SRXB, 415-2891

RES Contact: Ralph Meyer, RES/DST/RPSB, 415-6789

**RRG TOPIC AREA 55: CYCLE SPECIFIC PARAMETER LIMITS IN TECH SPECS  
AND GENERIC LETTER 88-16 REVISION**

TAC Nos. M89033 and M85023

Last Update: 9/24/96

Lead NRR Division: DSSA

MILESTONES		DATE (T/C)
1.	Complete draft guidance for GL 88-16 revision	8/94C
2.	Office concurrences on GL (NRR/OGC/RES/OC)	n/a
3.	Contractor report received on reload report content	6/94C
4.	Complete draft guidance on contents of reload package (Reg. Guide) and GL 83-11 revision	9/94C
5.	Office concurrences on GL 83-11 revision	9/95C
6.	CRGR concurrence on GL 83-11 revision	10/95C
7.	EDO concurrence on GL 83-11 revision	n/a
8.	Publish proposed GL 83-11 revision for public comment	10/25/95C
9.	Receive public comments on GL 83-11 revision	12/11/95C
10.	Office concurrence on GL 83-11 revision	TBD
11.	CRGR concurrence on GL 83-11 revision	TBD
12.	EDO concurrence on GL 83-11 revision	TBD
13.	Publish GL 83-11 revision	TBD

**Brief Description:** This item recommended actions to reduce schedule and resource requirements for the NRC's review of reactor core reloads and the reload analysis methodology.

**Historical Background:** The objective of this task is to respond to the Regulatory Review Group (RRG) Item #55. The RRG recommendations were to provide quicker review of core reload codes and to revise current Tech Specs to permit changes in accordance with approved core topical reports to take advantage of improved analyses without a license amendment by revising Generic Letter (GL) 88-16 (Core Operating Limits Report (COLR) Guidance. The task was subsequently revised to address the first recommendation only by preparing a supplement to GL 83-11 (Licensee Qualification for Performing Safety Analyses).

**Proposed Actions:** Prepare a supplement to GL 83-11 which presents criteria intended for licensees who wish to perform their own licensing analyses using previously approved methods. By complying with these criteria, the licensee would eliminate the need to submit a topical report qualifying its use of a previously approved methodology.

**Originating Document:** Regulatory Review Group Topic Area Item #55, Cycle Specific Parameter Limits in Tech Specs and Generic Letter 88-16 Revision.

**Regulatory Assessment:** This regulatory action has no safety impact on operating plants; it is intended to reduce resources required for methodology reviews.

Current Status: The proposed supplement to GL 83-11 was published for comment in the *Federal Register* on October 25, 1995. The comment period expired December 11, 1995. A final package has been developed. However, because of recent issues regarding improper application of approved methods by licensees, as well as increased complexities in core reload analyses due to mixed core designs, the reduction in staff oversight is not justified. Therefore, issuance of the supplement to GL 83-11 is being cancelled and RRG Item #55 will be closed out.

NRR Technical Contact: Larry Kopp, SRXB, 415-2879  
NRR Lead PM: Steve Bloom, DRPW, 415-1313

References: Generic Letter 83-11 (February 8, 1983) and *Federal Register* Notice 60 FR 54712 (October 25, 1995).

## WOLF CREEK DRAINDOWN EVENT: ACTION PLAN

TAC Nos.: M91621, M92635, M93568

Last Update: 09/26/96

Lead NRR Division: DSSA

MILESTONES	DATE (T/C)
1. Draft Generic Letter	11/95(C)
2. Issue Supplement to IN 95-03	03/96(C)
3. Complete Draft TI/ Issue to the Regions for Comments	10/96(T)
4. Generic Letter to be Concurred by CRGR/ Letter Issued	10/96(T)
5. Receive Regional Comments on TI	12/96(T)
6. Complete Evaluation of the Responses to the Generic Letter	03/97(T)
7. Issue TI	03/97(T)
8. Complete Inspections (As necessary)	06/97(T)

Description: The objective of this action plan is to collect and evaluate information from the licensees regarding plant system configurations and vulnerabilities to draindown events. A 10 CFR 50.54(f) letter will be used to gather the information.

Historical Background: On September 17, 1994, the Wolf Creek plant experienced loss of reactor coolant system (RCS) inventory, while transitioning to a refueling shutdown. The event occurred when operators cycled a valve in the train A side of the RHR system cross-connect line following maintenance on the valve, while at the same time establishing a flow path from the RHR system, train B, to the refueling water storage tank for reborating train B. The failure of the reactor operating staff to adequately control two incompatible activities resulted in transferring 9200 gallons of hot RCS water to the RWST in 66 seconds.

The Wolf Creek event represents a LOCA with the potential to consequentially fail all the ECCS pumps and bypass the containment. Another important feature of this event is the short time available for corrective action. Based upon calculations by the licensee and the staff, it is estimated that if the draindown had not been isolated within 3-5 minutes, net positive suction head would have been lost for all ECCS pumps, and core uncover would follow in about 25-30 minutes. This event represents a PWR vulnerability which was not previously recognized.

Proposed Actions: Specific actions of this generic action plan are: (1) issue IN 95-03 issued January 12, 1995; and supplement to IN 95-03 issued March 25, 1996, (2) Request all PWR licensees, via an information gathering (10 CFR 50.54(f)) Generic Letter (GL), to provide information on draindown vulnerabilities and the measures they implemented to diminish the probability of a draindown.

Originating Document: AEOD/S95-01, "Reactor Coolant System Blowdown at Wolf Creek on September 17, 1994".



Regulatory Assessment: The staff performed an evaluation of the probability for event initiation and of the conditional core damage probability. The value of this probability for core damage along with licensee awareness for this scenario makes the risk for continued PWR operation acceptably small.

Current Status: Information Notice IN 95-03 has been issued. Information Notice Supplement has also been issued.

NRR Technical Contact: M. M. Razzaque, SRXB, 415-2882  
NRR Lead PM: J. C. Stone, DRPW, 415-3063

References:

- \* AEOD/S95-01, "Reactor Coolant System Blowdown at Wolf Creek on September 17, 1994"
- \* IN 95-03, issued January 18, 1995.
- \* Action Plan dated October 20, 1995

**GENERIC COMMUNICATION AND COMPLIANCE  
ACTIVITIES**

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
** LTD = Associate Director for Projects					
* LTB = Technical Specifications Branch					
M91404	GL	JWShapaker	1/15/97 T	GL: Administrative Controls Section	Line item improvement, guidance on revising the admin controls section of T.S.
M92544	GL	JWShapaker	3/12/97 T	GL: Design Features Technical Specifications	Guidance to revise the design features section of T.S. (line item improvement)
** LTD = Division of Engineering					
* LTB = Civil Engineering and Geosciences Branch					
M92553	LT	RABenedict	12/15/96 T	Investigate Impact of Failure of SMRFs (During Northridge EQ) to NPP Steel Structures	Certain steel framing members failed in earthquake. Determine if same construction used in other plants.
M94293	GL	JWShapaker	1/15/97 T	GL: NRC Preliminary Findings Related To The Use Of Reduced Seismic Criteria For Temporary Conditions.	Develop a GL to advise licensees that the use of reduced seismic criteria for temporary conditions may involve unreviewed safety questions and staff review may be needed.
M94861	IN	RABenedict	11/30/96 T	IN: Liner Plate Corrosion in Concrete Containment	Corroded liner might be weakened against post-accident leakage.
M95688	LT	TAGreene	9/30/97 T	Study of The Adequacy of Enveloped Response Spectrum Method	After completion of contract JCN J-2354, an IN might be issued to caution operating plant licensees that under certain conditions ERS analysis method may not provide adequate estimates of seismic response of piping systems.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	DATE	Title	Description
* LTB = Electrical Engineering Branch					
M94841	IN	ENFields	10/30/96 T	IN: Loss of Offsite Power and Reactor Trip with One of Two EDGs Unavailable at Catawba Unit 2	Develop IN to discuss loss of offsite power and reactor trip with one of two EDGs unavailable at Catawba Unit 2.
M95215	LT	DLSkeen	8/1/97 T	Charging/Discharging of Safety-Related AT&T Round Cell Batteries	Study and interact with the industry group on the AT&T round cell battery degradation problems.
M96076	LT	EJBenner	10/31/96 T	Cracking of Phenolics in Reactor Trip Breakers	Evaluate need for additional GC beyond an IN on cracking of phenolics in reactor trip breakers
M96611	IN	JRTappert	11/30/96 T	IN: Improper Grounding Results in Fire at Palo Verde	Alerts to licensees to potential problems concerning component grounding problems which could result in simultaneous fires.
M96616	GL	DLSkeen	1/29/97 T	GL: Medium-Voltage Circuit Breaker Failures	GL to address continued breaker problems because of refurbishment practices, licensee maintenance, and inadequate review of industry operating experience.
M96055	LT	CVHodge	1/31/97 T	GE Magne-Blast Breaker Failure	Risk insight for common-mode failures
* LTB = Materials and Chemical Engineering Branch					
M95279	GL	JWShapaker	12/31/96 T	GL: Modification of The Requirements for Post-Accident Sampling System	Extending to operating reactor licensees, on voluntary basis, relaxations in PASS program requirements.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
M95280	GL	JWShapaker	11/15/96 T	GL: Primary Water Stress Corrosion Cracking of Control Rod Drive Mechanism And Other Vessel Head Penetrations	Identification of need to implement program for assuring timely inspection of PWR vessel head penetrations.
M95290	GL	JWShapaker	12/20/96 T	GL: Degradation of Steam Generator Internals	Identification of steam generator internals degradation mechanisms based on foreign reactor operating experience.
M95373	GL	JWShapaker	11/29/96 T	GL: Implementation of App. VIII of Sec XI of The 1995 Edition of The ASME Boiler And Pressure Vessel Code	Discusses the need for licensees to adopt the Appendix VIII to improve the quality and confidence level of inservice inspections.
M95444	LT	TAGreene	6/15/97 T	Lead Technical Review - Induction Heat Stress Improvement for Stainless Steel Piping	Cracking has been found in several utilities' austenitic stainless steel piping which had been subjected to IHSI in the 1980's. Staff concerns include that IHSI may not have been properly applied.
M96074	GL	NKHunemuller	10/30/96 T	AL: Notice of Technical Guidance Issued in USNRC Inspection Manual Regarding 10 CFR 50.55a/ASME Code issues	Informs licensees of technical guidance included in the NRC Inspection Manual on ASME Sec III and XI, as it relates to code interpretations, use of engineering judgement and flaw evaluation.



PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
M96401	GL	JWShapaker	1/17/97 T	GL: Steam Generator Tube Inspection Techniques	Informs licensees of the importance of performing steam generator tube inservice inspections using qualified techniques and requests that licensees implement described actions.
* LTB = Mechanical Engineering Branch					
M93841	LT	JMSebrosky	10/31/96 T	Implications of Target Rock 2-Stage SRV Pilot Leakage	Evaluate safety implications of leakage on valve operability and adequacy of leak detection.
M95443	IN	WFBurton	11/30/96 T	IN: Thermal Fatigue Cracking In Residual Heat Removal Lines	Alerts licensees an event of weld crack on safety injection line at Sequoyah.
M96073	IN	EJBenner	1/31/97 T	IN: Concerns with Dry Cask Loading and Unloading Procedures	Alerts licensees to several identified problems with procedures for the loading and unloading of spent fuel storage casks.
M96354	LT	NKHunemuller		Containment Recirculation Spray and Quench Spray Piping Outside Design Basis	Millstone 3 determined that the containment recirculation spray and quench spray piping and supports could be subjected to higher accident temperatures than those previously assumed in the design basis.
M96614	LT	TKoshy	12/3/96 T	LPSI Pump Mission Time	When the RCS pressure remains higher than LPSI injection head, the pumps may be required to run for long durations with minimum flow. It appears that there is no demonstrated evidence to ensure LPSI pump capability for the require mission time.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
 ** LTD = Division of Reactor Controls and Human Factors					
 * LTB = Instrumentation and Controls Branch					
M96322	IN	CDPetrone	10/31/96	T IN: Problems Associated with Testing or Tuning of Digital Control Systems While at Power	Develop IN to alert licensees to recent reactor transients, reactor trips, and engineered safety feature actuations caused by testing, tuning, or resetting of digital control systems while at power.
 * LTB = Operator Licensing Branch					
M94840	GL	JWShapaker	12/31/96	T GL: Changes in The Operator Licensing Program and Issuance of Rev. 8 of NUREG-1021	Notify licensee of NRC's decision to change the operator licensing process by giving licensees the opportunity to directly participate in the preparation of draft written examinations and operating tests for NRC use.
 ** LTD = Division of Reactor Program Management					
 * LTB = Emergency Preparedness and Radiation Protection Branch					
M91620	GL	JWShapaker	3/12/97	T GL: Revision to Augmentation Staffing Levels For Nuclear Power Plant Emergencies	Ensuring adequate staffing for emergencies.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
* LTB = Events Assessment and Generic Communications Branch					
M91544	GL	JWShapaker	11/15/96 T	GL: Defining Info in Monthly Operating Report Required by Tech Specs	Reducing reporting requirements to the minimum needed by the staff (part of RRG).
M95686	IN	RABenedict	10/30/96 T	IN: Main Steam Safety Valve Failure to Reseat Caused by an Improperly Installed Release Nut	Develop IN to alert licensees of the experience from ANO-1 event in which a steam generator dryout occurred due to improper maintenance of main steam safety valve.
* LTB = Safeguards Branch					
M96535	IN	DLSkeen	10/31/96 T	IN: Licensee Response to Indication of Tampering, Vandalism, or Malicious Mischief	Information Notice to address the recent security enents at St Lucie and Beaver Valley.
** LTD = Division of Systems Safety and Analysis					
* LTB = Containment Systems and Severe Accident Branch					
M96400	IN	CVHodge	1/31/97 T	IN: Revised Calculation of High Energy Line Break from Reactor Water Cleanup Piping	Recalculation to support power uprate at Monticello significantly increased mass release rate for HELB. RWCU break outside containment exceeds MSLE under certain conditions.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
M96536	IN	EJBenner	10/9/96 T	IN: Inadequate NPSH of ECCS and Containment Heat Removal Pumps under Design Basis Accident Conditions	Discusses recent discoveries by licensees that the available NPSH requirements for ECCS and containment heat removal pumps may not be adequate under all postulated design basis scenarios.
M96537	GL	JWShapaker	2/22/97 T	GL: Assurance of Sufficient NPSH for ECCS and Containment Heat Removal System Pumps	Notifies licensees about a safety-significant issue that could affect the ability for long-term core cooling and containment heat removal under accident conditions and which has generic implications.
* LTB = Plant Systems Branch					
M80296	LT	TAGreene	9/30/97 T	Generic Communications - Assessment of Turbine Failure at Vandelllos 1	Development of staff NUREG or other publication to document turbine building fire issues for U.S. plants in light of Vandelllos fire.
M91323	LT	NKHunemuller	12/27/96 T	Reactor Water Cleanup (RWCU) Study in Response to ACRS Concern	Review of the effects of an unisolated RWCU break at several BWR's. Result of ACRS concerns during the review of the ABWR

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
M93335	LT	WFBurton	4/30/97 T	Main Control Room Envelope Unfiltered Inleakage	Use improved methodology to verify the effects of potential inleakage rates on compliance with radiation and toxic gas exposure limits inside the main control room.
M95871	IN	NKHunemuller	12/2/96 T	IN: Emergency Lighting Issues	Develop IN to alert licensees to potential problems regarding emergency lighting for plant areas needed for operation of post-fire safe shutdown equipment and in the access and egress routes.
M96260	IN	NKHunemuller	11/30/96 T	IN: Potential for Exceeding Compartment Pressures due to Inadequate Blowout Panels or Vent Areas	Develop IN to alert licensees of the potential for ineffective blowout panels or vent areas associated with HELBs outside containment. The inoperability may be due to permanent or temporary interferences or improper modifications.
M96437	LT	JRTappert	11/30/96 T	Vulnerability of EDGs to Fuel Oil/Lubricating Oil Incompatibility	Follows up on Calvert Cliffs root cause analysis that identified fuel oil/lubricating oil incompatibilities. If validated as potentially generic issue, an IN may be issued.
M96502	LT	DLSkeen	12/30/96 T	Potential for Air Regulator Failures to Overpressurized Safety-Related SOVs	Determine if industry response to IN 88-24 and GL 91-15 is adequate, in light of 9/6/96 Millstone 3 discovery of susceptible SOVs.



PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
* LTB = Reactor Systems Branch					
M80326	LT	SSKoenick	1/31/97 T	Accumulation of Volume Control Tank Cover Gass in ECCS Piping Connected to the Charging System.	Not a new issue, there have been several generic communications already issued. SRXB would like to close this out by memo.
M91599	GL	JWShapaker	6/30/97 T	GL 83-11 Supp: Licensee Qualification For Performing Safety Analyses in Support of Licensing Actions	PART OF A TASK ACTION PLAN -- Provides alternative means of licensee qualification for performing sanalyses using generically approved methods.
M92635	GL	JWShapaker	10/31/96 T	GL: Reactor Coolant Inventory Loss and Potential Loss of Emergency Mitigation Functions While Shutdo	Loss of ECCS function due to steam voiding in RWST line to suction of ECCS pumps due to loss of RCS inventory in Mode 4 (Wolf Creek).
M94565	LT	DLSkeen	11/1/96 T	Slow Scram Solenoid Pilot Valves Caused by Viton Diaphragms	Scram solenoid pilot valves with viton diaphragms showing degraded scram times within 6-8 months. Currently tracking licensee response to RRG recommendations.
M95278	GL	JWShapaker	12/31/96 T	GL: Use of Thermal-Hydraulic Codes for Licensing Applications	Discusses the fact that a computer code has been developed and assessed primarily with NRC funds does not per se mean that it is acceptable as a licensing code.
M96191	IN	RABenedict	11/15/96 T	IN: Plant Specific EOPs Contain Inadequate Technical Info to Accomplish Timely and Effectively Feeding of OTSG	Alerts licensees the problem with ICS/FWCS interactions. The proposed IN was prompted by the ANO-1 5/19/96 event.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Open Generic Communication and Compliance Activities  
Sorted by Lead Technical Division and Branch

TAC	Type	Contact	Date	Title	Description
M96192	IN	WFBurton	10/31/96 T	IN: ECCS Throttle Valves May Degrade Due To Cavitation Induced Erosion During LOCA	High differential pressure across ECCS throttle valves during LOCA could cause pump runout flow and subsequent ECCS pump damage
M96355	LT	SSKoenick	11/20/96 T	Concerns Regarding Siemens Large Break LOCA ECCS Evaluation Model	Changes to large break ECCS model may have resulted in significant changes in calculated peak clad temperatures for some plants.
M96361	IN	SSKoenick	11/13/96 T	IN: Boron Dilution and Other Activities Affecting Reactivity	Excess boron dilution at Byron due to non-representative sampling techniques. Will incorporate WNP event.
M96615	LT	TKoshy	12/3/96 T	Boron Precipitation in B&W Reactors	Design bases concern on active means of preventing boron precipitation following a LOCA.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Added  
Since the Last Public Report (July 1996)

TAC	Type	Contact	Tech Branch	Date	Title	Reason Added
M95871	IN	NKHunemuller	Plant Systems Branch	12/2/96 T	IN: Emergency Lighting Issues	The EAP authorized development of IN at its 7/2/96 meeting.
M96055	LT	CVHodge	Electrical Engineering Branch	1/31/97 T	GE Magne-Blast Breaker Failure	7/23/96: The EAP authorized a long-term follow up for this issue.
M96073	IN	EJBenner	Mechanical Engineering Branch	1/31/97 T	IN: Concerns with Dry Cask Loading and Unloading Procedures	The EAP authorized development of IN at its 7/16/96 meeting.
M96074	GL	NKHunemuller	Materials and Chemical Engineering Branch	10/30/96 T	AL: Notice of Technical Guidance Issued in USNRC Inspection Manual Regarding 10 CFR 50.55a/ASME Code issues	This GC has been changed to an AL. per e-mail from JWS to PXW ,10/2/96.
M96076	LT	EJBenner	Electrical Engineering Branch	10/31/96 T	Cracking of Phenolics in Reactor Trip Breakers	The EAP authorized a long-term follow up for this issue (beyond an IN) at its 7/16/96 meeting..
M96191	IN	RABenedict	Reactor Systems Branch	11/15/96 T	IN: Plant Specific EOPs Contain Inadequate Technical Info to Accomplish Timely and Effectively Feeding of OTSG	The EAP authorized development of IN at its 7/23/96 meeting.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Added  
Since the Last Public Report (July 1996)

TAC	Type	Contact	Tech Branch	Date	Title	Reason Added
M96192	IN	WFBurton	Reactor Systems Branch	10/31/96 T	IN: ECCS Throttle Valves May Degrade Due To Cavitation Induced Erosion During LOCA	The EAP authorized development of IN at its 7/23/96 meeting.
M96196		RABenedict		7/30/96 C	IN: Main Steam Safety Valve Failure To Reseat Caused By An Improperly Installed Release Nut	This TAC was inadvertently opened. This TAC is the same as M95686.
M96260	IN	NKHunemuller	Plant Systems Branch	11/30/96 T	IN: Potential for Exceeding Compartment Pressures due to Inadequate Blowout Panels or Vent Areas	The EAP authorized development of IN at its 8/6/96 meeting.
M96322	IN	CDPetrone	Instrumentation and Controls Branch	10/31/96 T	IN: Problems Associated with Testing or Tuning of Digital Control Systems While at Power	The EAP authorized development of IN at its 8/14/96 meeting.
M96354	LT	NKHunemuller	Mechanical Engineering Branch		Containment Recirculation Spray and Quench Spray Piping Outside Design Basis	The EAP authorized long-term followup for this issue at its 8/20/96 meeting.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Added  
Since the Last Public Report (July 1996)

TAC	Type	Contact	Tech Branch	Date	Title	Reason Added
M96355	LT	SSKoenick	Reactor Systems Branch	11/20/96 T	Concerns Regarding Siemens Large Break LOCA ECCS Evaluation Model	The EAP authorized long-term followup for this issue at its 8/20/96 meeting.
M96361	IN	SSKoenick	Reactor Systems Branch	11/13/96 T	IN: Boron Dilution and Other Activities Affecting Reactivity	The EAP authorized development of IN at its 7/9/96 meeting.
M96400	IN	CVHodge	Containment Systems and Severe Accident Branch	1/31/97 T	IN: Revised Calculation of High Energy Line Break from Reactor Water Cleanup Piping	The EAP authorized development of IN at its 8/27/96 meeting.
M96401	GL	JWShapaker	Materials and Chemical Engineering Branch	1/17/97 T	GL: Steam Generator Tube Inspection Techniques	The EAP authorized development of GL at its 8/27/96 meeting.
M96437	LT	JRTappert	Plant Systems Branch	11/30/96 T	Vulnerability of EDGs to Fuel Oil/Lubricating Oil Incompatibility	The EAP authorized long-term follow up of this item. If validated as potentially generic issue, an IN will be issued.
M96502	LT	DLSkeen	Plant Systems Branch	12/30/96 T	Potential for Air Regulator Failures to Overpressurized Safety-Related SOVs	The EAP authorized LT follow-up of this issue at its 9/10/96 meeting..



PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Added  
Since the Last Public Report (July 1996)

TAC	Type	Contact	Tech Branch	Date	Title	Reason Added
M96535	IN	DLSkeen	Safeguards Branch	10/31/96 T	IN: Licensee Response to Indication of Tampering, Vandalism, or Malicious Mischief	The EAP authorized development of IN at its 9/17/96 meeting.
M96536	IN	EJBenner	Containment Systems and Severe Accident Branch	10/9/96 T	IN: Inadequate NPSH of ECCS and Containment Heat Removal Pumps under Design Basis Accident Conditions	The EAP authorized development of IN at its 9/17/96 meeting.
M96537	GL	JWShapaker	Containment Systems and Severe Accident Branch	2/22/97 T	GL: Assurance of Sufficient NPSH for ECCS and Containment Heat Removal System Pumps	The EAP authorized development of GL at its 9/17/96 meeting.
M96611	IN	JRTappert	Electrical Engineering Branch	11/30/96 T	IN: Improper Grounding Results in Fire at Palo Verde	The EAP authorized development of IN at its 9/24/96 meeting.
M96614	LT	TKoshy	Mechanical Engineering Branch	12/3/96 T	LPSI Pump Mission Time	The EAP authorized LT follow-up of this issue at its 9/24/96 meeting.
M96615	LT	TKoshy	Reactor Systems Branch	12/3/96 T	Boron Precipitation in B&W Reactors	The EAP authorized LT follow-up of this issue at its 9/24/96 meeting.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Added  
Since the Last Public Report (July 1996)

TAC	Type	Contact	Tech Branch	Date	Title	Reason Added
M96616	GL	DISkeen	Electrical Engineering Branch	1/29/97 T	GL: Medium-Voltage Circuit Breaker Failures	Authorized development of GL by RLD, acting for AEC, on 9/26/96.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Closed  
Since the Last Public Report (July 1996)

TAC	Type	Contact	Tech Branch	Date	Title	Reason Closed
M93336	GL	JWShapaker	Operator Licensing Branch	8/20/96 C	GL: Exemption For Applicants For the Senior Reactor Operator License Limited to Fuel Handling (LSRO)	TAC closed per memo from SARichards to AEChaffee 8/14/96.
M93706	GL	JWShapaker	Mechanical Engineering Branch	9/18/96 C	GL: Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves	GL 96-05 issued 9/18/96
M93707	GL	JWShapaker	Civil Engineering and Geosciences Branch	9/3/96 C	GL: Plant Shutdown Criteria Following an Earthquake	TAC closed per ECGB's request (RRothman e-mail to JWS 8/29/96)
M93979	IN	JRTappert	Special Inspections Branch	9/16/96 C	IN 92-68, Supp: Potentially Substandard Slip-On, Welding Neck, and Blind Flanges	IN 92-68, Sup 1, issued 9/16/96.
M94794	IN	ENFields	Special Inspections Branch	7/25/96 C	IN: Deficiencies in Material Dedication and Procurement Practices and Vendor Audits	IN 96-40 issued 7/25/96.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Closed  
Since the Last Public Report (July 1996)

TAC	Type	Contact	Tech Branch	Date	Title	Reason Closed
M95074	IN	DLSkeen	Special Inspections Branch	9/4/96 C	IN: Problems with Westinghouse DHP Circuit Breaker Levering-In Device	IN 96-50 issued 9/4/96
M95251	IN	EJBenner	Materials and Chemical Engineering Branch	7/10/96 C	IN96-09, Sup 1, Damage in Foreign Steam Generator Internals	IN 96-09, Sup 1, issued 7/10/96.
M95356	IN	TAGreene	Civil Engineering and Geosciences Branch	9/20/96 C	IN: Possible ANSYS Code Platform Dependency	Based on the 8/27/96 memo from GBagchi to AEChaffee, this TAC is closed. It is not necessary to issue an IN regarding the Holtec's erroneous analysis results using the ANSYS computer code.
M95374	IN	SSKoenick	Reactor Systems Branch	7/26/96 C	IN: Overpower due to Large Reduction in Feedwater Temperature	IN 96-41 issued 7/26/96.
M95684	IN	TAGreene	Mechanical Engineering Branch	8/20/96 C	IN Motor-Operated Valve Performance Issues	IN 96-48 issued 8/21/96.
M95685	IN	TJCarter	Instrumentation and Controls Branch	8/5/96 C	IN: Multiple Unexpected Opening of Safety Relief Valves	IN 96-42 issued 8/5/96.

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Closed  
Since the Last Public Report (July 1996)

TAC	Type	Contact	Tech Branch	Date	Title	Reason Closed
M95720	IN	DLSkeen	Electrical Engineering Branch	8/2/96 C	IN: Failures of GE Magne-Blast Circuit Breakers	IN 96-43 issued 8/2/96.
M96075	IN	EJBenner	Electrical Engineering Branch	8/5/96 C	IN: Cracking of Phenolics in Recator Trip Breakers	IN 96-44 issued 8/5/96.
M96194	IN	DLSkeen	Electrical Engineering Branch	8/13/96 C	IN: Zinc Plating in GE Magne Blast Breakers	IN 96-45 issued 8/12/96.
M96195	IN	JRTappert	Plant Systems Branch	8/12/96 C	IN: Post-Accident Failure of Containment Coolers	IN 96-45 issued 8/12/96.
M96259	IN	TJCarter	Containment Systems and Severe Accident Branch	8/20/96 C	IN: Thermally Induced Overpressurization	IN 96-49 issued 8/20/96.
M96276	GL	JWShapaker	Plant Systems Branch	9/27/96 C	GL: Assurance of Equipment Operability and Containment Integrity during Design Basis Accident	GL 96-06 issued 9/30/96



Page No. 4  
10/15/96

PUBLIC OCTOBER 1996 DIRECTOR'S MONTHLY STATUS REPORT  
Generic Communication and Compliance Activities Closed  
Since the Last Public Report (July 1996)

TAC	Type Contact	Tech Branch	Date	Title	Reason Closed
M96323	JWShapaker	Materials and Chemical Engineering Branch	9/6/96 C	GL: TS Revisions Supporting Implementation of 10 CFR 50.xx " Steam Generator Tube Integrity for Operating NPPs"	TAC closed per request from EMCB (TReed e-mail to JWShapaker 8/21/96). Guidance on the development of TS to comply with the "SG rule" will be included in the FR notice, therefore, there is no need for a GL.

October 31, 1996

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