ENCLOSURE

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM (GIMCS) REPORT

OFFICE OF NUCLEAR REGULATORY RESEARCH
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GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

DESCRIPTION

The Generic Issue Management Control System (GIMCS) provides information necessary to manage the resolution of generic safety issues (GSIs) as well as non-safety-related generic issues. GSIs have the potential for safety enhancements and the promulgation of new or revised requirements or guidance.

GIMCS is part of an integrated system of reports and procedures that is designed to manage GSIs through the stages of prioritization/screening and resolution (development of new criteria, management review and approval, public comments, and incorporation into the regulations, as appropriate). The priority evaluation of each issue listed as HIGH- or MEDIUM-priority in this report is contained in NUREG-0933, "A Prioritization of Generic Safety Issues."

For reactor issues, the "Procedures for Processing Generic Issues" are outlined in RES Office Instuction TEC-002, dated September 29, 2005. The procedures for processing non-reactor issues are documented in NMSS Policy and Procedures Letter 1-57, Revision 1, "NMSS Generic Issues Program," dated October 1997. In 1999, Management Directive (MD) 6.4, "Generic Issues Program," was initiated for the processing of all new GSIs; MD 6.4 was revised on July 29, 2005.

GIMCS provides the proposed schedules for managing the resolution of: (1) GSIs that have HIGH- or MEDIUM-priority designations, as determined by the procedures of NUREG-0933 and NMSS Policy and Procedures Letter 1-57; and (2) other issues designated as CONTINUE, as determined by the screening procedures of MD 6.4. Reactor GSIs ranked as either LOW or DROP are not allocated resources for resolution and, therefore, are not tracked in GIMCS.

LEGEND

ANPRM	- Advance Notice of Proposed Rulemaking
BNL	- Brookhaven National Laboratory
BTP	- Branch Technical Position
DE	- Division of Engineering
DET	- Division of Engineering Technology
DRPM	- Division of Reactor Program Management
DSSA	- Division of Systems Safety and Analysis
DTR	- Draft Technical Resolution
EPRI	- Electric Power Research Institute
FIN	- Financial Identification Number
FRN	- Federal Register Notice
FTR	- Final Technical Resolution
GL	- Generic letter
GSI	- Generic Safety Issue
H	- HIGH-priority GSI
IEB	- Inspection & Enforcement Bulletin
IN	- Information Notice
INEL	- Idaho Nuclear Engineering Laboratory
M	- MEDIUM-priority GSI
ORNL	- Oak Ridge National Laboratory
PNL	- Pacific Northwest Laboratories
PRA	- Probabilistic Risk Assessment
PRAB	- Probabilistic Risk Analysis Branch
RAI	- Request for Additional Information
RG	- Regulatory Guide
RI	- Regulatory Impact
S	- Subsumed in Another Issue (No.)
SFPO	- Spent Fuel Project Office
SOW	- Statement of Work
SRP	- Standard Review Plan
STS	- Standard Technical Specification
T/A	- Technical Assistance
TAP	- Task Action Plan
TBD	- To be Determined
TI	- Temporary Instruction
TS	- Technical Specification
USI	- Unresolved Safety Issue

DATA ELEMENTS

Management and control indicators used in GIMCS are defined as follows:

1.	Issue No.	Generic Issue Number	
2.	Title	Generic Issue Title	
3.	Identification Date	Date the issue was identified	
4.	Prioritization Date	The date that the prioritization evaluation was approved by the RES Director	
5.	Type	Generic Safety (GSI)	
6.	Priority	High (H), Medium (M), or Continue	
7.	Task Manager	Name of assigned individual responsible for resolution	
8.	Office/Division/Branch	The Office, Division, and Branch of the Task Manager who has lead responsibility for resolving the issue	
9.	Action Level	Active	Technical assistance funds appropriated for resolution and/or Task Manager actively pursuing resolution
		Inactive	No technical assistance funds appropriated for resolution, Task Manager assigned to more important work, or no Task Manager assigned
		Resolved	All necessary work has been completed and no additional resources will be expended
10.	Status	Coded summary as follows: 3A - (Resolved with requirements) 3B - (Resolved with No requirements)	
11.	TAC Number	Task Action Control (TAC) number assigned to the issue	
12.	Resolution Date	Scheduled resolution date for the issue	
13.	Work Authorization	Who or what authorized work to be done on the issue	

DATA ELEMENTS (cont.)

14.	FIN	Financial identification number assigned to contract (if any) for technical assistance
15.	Contractor	Contractor name
16.	Contract Title	Contract Title (if contract issue)
17.	Work Scope	Describes briefly the work necessary to technically resolve and complete the generic issue
18.	Status	Describes current status of work
19.	Affected Documents	Identifies documents into which the technical resolution will be incorporated
20.	Problem/Resolution	Identifies problem areas and describes what actions are necessary to resolve them
21.	Milestones	Selected significant milestones:

Original	Scheduled dates reflected in the original Task Action Plan, plus additional milestone dates added during resolution of the GSI
Current	Expected date of completion, or changes in the original scheduled dates
Actual	The date the milestone was completed

TABLE 1
REACTOR GSIs SCHEDULED FOR RESOLUTION

ISSUE NUMBER	TITLE	LEAD/OFFICE/ DIVISION/ BRANCH	PRIORITY	DATE APPROVED FOR RESOLUTION	RESOLUTION DATE AT END OF FY-2005	CURRENT RESOLUTION DATE
156.6.1	Pipe Break Effects on Systems and Components	RES/DRASP/OERA	HIGH	07/16/1999	12/2007	12/2007
163	Multiple Steam Generator Tube Leakage	NRR/DCI/CSG	HIGH	01/17/1997	TBD	TBD
186	Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants	NRR/DSS/SBP	CONTINUE**	06/2003	03/2006	02/2007
189	Susceptibility of Ice Condenser and MARK III Containments to Early Failure from Hydrogen Combustion During A Severe Accident	NRR/DSS/SBP	CONTINUE**	02/13/2002	06/2010	06/2010
191	Assessment of Debris Accumulation on PWR Sump Performance	NRR/DSS/SSI	HIGH*	09/--/1996	12/2007	06/2008
193	BWR ECCS Suction Concerns	RES/DRASP/OERA	CONTINUE**	10/16/2003	03/2007	TBD
196	Boral Degradation	RES/DRASP/OERA	CONTINUE**	10/16/2003	06/2006	11/2006

* Previously listed as Nearly-Resolved but changed to HIGH in SECY-98-166
** Defined in Management Directive 6.4

Total: 7

TABLE 1A
PLAN BY FISCAL YEAR FOR RESOLVING REMAINING REACTOR GSIs

PRIORITY	FY-2006	FY-2007	FY-2008	FY-2009	FY-2010	TBD	TOTAL
HIGH	-	-	156.6.1 191*	-	-	163	3
MEDIUM	-	-	-	-	-	-	0
CONTINUE**	-	186 196	-	-	189	193	4
TOTAL:	0	2	2	0	1	2	7

* Previously listed as Nearly-Resolved but changed to HIGH in SECY-98-166
** Defined in Management Directive 6.4

TABLE 2
NUMBER OF REACTOR GSIs RESOLVED BY FISCAL YEAR
FY-1983 TO FY-2006 (2ND QUARTER)

FISCAL YEAR	USI	HIGH	MEDIUM	NR	CONTINUE	TOTAL
FY-1983	2	0	0	4	-	6
FY-1984	2	1	3	9	-	15
FY-1985	0	6	10	7	-	23
FY-1986	1	3	2	3	-	9
FY-1987	2	3	4	1	-	10
FY-1988	5	6	2	3	-	16
FY-1989	4	9	3	2	-	18
FY-1990	0	2	2	3	-	7
FY-1991	0	2	1	1	-	4
FY-1992	0	4	2	1	-	7
FY-1993	0	7	3	0	-	10
FY-1994	0	1	2	2	-	5
FY-1995	0	0	0	1	-	1
FY-1996	0	1	1	1	-	3
FY-1997	0	0	1	2	-	3
FY-1998	0	0	0	0	-	0
FY-1999	0	2	2	0	-	4
FY-2000	0	3	2	0	-	5
FY-2001	0	1	0	0	0	1
FY-2002	0	2	0	0	0	2
FY-2003	0	1	0	0	0	1

TABLE 2
NUMBER OF REACTOR GSIs RESOLVED BY FISCAL YEAR
FY-1983 TO FY-2006 (2ND QUARTER)

FISCAL YEAR	USI	HIGH	MEDIUM	NR	CONTINUE	TOTAL
FY-2004	0	0	0	0	0	0
FY-2005	0	1	0	0	0	1
FY-2006	0	0	0	0	2	2
TOTAL	16	55	40	40	2	153

TABLE 3
REACTOR GSIs RESOLVED BY FISCAL YEAR

ISSUE NUMBER	TITLE	PRIORITY	RESOLUTION PRODUCT	DATE APPROVED FOR RESOLUTION	DATE RESOLVED
For reactor generic issues resolved from FY-1983 to FY-2005, see 4th Quarter FY-2005 GIMCS Report dated October 31, 2005 (ML053050406, ML053050399)					
FY-2006					
80	Pipe Break Effects on Control Rod Drive Hydraulic Lines in the Drywells of BWR MARK I and II Containments	CONTINUE	Staff Report (No Req.)	02/14/2003	11/17/2005
188	Steam Generator Tube Leaks/Ruptures Concurrent with Containment Bypass	CONTINUE	Staff Report (No Req.)	05/21/2001	12/16/2005

TABLE 4

NET CHANGE BY FISCAL YEAR IN REACTOR GSIs SCHEDULED FOR RESOLUTION

For net change by fiscal year in reactor GSIs scheduled for resolution from FY-1983 to FY-2005, see 4th Quarter FY-2005 GIMCS Report dated October 31, 2005 (ML053050406, ML053050399)

FY-2006

PRIORITY CATEGORY	START	ADDITIONS	RESOLVED	INTEGRATED	END
HIGH	3	0	0	0	3
MEDIUM	0	0	0	0	0
CONTINUE	6	0	2	0	4
TOTAL	9	0	2	0	7

TABLE 4A
NET CHANGE IN REACTOR GSIs RESOLVED
FY-1983 TO FY-2006 (2ND QUARTER)

PRIORITY CATEGORY	START	ADDITIONS	SUB-TOTAL	RESOLVED	INTEGRATED**	REMAINDER
USI	16	0	16	16	0	0
HIGH	24	44*	68	55	10	3
MEDIUM	31	18	49	40	9	0
NR	20	21*	41*	40	1	0
CONTINUE	0	6	6	2	0	4
TOTAL:	91	89	180	153	20	7

- Extensive revisions to Human Factors issues resulted in priority changes in FY-85 and FY-86.

** GSIs Integrated

FY-87 (13):
Issues 48, 49, and A-30 into Issue 128
Issue 65 into Issue 23
Issues 68; 122.1.a; 122.1.b; 122.1.c; and 125.II.1.b into Issue 124
Issues I.B.1.1(6) and I.B.1.1(7) into Issue 75
Issue B-6 into Issue 119.1
Issue 67.7 into 135

FY-88 (6):
Issue 77 into A-17
Issues I.D.5(5), II.B.5(1), II.B.5(2), II.B.5(3), and II.F.5 were integrated into the Research Activities Program and were reclassified as Licensing Issues.

FY-89 (1):
Issue 131 was integrated into the IPEEE Program.

TABLE 5
REACTOR GENERIC ISSUES TO BE PRIORITIZED

Prioritization of generic issues was terminated in 1999 with the implementation of Management Directive 6.4.

TABLE 6
REACTOR GENERIC ISSUES TO BE REPRIORITIZED

Prioritization of generic issues was terminated in 1999 with the implementation of Management Directive 6.4.

TABLE 7
REACTOR GENERIC ISSUES PRIORITIZED

ISSUE NUMBER	TITLE	IDENTIFICATION DATE	DATE PRIORITIZED	CURRENT PRIORITY
For reactor GIs prioritized from FY-1983 to FY-2001, see 4th Quarter FY-2005 GIMCS Report dated October 31, 2005 (ML053050406, ML053050399)				

TABLE 8
NUMBER OF REACTOR GENERIC ISSUES PRIORITIZED FROM FY-1983 TO FY-2001

ISSUE TYPE	FY-83	FY-84	FY-85	FY-86	FY-87	FY-88	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94	FY-95	FY-96	FY-97	FY-98	FY-99	FY-00	FY-01	TOTAL
Issues Identified to be Prioritized	56	19	54	45*	6	3	38	3	29	7	5	1	2	17	0	0	1	0	0	286
Issues Identified to be Reprioritized	19	2	0	1	1	2	0	0	0	0	0	0	0	3	2	0	0	0	0	30
Total:	75	21	54	46	7	5	38	3	29	7	5	1	2	20	2	0	1	0	0	316
New Issues (Entered into GIMCS)																				
High	2	1	41	6	4	1	1	0	2	0	0	1	1	0	1	0	1	1	0	63
Medium	2	4	1	1	1	2	0	1	3	2	0	1	0	0	0	0	0	0	0	18
Nearly-Resolved	3	5	6	1	0	1	0	0	1	2	2	0	1	5	0	0	0	0	0	27
Sub-total:	7	10	48	8	5	4	1	1	6	4	2	2	2	5	1	0	1	1	0	108
Resolved	4	0	1	0	0	1	1	1	0	2	1	0	0	5	0	0	0	0	0	16
Low	1	4	0	2	1	0	0	2	0	4	3	1	0	0	0	1	0	0	0	19
Drop	1	4	4	6	13	9	2	8	5	24	6	0	0	0	0	2	1	0	2	87
RI/LI/EI	0	0	4	6	0	2	33	1	1	3	0	0	0	7	0	0	0	0	0	57
Integrated	8	2	3	6	0	1	1	3	0	5	0	0	0	0	0	0	0	0	0	29
Total Issues Prioritized:	21	20	60	28	19	17	38	16	12	42	12	3	2	17	1	3	2	1	2	316
[Annual Progress]/ Remaining Issues to be Prioritized or Reprioritized:	[+54	+1	-6	+18	-12	-12	0	-13	+17	-35	-7	-2	0	+3	+1	-3	-1	-1	-2]	0

TABLE 8A
NUMBER OF REACTOR GENERIC ISSUES SCREENED** IN ACCORDANCE WITH MD 6.4 FROM FY-1999 TO FY-2006 (2ND QUARTER)

ISSUE TYPE	FY-98	FY-99	FY-00	FY-01	FY-02	FY-03	FY-04	FY-05	FY-06	TOTAL
Issues Identified to be Screened	0	2	1	1	3	1	3	2	0	13
Issues Identified to be Reevaluated	1*	0	0	0	0	0	0	0	0	1
Total:	1	2	1	1	3	1	3	2	0	14
New Issues (Entered Into GIMCS)										
Continue	0	0	0	1	1	2	1	1	0	6
Drop	0	0	0	1	1	1	1	0	0	4
Integrated	0	0	0	0	0	0	0	0	0	0
Total Issues Screened:	0	0	0	2	2	3	2	1	0	10
[Annual Progress]/ Remaining Issues to be Screened or Reevaluated:	[+1	+2	+1	-1	+1	-2	+1	+1	0]	4

* Originally identified for reprioritization, but was subjected to screening

** Beginning in FY-1999, GSIs began to be screened in accordance with MD 6.4, "Generic Issues Program."

TABLE 9
REACTOR GENERIC ISSUES SCHEDULED FOR SCREENING IN ACCORDANCE WITH MD 6.4

ISSUE NUMBER	TITLE	LEAD OFFICE/ DIVISION/BRANCH	IDENTIFICATION DATE	CURRENT SCHEDULE
197	Iodine Spiking Phenomena	RES/DSARE/ARREB	07/2004	05/2006
198	Hydrogen Combustion in PWR Piping	RES/DSARE/ARREB	09/2004	09/2006
199	Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States	RES/DSARE/ARREB	05/2005	12/2006
200	Tin Whiskers	RES/DSARE/ARREB	08/2005	02/2007

TOTAL: 4

TABLE 10
REACTOR GENERIC ISSUES SCREENED IN ACCORDANCE WITH MD 6.4

ISSUE NUMBER	TITLE	IDENTIFICATION DATE	SCREENING COMPLETION DATE	CONCLUSION
FY-2001				
187	The Potential Impact of Postulated Cesium Concentration on Equipment Qualification in the Containment Sump	04/1999	04/2001	DROP
188	Steam Generator Tube Leaks/Ruptures Concurrent with Containment Bypass	06/2000	05/2001	CONTINUE
FY-2002				
189	Susceptibility of Ice Condenser and MARK III Containments to Early Failure from Hydrogen Combustion During a Severe Accident	05/2001	05/2002	CONTINUE
192	Secondary Containment Drawdown Time	12/2001	06/2002	DROP
FY-2003				
80*	Pipe Break Effects on Control Rod Drive Hydraulic Lines in the Drywells of BWR MARK I and II Containments	03/1998	02/2003	CONTINUE
186	Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants	04/1999	06/2003	CONTINUE
194	Implications of Updated Probabilistic Seismic Hazard Estimates	06/2002	09/2003	DROP
FY-2004				
193	BWR ECCS Suction Concerns	05/2002	10/2003	CONTINUE
195	Hydrogen Combustion in Foreign BWR Piping	02/2003	02/2004	DROP
FY-2005				
196	Boral Degradation	11/2003	11/2004	CONTINUE

TABLE 11
NON-REACTOR GENERIC ISSUES PRIORITIZED

NMSS ISSUE NUMBER	TITLE	IDENTIFICATION DATE	DATE PRIORITIZED	CURRENT PRIORITY
For non-reactor GIs prioritized from FY-1997 to FY-2000, see 4th Quarter FY-2005 GIMCS Report dated October 31, 2005 (ML053050406, ML053050399)				

TABLE 11A
NON-REACTOR GENERIC ISSUES SCREENED IN ACCORDANCE WITH MD 6.4

NMSS ISSUE NUMBER	TITLE	PRIORITY	RESOLUTION PRODUCT	DATE APPROVED FOR RESOLUTION	DATE RESOLVED
FY-2001					
0017	Misleading Marketing Information to General Licensees	Resolved	New Rule	07/1999	07/2000
0018	Problems Encountered When Manually Editing Treatment Planning Data on Nucletron Microselection-HDR Model 105.999	Resolved	IN 99-09	03/1999	08/2000
0019	Control Unit Failures of Classic Nucletron HDR Units	Resolved	IN 99-23	07/1999	07/1999
FY-2002					
0010	Troxler Gauge Source Rod Weld Failures	Medium	Staff Report	05/1998	11/2001

TABLE 12
NON-REACTOR GENERIC ISSUES TO BE SCREENED IN ACCORDANCE WITH MD 6.4

There are no non-reactor generic issues awaiting screening.

TABLE 13
NON-REACTOR GSIs RESOLVED BY FISCAL YEAR

NMSS ISSUE NUMBER	TITLE	PRIORITY	RESOLUTION PRODUCT	DATE APPROVED FOR RESOLUTION	DATE RESOLVED
For non-reactor GIs resolved from FY-1997 to FY-2005, see 4th Quarter FY-2005 GIMCS Report dated (ML053050406, ML053050399)					

TABLE 14
NON-REACTOR GSIs SCHEDULED FOR RESOLUTION

NMSS ISSUE NUMBER	TITLE	LEAD OFFICE/DIVISION/ BRANCH	PRIORITY	DATE APPROVED FOR RESOLUTION	RESOLUTION DATE AT END OF FY-2005	CURRENT RESOLUTION DATE
0007	Criticality Benchmarks Greater Than 5% Enrichment	NMSS/FCSS/FLIB	High	05/1998	08/2006	05/2007
0014	Surety Estimates for Groundwater Restoration at In-Situ Leach Facilities	NMSS/FCSS/FCLB	Medium	07/1998	05/2006	11/2006
0016	Adequacy of 0.05 Weight Percent Limit in Part 40	NMSS/IMNS	Medium	07/1998	TBD	06/2006

TOTAL: 3

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: 156.6.1 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA
TITLE: PIPE BREAK EFFECTS ON SYSTEMS AND COMPONENTS

PRIORITY: High **ACTION LEVEL:** ACTIVE **STATUS:**
TASK MANAGER: H. Vandermolen **TAC NUMBERS:**

IDENTIFICATION: 02/1991 **PRIORITIZATION/SCREEN:** 07/1999 **TECH. ASSESSMENT:** 12/2007
IDENTIFICATION STATUS: Complete **PRIOR./SCREEN STATUS:** Complete **TECH. ASSESS. STATUS:**

REGULATION & GUIDANCE DEVELOPMENT: - - **REGULATION & GUIDANCE ISSUANCE:** - -
REGULATION & GUIDANCE DEVELOPMENT STATUS: TBD **REGULATION & GUIDANCE ISSUANCE STATUS:** TBD

IMPLEMENTATION: - - **VERIFICATION:** - - **CLOSURE:** 12/2007
IMPLEMENTATION STATUS: TBD **VERIFICATION STATUS:** TBD **CLOSURE STATUS:**

WORK AUTH.: Memo from A. Thadani to E. Rossi dated July 16, 1999.

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
Y6406	ISL		.00

Total Resources Expended = $0.00

ISSUE NUMBER: 156.6.1 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: PIPE BREAK EFFECTS ON SYSTEMS AND COMPONENTS

DESCRIPTION/WORK SCOPE

Description

GDC 4 is the primary regulatory requirement of concern. It requires, in part, that structures, systems and components important to safety be appropriately protected against the environmental and dynamic effects that may result from equipment failures, including the effects of pipe whipping and discharging fluids. Several possible scenarios for plants that do not have adequate protection against pipe whip were identified as a result of research.

Work Scope

The objective of the attached TAP is to determine through analysis if: (1) a high energy pipe break inside a BWR Mark I containment has the potential to perforate the drywell shell and possibly disable accident mitigation systems; and (2) a high energy pipe break inside a BWR Mark I or Mark II containment can disable the control rod drive (CRD) scram system. The TAP is a follow-on to NUREG/CR-6395, "Enhanced Prioritization of Generic Safety Issue 156.6.1 Pipe Break Effects on Systems and Components Inside Containment," which was performed by the Idaho National Engineering and Environmental Laboratory (INEEL) and issued in November 1999, and the screening evaluation, "A Screening Evaluation of GSI-80 Pipe Break Effects on Control Rod Drive Hydraulic Lines in the Drywell of BWR Mark I and II Containments" attached to the February 14, 2003 memorandum from Thadani to Collins concerning GSI-80. Individual TAP section reports will be issued when analysis information is obtained. All TAP sections are not required to be completed if a bounding analysis is found to be inconsequential.

ISSUE NUMBER: 156.6.1 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: PIPE BREAK EFFECTS ON SYSTEMS AND COMPONENTS

STATUS

A letter was sent from F. Eltawila (NRC) to W. Glenn Warren (BWROG) expressing concerns related to the GSI. The BWROG responded on 01-10-2001 that a committee was formed to coordinate the response to the ACRS. There are a total of 16 SEP III BWRs. A Task Action Plan for resolving the issue was approved in May 2001. The previous Task Manager (Stuart Rubin) was reassigned to the Advanced Reactors Group in REAHFB/DSARE/RES in July 2001. New Task Manager (Ron Lloyd) was assigned in January 2002.

Task 4 of Contract Y6406 (NRC-04-01-67) was issued to Information Systems Laboratories (ISL). ISL issued a draft report in September addressing many of the BWOG peer review comments on the prioritization done by INEEL (issued in 1999). The ISL report has been reviewed and comments have been made. In December 2002, ISL completed its review of technical comments made by the BWROG on the INEEL 's "Enhanced Prioritization of Generic Safety Issue 156.6.1 Pipe Break Effects on Systems and Components Inside Containment." ISL concluded that, in general, INEEL's analysis was overly conservative in its risk estimates, and simplistic in accident sequence development. A followup meeting was held on 1/15/03 to discuss potential options for resolution of differences. A meeting to discuss options was held on March 19, 2003. The ongoing reevaluation of 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Plants," will be considered in the technical assessment of this GSI.

The Task Action Plan for the partial resolution of GSI 156.6.1, "Pipe Break Effects on Systems and Components Inside Containment," and GSI-80, "Pipe Break Effects on Control Rod Drive Hydraulic Lines in the Drywells of BWR Mark I and II Containments," was approved on February 3, 2004 (ML040340549). Prior to his departure from the NRC, Task Manager Ron Lloyd completed a technical evaluation of the effects of postulated pipe breaks inside BWR Mark I and Mark II containments in July 2004. The ANSYS finite element code was used to perform nonlinear transient analysis to determine the impact of impulsive loads due to pipe breaks in feedwater, main steam, and recirculation system piping on drywell steel shell and control rod drive (CRD) bundles. The results of the analysis indicated that the structural integrity and leak-tightness of the drywell steel shell will not be compromised due to pipe impact. The calculations indicate that: (1) the drywell steel shell will yield locally at the point of impact but will not perforate and cause an over-pressure in the annular space between the steel shell and concrete shield wall; (2) the CRD bundles will not be impacted by breaks in recirculation, steam, and feedwater system piping after a postulated break. The next step is to confirm the staff's findings with inspections at a minimum of 3 PWR plants.

In October 2005, DSARE conducted a review of 37 operating plants as part of its selection of certain plants for plant walkdowns. In November 2005, DSARE identified 16 plants (23 reactors) that needed to be visited. In April 2006, DRASP drafted a memo requesting NRR support in arranging site visits.

AFFECTED DOCUMENTS

To be determined.

PROBLEM / RESOLUTION

None.

ISSUE NUMBER: 156.6.1 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: PIPE BREAK EFFECTS ON SYSTEMS AND COMPONENTS

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: Arrangement for plant visits was delayed to pursue design drawings that would preclude walkdowns.

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Task Action Plan Approved	05/2001	--	05/2001
Task Manager Reassigned to Other Duties	07/2001	--	07/2001
New Task Manager Assigned	01/2002	--	01/2002
Draft Contractor Report	09/2002	--	12/2002
Meeting to Discuss Options	03/2003	--	03/2003
Complete Draft Task Action Plan	11/2002	--	07/2003
Decision to Integrate GSI-80 into Technical Assessment of GSI-156.6.1	10/2003	--	10/2003
Approval of Task Action Plan	11/2003	--	02/2004
High Energy Piping Interactions with BWR Mark I Drywell Shells	03/2004	--	03/2004
Analysis and Documentation of Calculation Results	06/2004	--	07/2004
Identify Plants to be Visited	11/2005	--	11/2005
Select PWRs for Site Visits	09/2005	05/2006	--
Complete Arrangements for Site Visits	03/2006	07/2006	--
Complete Review of Piping Configurations at PWR Plants	09/2005	12/2006	--
Draft Recommendations	08/2004	06/2007	--
Meet with ACRS	02/2006	09/2007	--
Close Out Issue with Memo to the EDO	06/2006	12/2007	--

ISSUE NUMBER: 156.6.1 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: PIPE BREAK EFFECTS ON SYSTEMS AND COMPONENTS

ISSUE NUMBER: 163 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DCI/CSG

TITLE: MULTIPLE STEAM GENERATOR TUBE LEAKAGE

PRIORITY: High **ACTION LEVEL:** ACTIVE **STATUS:**

TASK MANAGER: E. MURPHY **TAC NUMBERS:**

IDENTIFICATION: 06/1992 **PRIORITIZATION/SCREEN:** 01/1997 **TECH. ASSESSMENT:** 05/2003

IDENTIFICATION STATUS: Complete **PRIOR./SCREEN STATUS:** Complete **TECH. ASSESS. STATUS:** Complete

REGULATION & GUIDANCE DEVELOPMENT: - - **REGULATION & GUIDANCE ISSUANCE:** - -

REGULATION & GUIDANCE DEVELOPMENT STATUS: TBD **REGULATION & GUIDANCE ISSUANCE STATUS:** TBD

IMPLEMENTATION: - - **VERIFICATION:** - - **CLOSURE:** - -

IMPLEMENTATION STATUS: TBD **VERIFICATION STATUS:** TBD **CLOSURE STATUS:**

WORK AUTH.: January 17, 1997, Memorandum from H. Thompson to D. Morrison

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)

ISSUE NUMBER: 163 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DCI/CSG

TITLE: MULTIPLE STEAM GENERATOR TUBE LEAKAGE

DESCRIPTION/WORK SCOPE

Description

This issue addresses the safety concern associated with multiple steam generator tube leaks during a main steam line break that cannot be isolated. This sequence could lead to core damage that could result from the loss of all primary system coolant and safety injection fluid in the refueling water storage tank. The issue was opened in response to a DPV filed in late 1991. The DPV (and later DPO) issues are being considered in the staff's work on steam generator tube integrity.

Work Scope

The NRC originally planned to develop a rule pertaining to steam generator tube integrity. The proposed rule was to implement a more flexible regulatory framework for steam generator surveillance and maintenance activities that allows a degradation-specific management approach. The regulatory analysis concluded that the more optimal regulatory approach was to utilize a generic letter. The NRC staff suggested, and the Commission subsequently approved, a revision to the regulatory approach to utilize a generic letter. Finally, in late 1998, the regulatory approach was revised once again. The staff has worked to resolve concerns with the industry initiative, NEI 97-06, in lieu of a generic letter. The current framework provides reasonable assurance that operating PWRs are safe. However, the current regulatory framework has shortcomings. To resolve these shortcomings, the staff is working with industry to revise the regulatory framework to utilize a risk-informed and performance-based approach that will ensure compliance with current regulations (i.e., GDC, Appendix B, ASME Code, 10 CFR Part 100).

The staff completed a draft risk assessment and draft regulatory analysis and met with ACRS on March 4, 5, and April 3, 1997, to discuss the two efforts. The results of these two efforts caused the staff to conclude that generic regulatory action in the form of a rule was not necessary. The staff subsequently drafted and sent to the Commission COMSECY-097-013 (05-23-1997) which discussed the basis for revising the regulatory approach to utilize a generic letter. The Commission approved the revised regulatory approach in the SRM dated 06-30-1997.

ISSUE NUMBER: 163 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DCI/CSG

TITLE: MULTIPLE STEAM GENERATOR TUBE LEAKAGE

STATUS

The DPO issues document was completed and sent to the ACRS full committee for review in October 1997. The staff met with CRGR on 06-12-1998 for an information briefing on the package. The staff met with CRGR on 07-21-1998 for a detailed review of the proposed generic letter package. The staff issued Commission Paper SECY-98-248 with the recommendation to put a hold on the issuance of a GL while the staff works with the industry on NEI 97-06 (the proposed alternative to a GL). The Commission agreed with this approach in an SRM dated 12-21-1998.

On 01-20-99, the staff issued the DPO consideration document for public comment. The DPO consideration document has been updated to reflect the status of the NEI 97-06 industry initiative and has been forwarded to the EDO. Resolution of the GSI is pending completion of the DPO process. At the request of the EDO, the ACRS served as an equivalent ad hoc panel to review the DPO issues and to provide the EDO with a summary report documenting its findings relative to the DPO issues. The ACRS met with the DPO author and other members of the NRC staff and reviewed relevant documentation relative to the DPO issues. The ACRS issued NUREG-1740 documenting its conclusions and recommendations on Feb. 1, 2001. By memo dated 03-05-2001, the EDO directed that NRR and RES develop a joint action plan by May 4,2001 (issued on May 11, 2001) to address the conclusions and recommendations in the ACRS report, which encompass the GSI-163 issues. Based on this Action Plan, the completion date for this GSI is September 2005.

This issue is an integral part of the NRC Steam Generator Action Plan, the status of which was presented to the Commission in SECY-03-0080 on May 16, 2003, and discussed at a Commission meeting on May 29, 2003. In order to resolve GSI-163, it is necessary to complete work associated with Tasks 3.1 and 3.7 through 3.9 of the SG Action Plan. Lessons learned from work competed so far has necessitated several modifications and additions to tasks, milestones, and target completion dates that are being formalized in the RCS operating plan and the SG Action Plan. For example, completion date for Task 3.5.g will be scheduled when the present work scope is expanded.

A CRGR meeting was held in September 2005 on the draft GL. A Technical Specifiction Task Force (TSTF-449) item was issued in May 2005 and a number of plants have submitted license amendments per the TSTF. One of the comments on the draft Generic Letter recommended that the letter be delayed a year to permit licensees to voluntarily adopt the model technical specifications so that they would not have to provide a detailed response to the Generic Letter. The CRGR concluded that the staff should issue the generic letter with a provision for licensees to simply reference license amendments to avoid further delay in the resolution of the model technical specification inspection program.

The NRC issued Generic Letter (GL) 2006-01, "Steam Generator Tube Integrity and Associated Technical Specifications," on January 20, 2006, to all holders of operating licenses for pressurized-water reactors (PWRs), except those who have permanently ceased operations and have certified that fuel has been permanently removed from their reactor vessels. GL 2006-01 was issued because of the NRC concern that current Technical Specifications (TS) requirements may not be sufficient to ensure that steam generator (SG) tube integrity can be maintained in accordance with current licensing and design basis. The GL requested that the affected plants either submit a description of their program for ensuring SG tube integrity for the interval between inspections, or adopt alternative TS requirements for ensuring SG tube integrity. (Alternative TS requirements that address NRC concerns with the existing TS were previously developed by the industry and found acceptable by the NRC).

ISSUE NUMBER: 163 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DCI/CSG

TITLE: MULTIPLE STEAM GENERATOR TUBE LEAKAGE

AFFECTED DOCUMENTS

Generic Letter 2006-01

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: None.

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Regulatory Analysis	05/1997	- -	05/1997
Proposed GL Package	06/1997	- -	10/1997
ACRS Endorsement	06/1997	- -	10/1997
GL Package Placed in Concurrence	10/1997	- -	10/1997
NEI 97-06 Submitted	12/1997	- -	12/1997
GL Package Sent to CRGR by NRR	07/1997	- -	04/1998
CRGR Meeting on GL Package	06/1998	- -	06/1998
CRGR Meeting on Proposed GL	07/1998	- -	07/1998
NRR Memo to EDO Putting GL on Hold	09/1998	- -	09/1998
Commission Paper Recommending Hold on Issuance of GL	11/1998	- -	10/1998
SRM on SECY-98-248	12/1998	- -	12/1998
DPO Consideration Document to the EDO	09/1999	- -	09/1999
EDO Establishes an Independent Panel to Review the DPO	02/2000	- -	05/2000
ACRS to Perform DPO Review Panel Function	10/2000	- -	10/2000
ACRS to Provide Conclusions and Recommendations	12/2000	- -	02/2001

ISSUE NUMBER: 163 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DCI/CSG

TITLE: MULTIPLE STEAM GENERATOR TUBE LEAKAGE

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
NRR & RES Issue Joint Action Plan	05/2001	- -	05/2001
Issue Generic Letter 2006-01	01/2006	- -	01/2006
Completion of GSI-Related Joint Action Plan Issues	03/2005	- -	- -
Close Out Issue with Memo to the EDO	02/2001	- -	- -

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: 186 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: POTENTIAL RISK AND CONSEQUENCES OF HEAVY LOAD DROPS IN NUCLEAR POWER

PRIORITY:
ACTION LEVEL: ACTIVE
STATUS: Cn
TASK MANAGER: S. JONES
TAC NUMBERS:

IDENTIFICATION: 04/1999
PRIORITIZATION/SCREEN: 07/2003
TECH. ASSESSMENT: 11/2003
IDENTIFICATION STATUS: Complete
PRIOR./SCREEN STATUS: Complete
TECH. ASSESS. STATUS: Complete

REGULATION & GUIDANCE DEVELOPMENT: 01/2007
REGULATION & GUIDANCE ISSUANCE: 01/2007
REGULATION & GUIDANCE DEVELOPMENT STATUS:
REGULATION & GUIDANCE ISSUANCE STATUS:

IMPLEMENTATION: - -
VERIFICATION: - -
CLOSURE: 02/2007
IMPLEMENTATION STATUS: N/A
VERIFICATION STATUS: N/A
CLOSURE STATUS:

WORK AUTH.:

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
None			.00

Total Resources Expended = $0.00

ISSUE NUMBER: 186 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: POTENTIAL RISK AND CONSEQUENCES OF HEAVY LOAD DROPS IN NUCLEAR POWER

DESCRIPTION/WORK SCOPE

Description

In 1985, the staff declared, through GL 85-11, "Completion of Phase II of Control of Heavy Loads at Nuclear Power Plants, NUREG-0612," that licensees need not analyze the potential consequences of a heavy load drop. In 1986, the staff reported that USI A-36 was resolved based on the implementation of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants - Resolution of Generic Technical Activity A-36." Subsequent review of licensees' programs for the handling of heavy loads revealed that there is a substantially greater potential for severe consequences to result from the drop of a heavy load, than previously envisioned.

Work Scope

The technical assessment of GI-186 resulted in the following four recommendations that were documented in NUREG-1774: (1) Evaluate the capability of various rigging components and materials to withstand rigging errors (e.g., absence of corner softening material, acute angle lifts, shock from load shifts, and postulated human errors). As appropriate, issue necessary guidelines for rigging applications. (2) Endorse ASME NOG-1, "Rules for Construction of Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder)" for Type I cranes as an acceptable method of qualifying new or upgraded cranes as single-failure-proof. As appropriate, issue guidance endorsing the standard. (3) Reemphasize the need to follow NUREG-0612 Phase I guidelines involving good practices for crane operations and load movements. Continue to assess implementation of heavy load controls in safety-significant applications through the Reactor Oversight Process. (4) Evaluate the need to establish standardized load drop calculation methodologies for heavy load drops.

ISSUE NUMBER: 186 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: POTENTIAL RISK AND CONSEQUENCES OF HEAVY LOAD DROPS IN NUCLEAR POWER

STATUS

The report on the potential risk and consequences of heavy load drops in nuclear power plants was completed in June 2003, after NRR comments were addressed by RES. The publication of the report, NUREG-1774, "A Survey of Crane Operating Experience at U.S. Nuclear Power Plants from 1968 Through 2002," in July 2003 completed the initial screening stage of the issue. The proposed recommendations resulting from the technical assessment of the issue were discussed with the ACRS Full Committee on September 11, 2003. Three of the RES recommendations on regulation and guidance development were sent to NRR on November 12, 2003. By letter dated February 4, 2004, NRR informed RES that these three recommendations would be implemented through issuance of a Regulatory Issue Summary that clarifies and reemphasizes existing regulatory guidance for control of heavy loads. The remaining recommendation was sent to DET/RES on November 21, 2003.

In September 2004, NRR reported that the ASME Code Committee action in support of NRC endorsement of the industry crane standard NOG-1 was delayed. In April 2005, the staff identified an emergent concern with the adequacy of evaluations of heavy load drops. NRR issued Regulatory Issue Summary (RIS) 2005-25 on October 31, 2005, to clarify and reemphasize existing regulatory guidance for the control of heavy loads. In September 2004, NRR reported that the ASME Code Committee action in support of NRC endorsement of the industry crane standard NOG-1 was delayed. The staff plans to issue a supplemental RIS to address endorsement of ASME NOG-1 Standard. NRR is developing a Supplement to RIS 2005-25 to endorse the industry standard, American Society of Mechanical Engineers (ASME) NOG-1, "Rules for Construction of Overhead and Gantry Cranes," as an acceptable method of satisfying NRC guidance.

AFFECTED DOCUMENTS

NUREG-1774

PROBLEM / RESOLUTION

None.

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: The expected ASME code committee action on the NOG-1 Standard has been further delayed.

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Publish NUREG-1774	06/2003	- -	06/2003
Meet with ACRS Full Committee	09/2003	- -	09/2003

All Active Issue(s)

ISSUE NUMBER: 186 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: POTENTIAL RISK AND CONSEQUENCES OF HEAVY LOAD DROPS IN NUCLEAR POWER

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
ACRS Memo to the EDO on Staff Recommendations	09/2003	- -	09/2003
Complete Technical Assessment and Transfer Issue to NRR for Regulation and Guidance Development	10/2003	- -	11/2003
DSARE/RES Memo to DET/RES Requesting Industry Code Committee Evaluation	11/2003	- -	11/2003
Issue RIS 2005-25 to Clarify and Reemphasize Existing Regulatory Guidance for Control of Heavy Loads	12/2004	- -	10/2005
Brief ACRS on Implementation of Recommendations	11/2004	11/2006	- -
Issue RIS 2005-25, Supplement 1 to Address Endorsement of Industry Standard	02/2006	01/2007	- -
Issue Closeout Memo to the EDO	08/2005	02/2007	- -

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: 189 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: SUSCEPTIBILITY OF ICE CONDENSER AND MARK III CONTAINMENTS TO EARLY FAI

PRIORITY:
ACTION LEVEL: ACTIVE
STATUS: Cn
TASK MANAGER: S. JONES
TAC NUMBERS: MB7245

IDENTIFICATION: 05/2001
PRIORITIZATION/SCREEN: 02/2002
TECH. ASSESSMENT: 12/2002
IDENTIFICATION STATUS: Complete
PRIOR./SCREEN STATUS: Complete
TECH. ASSESS. STATUS: Complete

REGULATION & GUIDANCE DEVELOPMENT: 04/2007
REGULATION & GUIDANCE ISSUANCE: 04/2007
REGULATION & GUIDANCE DEVELOPMENT STATUS: TBD
REGULATION & GUIDANCE ISSUANCE STATUS:

IMPLEMENTATION: - -
VERIFICATION: - -
CLOSURE: 06/2010
IMPLEMENTATION STATUS: TBD
VERIFICATION STATUS: TBD
CLOSURE STATUS:

WORK AUTH.: Memo from J. Zwolinski to F. Eltawila, "Resolution Process for Generic Safety Issue 189: "Post-Accident Combustible Gas Control in Pressure Suppression Containments"

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
None.			.00

Total Resources Expended = $0.00

ISSUE NUMBER: 189 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: SUSCEPTIBILITY OF ICE CONDENSER AND MARK III CONTAINMENTS TO EARLY FAI

DESCRIPTION/WORK SCOPE

Description

Results of research on BWR ECCS suction strainer blockage identified new phenomena and failure modes that were not considered in the resolution of GSI A-43. In addition, operating experience identified new contributors to debris and possible blockage of PWR sumps, such as degraded or failed containment paint coatings. Thus, this issue was identified by NRR and called for an expanded research effort to address these new safety concerns.

Work Scope

The staff will conduct studies to determine whether providing an independent power supply for the igniter systems to deal with station blackout events provides a substantial increase in the overall protection of the public health and safety with implementation costs that are justified in view of this increased protection. Work on this issue is being continued following an initial screening in accordance with MD 6.4. A Task Action Plan for pursuing the issue was developed on February 13, 2002. The staff presented its technical assessment to the ACRS on June 6, 2002. The ACRS response on June 17, 2002, recommended that the staff consider the uncertainties associated with its technical assessment, including the uncertainty related to the use of a control volume code (MELCOR), to determine detailed hydogen concentration distributions. The staff briefed the Thermal Hydraulic Phenomena and the Reliability PRA Sub-committees on November 5, 2002 and the full ACRS Committee on November 13, 2002. The ACRS recommended that the form of this action should be through the plant-specific severe accident management guidelines. RES provided its technical assessment for resolving GSI-189 to NRR in a memorandum dated December 17, 2002. RES concluded that further action to provide back-up power to one train of igniters is warranted for both ice condenser and Mark III plants. On January 30, 2003, NRR prepared a reply memorandum that outlined the next steps in the resolution of this GSI. NRR prepared a Task Action Plan to complete Management Directive 6.4, Stage 4, Regulation and Guidance Development, based on the preliminary decision to issue an Order. A review of the proposed regulatory actions and associated draft documents by senior management and OGC was completed and it was decided to pursue Rulemaking rather than an Order. Before a final decision is reached a Public Meeting and agreement by the Rulemaking Committee are needed. In the letter of November 13, 2002, to the Commission, the ACRS stated that they agreed with RES that further regulatory action by NRR was warranted for ice condenser and Mark III containments. A public meeting was held on June 18, 2003, to receive feedback from licensees and other stakeholders regarding the need to provide a backup power supply to the hydrogen igniters and NRR's consideration of rulemaking for the resolution of GSI-189.

ISSUE NUMBER: 189 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: SUSCEPTIBILITY OF ICE CONDENSER AND MARK III CONTAINMENTS TO EARLY FAI

STATUS

NRR briefed the ACRS on November 6, 2003, and recommended providing a backup power supply to the hydrogen igniters. The ACRS suggested that the form of action be through the use of plant-specific severe accident management guidelines (SAMG) and proceed with rulemaking. At that time, ACRS did not think an Order or Rulemaking could be supported. Based on the comments received from the ACRS at the NRR staff's presentation on November 6, 2003, NRR decided to commence rulemaking. The Task Action Plan (MD 6.4, Stage 4) was updated to reflect the pursuit of rulemaking. NRR is working on finalizing the design criteria for the backup power supply, and is administering a contract with ICF to merge and enhance the existing technical assessment into a regulatory analysis. NRR/DRIP is performing a cost/benefit analysis to support a possible rulemaking effort. The NRR held a public meeting with the public and industry on 09-21-2004, to get external stakeholders' input on the draft design criteria. Representatives of the PWR ice condenser utilities, the BWROG representing BWR Mark III utilities, and NEI discussed the proposed design criteria. They considered that the draft design criteria are generally acceptable with the exception of the one-hour time limit for BWR plants connecting the power source without making the system automatic, the power source is required to be manually connected to the power source within one hour. The BWROG is willing to make hardware modification to supply power from the existing HPCS diesel generator, and agreed to provide additional information regarding implementation cost for the pre-staged generator and relative risk contribution from either fast-SBO or slow-SBO at each of the four Mark III plants. BWROG requested that NRC provide feedback whether two hours instead of one hour for startup time is viable even it is not responsive to fast SBO events. At the public meeting, Duke power, representing two PWR ice condenser sites, Catawba 1&2, McGuire 1&2, is not planning a new backup power source, but agreed to make modifications on an existing safe shutdown diesel generator that could manually connect to provide backup power source as needed. AEP representative agreed to provide backup power source for D. C. Cook 1&2 from the large new diesel generators which are already planned for installation to support increased allowed outage time. TVA, representing two PWR ice condenser sites, Sequoyah 1&2, Watts Bar-1, will provide a new backup power source as the standard emergency power on 69kv board.

On 11-17-2003, the ACRS Chairman wrote the NRC Chairman recommending the NRC proceed with rulemaking to require a backup power supply to the hydrogen igniters for PWR ice-condenser and BWR MARK IIII plants. The ACRS recommended that rulemaking include a small pre-staged generator with installed cables, conduit, panels, and breakers, or an equivalent diverse power supply. The ACRS also agreed with industry that the rulemaking should be accompanied by guidance that specifies the design requirements. In November 2004, the staff reached a consensus to evaluate the proposed voluntary initiatives and pursue that path as a preferential solution before proceeding with rulemaking. In February and early March 2005, the NRR staff met with representatives of RES, NSIR, and OEDO to develop an understanding of the safety/security interface and actions initiated in the security arena that could impact the solution of the issue. On March 30, 2005, the staff met with senior representatives of the six affected utilities to present security-related insights. The staff plans to allow industry several months to digest this new information before requesting information on voluntary measures to be implemented at each affected site. NRC will send letters to the affected plants in early 2006 discussing associated regulatory and administrative issues such as emergency operating procedure changes and updating the Final Safety Analysis Report. Implementation of measures to address these issues should be complete by the end of 2006. Staff verification will be performed following implementation completion.

AFFECTED DOCUMENTS

10 CFR 50.44
10 CFR 50.34

ISSUE NUMBER: 189 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: SUSCEPTIBILITY OF ICE CONDENSER AND MARK III CONTAINMENTS TO EARLY FAI

PROBLEM / RESOLUTION

Through public meetings on February 3 and March 31, 2004, the staff discussed the proposed draft design criteria for backup power supply to the hydrogen igniters and received comments from stakeholders. The NRC completed a technical basis, a response to Entry Conditions for Rulemaking and a Backfit evaluation, for transmittal to the Rulemaking Committee for consideration. The Rulemaking Committee accepted NRR's technical basis on April 9, 2004, and is moving forward to pursue Rulemaking in accordance with NRR Office Letter LIC-300, which includes developing a formal Regulatory Analysis in accordance with NUREG/BG-0058, and coordinating the technical staff's presentation to the Rulemaking Approval Board. Currently, NRR is pursuing voluntary licensee initiatives as an alternative to rulemaking.

NRR finalized the regulatory analysis to quantify the estimated costs and benefits of rulemaking both with and without voluntary actions. For the PWR ice-condenser containments, adding backup power to the igniters provides a substantial safety benefit at a justifiable cost. However, after implementation of expected voluntary actions, rulemaking would not be justified. For the BWR Mark III containments, the costs exceed the benefits for all evaluated options. However, defense-in-depth considerations in improving the balance among accident prevention and mitigation provides an additional un-quantified benefit that support rulemaking for both containment types. On 06/14/05, the EDO issued a memorandum to the Commissioners to inform the Commission of the regulatory analysis results and recent staff activities on GSI-189. The net benefits for the BWR Mark III containments are negative. If voluntary actions are found to be ineffective or inadequate, the staff will revisit rulemaking to the extent supported by regulatory analysis.

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: Based on an understanding that many of the voluntary physical modifications had been completed, the staff elected to delay seeking specific commitments while security-related reviews of the facilities were ongoing. On March 1, 2006, the EDO issued a memo informing the Commission of the staff's intent to delay the request for commitments until after the security-related reviews are completed in September 2006.

ISSUE NUMBER: 189 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: SUSCEPTIBILITY OF ICE CONDENSER AND MARK III CONTAINMENTS TO EARLY FAI

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Draft Technical Assessment	05/2002	- -	05/2002
Meet with ACRS	06/2002	- -	06/2002
Second Meeting on Technical Assessment with ACRS Sub-Committee	10/2002	- -	11/2002
Final Technical Assessment	11/2002	- -	11/2002
Meet with ACRS Full Committee	11/2002	- -	11/2002
Transfer GSI to NRR	12/2002	- -	12/2002
Determine Best Course of Action	02/2003	- -	02/2003
Public Meeting with Stakeholders	02/2003	- -	02/2003
Review RES Technical Assessment	02/2003	- -	02/2003
Prepare Guidance and Provide Results to NRR Management	03/2003	- -	03/2003
Distribute Draft Order and SECY Paper	03/2003	- -	03/2003
Finalize CRGR Package	03/2003	- -	03/2003
Provide Draft Order to OGC and Draft SECY to EDO	03/2003	- -	03/2003
Meet with Rulemaking Committee	05/2003	- -	05/2003
Conduct Public Meeting	06/2003	- -	06/2003
Meet with OPA to Develop Communication Plan	06/2003	- -	06/2003

ISSUE NUMBER: 189 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: SUSCEPTIBILITY OF ICE CONDENSER AND MARK III CONTAINMENTS TO EARLY FAI

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Complete Communication Plan	07/2003	- -	07/2003
Public Meeting to Address Design Criteria	11/2003	- -	11/2003
NRR Meeting with ACRS	11/2003	- -	11/2003
Public Meeting with Stakeholders	02/2004	- -	02/2004
Public Meeting with Stakeholders	03/2004	- -	03/2004
Brief Commissioner Merrifield	03/2004	- -	03/2004
Issue Draft Design Criteria for Comment	08/2004	- -	08/2004
Public Meeting with Stakeholders	09/2004	- -	09/2004
Internal Meeting to Discuss Pursuit of Rulemaking	11/2004	- -	11/2004
Perform Sensitivity Analysis to Determine Whether 2-Hour Startup Time for BWRs is Acceptable	11/2004	- -	11/2004
Decision on Voluntary Licensee Initiatives as Alternative to Rulemaking	11/2004	- -	11/2004
Finalize Design Criteria	11/2004	- -	11/2004
Evaluate Safety/Security Interface	03/2005	- -	03/2005
Issue Status Paper to Commission	05/2005	- -	06/2005
Brief Commissioner Jaczko on Regulatory Analysis Results and Safety Significance	07/2005	- -	07/2005
Meet with Owners to Discuss Safety-Security Interface Issues	08/2005	- -	08/2005
Request Information from Owners on Voluntary Actions Implemented	12/2006	10/2006	- -

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: 189 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SBP

TITLE: SUSCEPTIBILITY OF ICE CONDENSER AND MARK III CONTAINMENTS TO EARLY FAI

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Seek Commitment for Implementation of Voluntary Initiatives	08/2005	10/2006	- -
Develop Rulemaking Plan	- -	- -	- -
Commission Decision on Rulemaking	- -	- -	- -
Complete Regulation and Guidance Development	06/2006	04/2007	- -
Close Out Issue with Memo to the EDO	06/2010	06/2010	- -

ISSUE NUMBER: 191 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SSI

TITLE: ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE

PRIORITY: High **ACTION LEVEL:** ACTIVE **STATUS:**

TASK MANAGER: T. HAFERA **TAC NUMBERS:** MA6454, MB4864

IDENTIFICATION: 09/1996 **PRIORITIZATION/SCREEN:** 09/1996 **TECH. ASSESSMENT:** 09/2001

IDENTIFICATION STATUS: Complete **PRIOR./SCREEN STATUS:** Complete **TECH. ASSESS. STATUS:** Complete

REGULATION & GUIDANCE DEVELOPMENT: 09/2004 **REGULATION & GUIDANCE ISSUANCE:** 09/2004

REGULATION & GUIDANCE DEVELOPMENT STATUS: Complete **REGULATION & GUIDANCE ISSUANCE STATUS:** Complete

IMPLEMENTATION: 12/2007 **VERIFICATION:** 12/2007 **CLOSURE:** 06/2008

IMPLEMENTATION STATUS: **VERIFICATION STATUS:** TBD **CLOSURE STATUS:**

WORK AUTH.: Memo to D. Morrison from W. Russell, "Third Supplemental User Need Request...Accident Generated Debris," 12/07/95

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
W6650	SEA	Technical Assistance in Resolving Generic Safety Issues	.00
Y6041	LANL	Assessment of Debris Accumulation on Pressurized Water Reactors Sump Performance	.00
J3213	ISL	Technical Support of GSI-191 Review Activities	.00
J2978	LANL	Technical Assistance for the Resolution of the PWR Sump Clogging Issue	.00
J3130	LANL	Technical Assistance in Support of the Plant Systems Branch	.00

Total Resources Expended = $0.00

ISSUE NUMBER: 191 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SSI

TITLE: ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE

DESCRIPTION/WORK SCOPE

Description

Results of research on BWR ECCS suction strainer blockage identified new phenomena and failure modes that were not considered in the resolution of Issue A-43. In addition, operating experience identified new contributors to debris and possible blockage of PWR sumps, such as degraded or failed containment paint coatings. Thus, this issue was identified by NRR and called for an expanded research effort to address these new safety concerns.

Work Scope

The goals of the NRC's reassessment are to: (1) determine if the transport and accumulation of debris in containment following a LOCA will impede the operation of the ECCS in operating PWRs; (2) if it is shown that debris accumulation will impede ECCS operation, develop the technical basis for revising NRC's regulations or guidance to ensure that debris accumulation in containment will not prevent ECCS operation; (3) if it is shown that debris accumulation will impede ECCS operation, provide NRC technical reviewers with sufficient information on phenomena involved in debris accumulation and how it affects ECCS operation to facilitate the review of any changes to plants that may be warranted; and (4) issue Generic Communication and work with the industry plan to evaluate and resolve GSI-191 for all PWRs.

Preliminary parametric calculations were completed in July 2001 indicating the potential for debris accumulation for 69 cases. These 69 cases are representative of, but not identical to, the operating PWR population. Following the ACRS agreement with the staff's Technical Assessment of the issue in 09/2001, the issue was forwarded to NRR in a memorandum dated September 28, 2001. Consistent with Management Directive 6.4, NRR has the GSI-191 lead for Stages 4 through 6 of the Generic Issues Process. NRR has evaluated the technical assessment and prepared a Task Action Plan for developing appropriate regulatory guidance and resolution for GSI-191.

All Active Issue(s)

ISSUE NUMBER: 191 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SSI

TITLE: ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE

STATUS

Following meetings with stakeholders on March 5 and April 29, 2003, NRC Bulletin 2003-01 was issued to PWR licensees on June 9, 2003, to (1) confirm their compliance with 10 CFR 50.46(b)(5) and other existing applicable regulatory requirements, or (2) describe any compensatory measures that have been implemented to reduce the potential risk due to post-accident debris blockage, as evaluations to determine compliance proceed. Revision 3 to Regulatory Guide 1.82 was issued in November 2003.

Generic Letter (GL) 2004-02 was issued in September 2004 requesting licensees to perform plant-specific mechanistic evaluations of sump performance following LOCA and HELB events, and to implement corrective actions as required to ensure compliance with regulatory requirements. The Nuclear Energy Institute (NEI) provided the staff a guidance report (GR) in May 2004 which consisted of the industry's proposed evaluation methodology to be used in performing the plant-specific evaluations. The staff reviewed the GR and issued a draft Safety Evaluation (SE) which provided supplementation to the GR and resulted in an NRC-approved evaluation methodology. The staff presented the the SE to CRGR, and to the ACRS SubCommittee and Full Committee in September and October 2004, respectively. The final SE was issued in December 2004. In January and April 2005, the staff held public meetings with NEI and owners to discuss the GL and SE, and to address questions as the evaluations are being performed with use of the SE and GR.

A joint NRC/Industry Integrated Chemical Effects Testing program started in 2004 is planned to be completed in August 2005. Because chemical precipitation products have been identified during the test program follow-on testing and analyses will be needed to address the effect on head loss. The NRC received and evaluated the licensee's 90 day responses to Generic letter 2004-02. The NRC is conducting pilot plant audits examining the analyses and design changes planned to close GSI-191. The first audit for Crystal River Unit 3 was completed in June 2005.

The staff conducted briefings on the status of the issue with Commissioners Jaczko and Lyons, on July 18, 2005, and with the ACRS on September 9, 2005. IN 2005-26, "Results of Chemical Effects Head Loss Tests in a Simulated PWR Sump Pool Environment," was issued on September 16, 2005. The staff will continue to review final licensee responses to Generic Letter 2004-02, and plans to begin coating transport testing at the Naval Surface Warfare Center. PWR licensees responded on schedule to the GL in September 2005. All PWR licensees committed to modify their containment sump strainer except for three plants who have modified their containment sump strainers within the last five years. NRC is evaluating the responses. NRC audits of approximately 10 plants commenced in November 2005. All but two licensees have committed to complete modifications by December 2007, which is the scheduled completion date stated in GL 2004-02. The staff completed reports on the chemical effects on ice condenser containments on 01/13/2006 (ML053550433), and on PWR containments on 01/20/2006 (ML060190713). Supplement 1 to IN 2005-26 was issued on January 26, 2006, to specifically provide additional information regarding test results related to chemical effects in environments containing dissolved phosphate (e.g., from trisodium phosphate) and dissolved calcium. NRR anticipates that recipients will review the information for applicability to their facilities and consider taking actions, as appropriate, to avoid similar issues. On February 9, 2006, a public meeting was held with NEI and industry representatives to discuss progress in resolving GI-191. On March 9, 2006, the staff briefed the ACRS on its evaluation of licensee responses to GL 2004-02, and the results of chemical effects tests.

ISSUE NUMBER: 191 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SSI

TITLE: ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE

AFFECTED DOCUMENTS

(1) Regulatory Guide 1.82, Rev. 3
(2) NUREG-0800
(3) Generic Letter 85-22
(4) Bulletin 2003-01
(5) Generic Letter 2004-02

PROBLEM / RESOLUTION

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: None.

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
NRR User Need Request Sent to RES	12/1995	- -	12/1995
User Need Request Assigned to GSIB/RES	01/1996	- -	01/1996
Reassessment Declared a New GSI	09/1996	- -	09/1996
Issue SOW for Evaluation of GSI A-43	11/1996	- -	11/1996
Complete Evaluation of GSI A-43	04/1997	- -	03/1997
Issue SOW for Reassessment of Debris Blockages in PWR Containments Impact on ECCS Performance	09/1998	- -	09/1998
Complete Collection and Review of PWR Containment and Sump Design and Operation Data	12/1999	- -	12/1999
Complete All Debris Transport Tests	09/2000	- -	08/2000

ISSUE NUMBER: 191 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SSI

TITLE: ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Complete Development of Models and Methods for Analyzing Impact of Debris Blockages in PWR Containments on ECCS Performance	04/2001	- -	06/2003
Complete Parametric Evaluation	07/2001	- -	07/2001
Proposed Recommendations to the ACRS	08/2001	- -	08/2001
ACRS Review Completed	09/2001	- -	09/2001
Complete Reassessment of Debris Blockages in PWR Containments Impact on ECCS Performance	09/2001	- -	09/2001
Complete Estimate of Average CDF Reduction, Benefits, and Costs	04/2002	- -	09/2001
Prepare Memo Discussing Proposed Recommendations (End of Technical Assessment Stage of Generic Issue Process)	04/2002	- -	09/2001
Issue Transferred from RES to NRR	09/2001	- -	09/2001
Issue Bulletin 2003-01	05/2003	- -	06/2003
Discuss Reg. Guide 1.82, Rev. 3 with ACRS SubCommittee on Thermal-Hydraulic Phenomena	08/2003	- -	08/2003
Present Final Version of Reg. Guide 1.82, Rev. 3 to ACRS Full Committee	09/2003	- -	09/2003
ACRS Letter on Final Version of Reg. Guide 1.82, Rev. 3	09/2003	- -	09/2003
Draft Industry Guidance for Plant-Specific Analyses	10/2003	- -	10/2003
Issue Reg. Guide 1.82, Rev.3	09/2003	- -	11/2003
NRC Meeting with Stakeholders	03/2004	- -	03/2004
NRC Meeting with Stakeholders	05/2004	- -	05/2004

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: 191 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SSI

TITLE: ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Receive Industry Guidance for Plant-Specific Analyses	09/2003	- -	05/2004
NRC Meeting with Stakeholders	06/2004	- -	06/2004
Brief ACRS SubCommittee on Proposed Generic Letter	06/2004	- -	06/2004
NRC Meeting with Stakeholders	06/2004	- -	06/2004
Develop Generic Letter for Resolution of GSI	07/2004	- -	07/2004
Brief Full ACRS Committee on Proposed Generic Letter	07/2004	- -	07/2004
Meet with CRGR on Proposed Generic Letter	08/2004	- -	08/2004
Issue Generic Letter 2004-02	09/2004	- -	09/2004
Meet with ACRS on Safety Evaluation of NEI 04-07	10/2004	- -	10/2004
ACRS Response on Safety Evaluation of NEI 04-07	10/2004	- -	10/2004
Brief Commissioners Jaczko and Lyons on Status	07/2005	- -	07/2005
EDO Briefing of ACRS on Status	09/2005	- -	09/2005
Receive All GL Responses Addressing Plant-Specific Analyses	05/2005	- -	09/2005
Issue Information Notice 2005-26	09/2005	- -	09/2005
Complete Review of Licensee Responses to GL 2004-02	01/2006	- -	01/2006
Issue Supplement 1 to IN 2005-26	01/2006	- -	01/2006
Brief ACRS on Staff Evaluation of Licensee Responses to GL 2004-02 and Results of Chemical Effects Tests	03/2006	- -	03/2006
Complete Coating Transport Testing	- -	- -	- -
Licensees Complete GSI-191 Activities, Including All Modifications	01/2007	12/2007	- -

ISSUE NUMBER: 191 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NRR/DSS/SSI

TITLE: ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Close Issue with Memo to the EDO	03/0087	06/2008	- -

ISSUE NUMBER: 193 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: BWR ECCS SUCTION CONCERNS

PRIORITY: **ACTION LEVEL:** ACTIVE **STATUS:** Cn

TASK MANAGER: TBD **TAC NUMBERS:**

IDENTIFICATION: 05/2002 **PRIORITIZATION/SCREEN:** 10/2003 **TECH. ASSESSMENT:** - -

IDENTIFICATION STATUS: Complete **PRIOR./SCREEN STATUS:** Complete **TECH. ASSESS. STATUS:** TBD

REGULATION & GUIDANCE DEVELOPMENT: - - **REGULATION & GUIDANCE ISSUANCE:** - -

REGULATION & GUIDANCE DEVELOPMENT STATUS: TBD **REGULATION & GUIDANCE ISSUANCE STATUS:** TBD

IMPLEMENTATION: - - **VERIFICATION:** - - **CLOSURE:** - -

IMPLEMENTATION STATUS: TBD **VERIFICATION STATUS:** TBD **CLOSURE STATUS:**

WORK AUTH.: Memorandum to A. Thadani from F. Eltawila, "Results of Initial Screening of Generic Safety Issue 193, 'BWR ECCS Suction Concerns,'" October 16, 2003

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
None.			.00

Total Resources Expended = $0.00

DESCRIPTION/WORK SCOPE

This GSI addresses the possible failure of the ECCS pumps due to unanticipated, large quantities of entrained gas in the suction piping from BWR suppression pools. The issue applies to MARK I, II, and III containments during large- and medium-break LOCAs, and could potentially cause pump failure or degraded performance due to gas binding, vapor locking, or cavitation.

ISSUE NUMBER: 193 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: BWR ECCS SUCTION CONCERNS

STATUS

Description

This issue was identified by a Region III inspector and addressed the possible failure of low pressure emergency core cooling systems due to unanticipated, large quantities of entrained gas in the suction piping from suppression pools in BWR Mark I containments.

Work Scope

A Task Action Plan for the Technical Assessment of the issue was approved in May 2004 and a literature search for information on ECCS pump performance during intake conditions at high voiding was completed in March 2005. DSARE/RES continued its literature search, in accordance with Phase I of the Task Action Plan, and found experimental evidence that gas could reach the ECCS pumps during a loss-of-coolant accident. DSARE found that the pumps can recover with as much as 20 percent void fraction; however, the impact of voiding on the continued operation of the pumps needs to be determined. DSARE will pursue additional information from NRR, Region I, and foreign sources.

In September 2005, information on suppression pool experiments was requested from the Technical Research Center of Finland and experimental results on thermal-hydraulic phenomena from one plant were evaluated. A literature search was completed for two specific thermal-hydraulic phenomena: liquid gas jet; and bubble breakup. In December 2005, Task Manager Alexander Velazquez-Lozada departed the NRC.

AFFECTED DOCUMENTS

To be determined.

PROBLEM / RESOLUTION

A new Task Manager needs to be assigned to this issue.

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: A new schedule will have to be developed when a new Task Manager is assigned.

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Complete Task Action Plan for a Technical Assessment	03/2004	- -	05/2004
ECCS Pump Performance Literature Search	03/2005	- -	03/2005

ISSUE NUMBER: 193 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: BWR ECCS SUCTION CONCERNS

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Request Information from Technical Research Center of Finland	09/2005	--	09/2005
Evaluate Experimental Results on Thermal-Hydraulic Phenomena	09/2005	--	09/2005
Complete Literature Search for Two Specific Thermal-Hydraulic Phenomena	09/2005	--	09/2005
Assign New Task Manager	--	--	--
Revise Task Action Plan	11/2005	--	--
Review Pool Dynamics & Air Entrainment for Various Designs	10/2005	--	--
Revise Pump Failure Probabilities	10/2005	--	--
Complete PRA	06/2006	--	--
Draft Recommendations and Revise TAP, if necessary	09/2006	--	--
Meet with ACRS	12/2006	--	--
Close Out Issue with Memo to the EDO	03/2007	--	--

ISSUE NUMBER: 196 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: BORAL DEGRADATION

PRIORITY: **ACTION LEVEL:** ACTIVE **STATUS:** Cn

TASK MANAGER: R. TRIPATHI **TAC NUMBERS:**

IDENTIFICATION: 11/2003 **PRIORITIZATION/SCREEN:** 11/2004 **TECH. ASSESSMENT:** - -

IDENTIFICATION STATUS: Complete **PRIOR./SCREEN STATUS:** Complete **TECH. ASSESS. STATUS:** TBD

REGULATION & GUIDANCE DEVELOPMENT: - - **REGULATION & GUIDANCE ISSUANCE:** - -

REGULATION & GUIDANCE DEVELOPMENT STATUS: TBD **REGULATION & GUIDANCE ISSUANCE STATUS:** TBD

IMPLEMENTATION: - - **VERIFICATION:** - - **CLOSURE:** 11/2006

IMPLEMENTATION STATUS: TBD **VERIFICATION STATUS:** TBD **CLOSURE STATUS:**

WORK AUTH.:

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
Y6517	ORNL	Task 7, "High Burnup Source Term for Spent Fuel Storage"	.00

Total Resources Expended = $0.00

DESCRIPTION/WORK SCOPE

Description

Boral is used as a neutron absorber in the long-term, dry storage casks for spent reactor fuel, and water intrusion into the Boral composite material could result in its chemical breakdown. This degradation of Boral could produce an inadvertent criticality, resulting in high neutron and fission gamma radiation fields which can be hazardous to personnel, unless adequate shielding is in place.

Work Scope

A staff is reviewing literature supplied by NMSS and other Information to evaluate the effects of boral degradation and their impact on potential inadvertent criticality. The results of the findings will be compared with NMSS conclusions, and a future course of action will be charted.

All Active Issue(s)

ISSUE NUMBER: 196 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: BORAL DEGRADATION

STATUS

A Task Action Plan for the Technical Assessment of the issue was approved on February 22, 2005. Efforts are underway to gather, review, and summarize the information needed to evaluate Boral degradation effects in casks and their potential impacts on the estimated frequency of accidental criticality. An RES review of the NMSS-supplied literature and other Information for evaluating effects of boral degradation and their Impact on potential inadvertent criticality was completed on September 28, 2005.

AFFECTED DOCUMENTS

To be determined.

PROBLEM / RESOLUTION

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: Funding for materials-related work by ORNL required special approval and resulted in a two-month delay in the schedule.

ISSUE NUMBER: 196 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** RES/DRASP/OERA

TITLE: BORAL DEGRADATION

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Develop Task Action Plan for the Technical Assessment of the GSI	02/2005	- -	03/2005
Review the NMSS-Supplied Literature and Other Information for Evaluating Effects of Boral Degradation and Their Impact on Potential Inadvertent Criticality	09/2005	- -	09/2005
Expand Literature Review and Prepare Report	12/2005	- -	11/2005
Obtain Funding for Peer Review of Staff Report	04/2006	- -	04/2006
Peer Review Completed by ORNL	05/2006	05/2006	- -
Compare the Results of Findings with NMSS Conclusions and Chart Future Course of Actiom	03/2006	08/2006	- -
Present Rationale for Closing GI to the ACRS/ACNW	08/2006	08/2006	- -
Complete Technical Assessment	06/2006	09/2006	- -
Close Out Issue with Memo to the EDO	06/2006	11/2006	- -

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: NMSS-0007 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/FCSS/TSG
TITLE: CRITICALITY BENCHMARKS GREATER THAN 5% ENRICHMENT

PRIORITY: High **ACTION LEVEL:** ACTIVE **STATUS:**
TASK MANAGER: C. HRABAL **TAC NUMBERS:**

IDENTIFICATION: 05/1998 **PRIORITIZATION/SCREEN:** 05/1998 **TECH. ASSESSMENT:** 05/1998
IDENTIFICATION STATUS: Complete **PRIOR./SCREEN STATUS:** Complete **TECH. ASSESS. STATUS:** Complete

REGULATION & GUIDANCE DEVELOPMENT: 10/2006 **REGULATION & GUIDANCE ISSUANCE:** 10/2006
REGULATION & GUIDANCE DEVELOPMENT STATUS: **REGULATION & GUIDANCE ISSUANCE STATUS:**

IMPLEMENTATION: - - **VERIFICATION:** - - **CLOSURE:** 05/2007
IMPLEMENTATION STATUS: TBD **VERIFICATION STATUS:** TBD **CLOSURE STATUS:**

WORK AUTH.:

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
None.			.00

Total Resources Expended = $0.00

ISSUE NUMBER: NMSS-0007 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/FCSS/TSG

TITLE: CRITICALITY BENCHMARKS GREATER THAN 5% ENRICHMENT

DESCRIPTION/WORK SCOPE

Description

The importance of software (methods and data) in establishing the criticality safety of systems with fissile material is increasing as licensees work to optimize facilities and storage/transport packages at the same time that access to experimental data is decreasing. Available experimental data are insufficient to validate nuclear criticality safety evaluations for all required configurations at U-235 enrichments in the range of 5-20%.

Work Scope

The purpose of this project is to develop and confirm the adequacy of methods, analytical tools, and guidance for criticality safety software to be used in licensing nuclear facilities. The contractor will develop and test methods to estimate trends in calculational bias and uncertainty (thus extending the range of applicability) using sensitivity analysis techniques that: relate the importance of the system parameters to the calculated neutron multiplication factor; provide expert guidance on assessing the adequacy of the parameter phase space used in the validation process and the resulting bias and uncertainty; and illustrate use of the guidance by application to a regime of experimental phase space (such as 5-10% U-235 and degree of moderation) that has limited measured data but extensive interest in terms of current and planned safety evaluations.

ISSUE NUMBER: NMSS-0007 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/FCSS/TSG

TITLE: CRITICALITY BENCHMARKS GREATER THAN 5% ENRICHMENT

STATUS

The final reports for the sensitivity/uncertainty (S/U) methods were published in November 1999 as Volumes 1 and 2 of NUREG/CR-6655. The reports cover the following subjects: (1) methodology for defining range of applicability including extensions of enrichments from 5% to 11%; (2) test applications and results of the method; (3) test application for higher enrichments using foreign experiments; (4) feasibility study for extending the method to multidimensional analyses, such as transport casks and reactor fuel.

Results of the test applications of the ORNL methods show that, for simple geometries with neutron spectra that are well moderated (high H/X), benchmark experiments at 5% enrichment are applicable to calculations up to 11% enrichment. On the other hand, these test applications also show that benchmark experiments at intermediate and higher H/X values are not applicable to calculations at very low H/X. There are relatively few benchmarks at these very low H/X values for many compositions of interest to LEU licensees.

Although the ORNL method must be applied by licensees to each individual process to determine an acceptable subcritical margin, the preliminary results indicate that there may be situations where there are no applicable benchmarks. In these cases, the method does provide sensitivity and uncertainty information to aid designers in allowing adequately large margins to cover the lack of benchmark validation.

A new statement of work is needed for other contract work. A User Need Memo to RES dated 04/17/2001 requested assistance for that work, including making the computer codes for S/U methods available through the release of SCALE 5.0. In a memo from RES to NMSS dated 06/11/2001, once funding is available, RES will work with NMSS. Since RES did not provide any funding, no work had been done. Therefore, the completion date and milestone dates were changed. Under an NMSS contract with ORNL, NRC was provided with a pre-release of the S/U computer codes in SCALE 5.0, along with training. However, both ORNL and NRC recognized problems with interpreting the results. SCALE 5.0 was released in June 2004 and so the dates on the subsequent milestones were changed, except for the training item which was completed in June 2004 by non-NRC funded ORNL tutorials at the 2004 Annual American Nuclear Society Meeting and NMSS funded training for NRC.

The 04/17/2001 User Need Memo from NMSS to RES was canceled by NMSS by memo dated 06/24/2004 because due to higher priority work, RES had not been able to fund the contract. Independent of RES, NMSS had used an existing contract with ORNL to complete most of the work. The items left to be done do not need contract work. The staff is currently preparing Rev. 1 to Interim Staff Guidance (ISG)-10, "Justification for Minimum Margin of Subcriticality for Safety," which will be the vehicle for communicating the acceptability of new methods for determining subcriticality margins.

AFFECTED DOCUMENTS

To be determined.

PROBLEM / RESOLUTION

None.

ISSUE NUMBER: NMSS-0007 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/FCSS/TSG

TITLE: CRITICALITY BENCHMARKS GREATER THAN 5% ENRICHMENT

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: None.

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Development of Generalized Sensitivity Methods	12/1997	- -	12/1997
Acquisition and Documentation of Russian Data	05/1998	- -	05/1998
Development of Guidance for Defining Ranges of Applicability	07/1998	- -	11/1998
Application of Guidance to Extend Low Enrichment Range	09/1998	- -	11/1998
Technical Assistance and Project Planning	03/1999	- -	03/1999
Receive Final ORNL Contract Reports	03/1999	- -	10/1999
Publish Final ORNL Contract Reports	10/1999	- -	11/1999
User Need Request Memo to RES	12/2000	- -	06/2001
Cancel User Need Request Memo to RES	06/2004	- -	06/2004
Make New Computer Codes Available Through Scale 5.0 Release	03/2001	- -	06/2004
Training to NRC Staff and Licensees on S/U Methods in SCALE 5.0	09/2002	- -	06/2004
Revise Staff Procedures (ISG-10) and Communicate Acceptability of New Methods to Licensees	10/2000	10/2006	- -
Determine If User Needs Have Been Met	11/2000	02/2007	- -
Close Out Issue	03/2003	05/2007	- -

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: NMSS-0014 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/FCSS/FCLB

TITLE: SURETY ESTIMATES FOR GROUNDWATER RESTORATION AT IN-SITU LEACH FACILITI

PRIORITY: Medium **ACTION LEVEL:** ACTIVE **STATUS:**

TASK MANAGER: W. VON TILL **TAC NUMBERS:**

IDENTIFICATION: 06/1998 **PRIORITIZATION/SCREEN:** 07/1998 **TECH. ASSESSMENT:** 11/2006

IDENTIFICATION STATUS: Complete **PRIOR./SCREEN STATUS:** Complete **TECH. ASSESS. STATUS:**

REGULATION & GUIDANCE DEVELOPMENT: - - **REGULATION & GUIDANCE ISSUANCE:** - -

REGULATION & GUIDANCE DEVELOPMENT STATUS: N/A **REGULATION & GUIDANCE ISSUANCE STATUS:** N/A

IMPLEMENTATION: - - **VERIFICATION:** - - **CLOSURE:** 11/2006

IMPLEMENTATION STATUS: N/A **VERIFICATION STATUS:** N/A **CLOSURE STATUS:**

WORK AUTH.: NMSS Operational Events Briefing on 06-08-98.

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
None.			.00

Total Resources Expended = $0.00

All Active Issue(s)

ISSUE NUMBER: NMSS-0014 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/FCSS/FCLB

TITLE: SURETY ESTIMATES FOR GROUNDWATER RESTORATION AT IN-SITU LEACH FACILITI

DESCRIPTION/WORK SCOPE

Description

This issue was identified by NMSS to pursue research to provide a methodology to calculate surety for groundwater restoration activities at in situ leach uranium extraction facilities and a post-restoration groundwater quality stability monitoring methodology. The following tasks were envisioned: (1) review approaches used to estimate pore volumes and to calculate surety amounts and obtain data to evaluate these approaches; (2) develop a pore volume estimation methodology and document it in a NUREG report; (3) develop cost estimation methodology for use in evaluating the level of financial surety required; (4) brief regulators on the surety methodology; (5) review the existing approaches used to determine an appropriate time period for post-restoration monitoring period and obtain datasets to evaluate the methodologies; (6) use the datasets to develop and test the methodologies; (7) develop a robust methodology; and (8) transfer the methodology to regulators through briefings and a NUREG report.

Work Scope

This research will provide a methodology to calculate surety for groundwater restoration activities at in situ leach uranium extraction facilities and a post-restoration groundwater quality stability monitoring methodology. The research will be conducted by an RES contractor.

STATUS

RES developed a contract Statement of Work for this effort in July 2001. The scheduled completion of this GSI was delayed due to requests by the NRC contractor (USGS) for additional information. The NRC contractor, USGS, has finished the sub-tasks and has completed the draft report "Consideration of Geochemical Issues in Groundwater Restoration at Uranium In-Situ Leach Mining Facilities." NRC staff requested additional information on October 2003. The NRC contractor has incorporated additional information provided by the industry and comments from the staff. A revised draft NUREG was published in June 2005. The draft NUREG/CR-6870, "Consideration of Geochemical Issues in Groundwater Restoration at Uranium In Situ Leach Mining Facilities," was issued for public comment in June 2005 and the comment period closed on August 31, 2005. RES is working with the contractor to address the comments received, and NUREG/CR-6870 is being modified for final publication.

AFFECTED DOCUMENTS

(1) SRP for In Situ Leach Uranium Extraction License Applications, NUREG-1569

(2) BTP on Financial Assurances for Reclamation, Decommissioning, and Long Term Surveillance and Control of Uranium Recovery Facilities

PROBLEM / RESOLUTION

None.

ISSUE NUMBER: NMSS-0014 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/FCSS/FCLB

TITLE: SURETY ESTIMATES FOR GROUNDWATER RESTORATION AT IN-SITU LEACH FACILITI

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: None.

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Pore Volume - Data Evaluation (Task 1)	12/1997	- -	06/1998
Commission Response to SECY-99-013	08/1999	- -	07/2000
Complete Statement of Work	06/2001	- -	07/2001
Draft NUREG to Staff for Comment	08/2002	- -	08/2003
Revised Draft NUREG	04/2004	- -	12/2004
Draft NUREG/CR-6870 Issued for Public Comment	09/2002	- -	06/2005
Receive Public Comments on Draft NUREG/CR-6870	08/2005	- -	08/2005
Issue Final NUREG/CR-6870	09/2002	11/2006	- -
Close Issue	05/2006	11/2006	- -

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: NMSS-0016 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/IMNS/RGB

TITLE: ADEQUACY OF 0.05 WEIGHT PERCENT LIMIT IN 10 CFR 40

PRIORITY: Medium **ACTION LEVEL:** ACTIVE **STATUS:**

TASK MANAGER: G. COMFORT **TAC NUMBERS:**

IDENTIFICATION: 06/1998 **PRIORITIZATION/SCREEN:** 07/1998 **TECH. ASSESSMENT:** 06/2006

IDENTIFICATION STATUS: Complete **PRIOR./SCREEN STATUS:** Complete **TECH. ASSESS. STATUS:**

REGULATION & GUIDANCE DEVELOPMENT: - - **REGULATION & GUIDANCE ISSUANCE:** - -

REGULATION & GUIDANCE DEVELOPMENT STATUS: N/A **REGULATION & GUIDANCE ISSUANCE STATUS:** N/A

IMPLEMENTATION: - - **VERIFICATION:** - - **CLOSURE:** 06/2006

IMPLEMENTATION STATUS: N/A **VERIFICATION STATUS:** N/A **CLOSURE STATUS:**

WORK AUTH.: NMSS Operational Events Briefing on 06-08-98.

FIN	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
None.			.00

Total Resources Expended = $0.00

ISSUE NUMBER: NMSS-0016 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/IMNS/RGB

TITLE: ADEQUACY OF 0.05 WEIGHT PERCENT LIMIT IN 10 CFR 40

DESCRIPTION/WORK SCOPE

Description

Exposure to the "unimportant quantities" of source material defined in 10 CFR 40.13(a) as < 0.05 Wt% uranium or thorium could result in annual doses that exceed NRC's public dose limit of 100 mem/yr from all sources. In 07/96, DWM/NMSS staff developed a draft User Need memo requesting development of a regulation to limit the transfer of source material meeting the "unimportant quantity" limit, or to revise the definition of source material.

Work Scope

Discussions in 1996 and 1997 with RES and OGC, as well as with other NMSS divisions, indicated that there were several options available to the staff to revise the definition of source material. However, the User Need memo was never finalized because of lack of budgeted resources and the limited potential for success of the options. Subsequently, FCSS received a licensee request to transfer baghouse dust containing less than 0.05 Wt% uranium and thorium to an exempt person per 10 CFR 40.51(b)(3) and 40.13 (a). Some conservative dose estimates indicated that the transfer could result in doses exceeding the public dose limit. FCSS proposed a rulemaking to immediately cease transfers under 40.51(b)(3) and 40.51(b)(4) of source material to persons operating under the exemption in 40.13(a). By eliminating these provisions, any future transfers would have to meet existing general license conditions, or be specifically approved on a case-by-case basis.

STATUS

The recommendation to amend part 40 was dropped from the final FCSS Commission Paper. On 02-02-1999, an SRM on SECY-98-022 requested options for commission consideration on how to proceed with jurisdictional and technical issues on regulation of source material. SECY-99-259 responding to SRM was issued on 11/01/1999. SRM issued 03/09/2000 approving staff recommendations with comments. A proposed rule was sent to the Commission on 09-25-2000 in SECY-00-0201. The SRM responding to SECY-00-0201, dated March 29, 2002, directed the staff to publish the proposed rule for comment. Proposed rule was published in the Federal Register on August 28, 2002. Twenty-five comment letters were received and are being evaluated.

On June 24, 2003, the staff notified the Commission in SECY-03-0106 that it planned to postpone finalization of the Rule until the Commission had an opportunity to review and direct the staff regarding other recent related issues. On October 8, 2003, the Commission issued an SRM that did not object to the postponement and directed the staff to continue to review transfers based on previous Commission guidance. Work on the Rule has not restarted.

The Commission has provided direction on handling cases related to this GI on a case-by-case basis. The Project Manager intends to issue a memorandum by the end of June 2006 closing out the GI.

ISSUE NUMBER: NMSS-0016 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/IMNS/RGB

TITLE: ADEQUACY OF 0.05 WEIGHT PERCENT LIMIT IN 10 CFR 40

AFFECTED DOCUMENTS

To be determined.

PROBLEM / RESOLUTION

None.

REASONS FOR SCHEDULE CHANGES

FY-2006 2nd Quarter: None.

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
Issue Options Paper (SECY-99-259)	07/1998	- -	11/1999
Receive SRM	02/2000	- -	03/2000
Proposed Rule to the Commission	08/2000	- -	09/2000
Publish Proposed Rule	08/2002	- -	08/2002
SECY-03-0106 to Commission	06/2003	- -	06/2003

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

All Active Issue(s)

ISSUE NUMBER: NMSS-0016 **TYPE:** GSI **OFFICE/DIVISION/BRANCH:** NMSS/IMNS/RGB

TITLE: ADEQUACY OF 0.05 WEIGHT PERCENT LIMIT IN 10 CFR 40

MILESTONES	ORIGINAL DATE	CURRENT DATE	ACTUAL DATE
SRM from Commission	10/2003	- -	10/2003
Close Out Issue	12/2001	06/2006	- -