GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0156.6.1 **Type:** GSI **Office/Division/Branch:** RES/DRASP/OERA

Title: PIPE BREAK EFFECTS ON SYSTEMS AND COMPONENTS

Priority: H **Action Level** ACTIVE **Resolution Status:**

Task Manager: H. Vandermolen **TAC Number:**

Identification: 02/1991 **Prioritization/Screen:** 07/1999 **Technical Assessment:** 12/2007

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:**

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: TBD **Regulation and Guidance Development Status:** TBD

Implementation: **Verification:** **Closure:** 12/2007

Implementation Status: TBD **Verification Status:** TBD **Closure Status:**

Work Authorization: Memo from A. Thadani to E. Rossi dated July 16, 1999.

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
Y6406	ISL		$195.00
		Total Resources Expended (K):	**$195.00**

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.

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

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 reviewed. In April 2006, DRASP requested NRR assistance in gathering detailed plant layout information. A survey of the layout of those plants affected by the issue was completed by the Office of Nuclear Reactor Regulation (NRR) in September 2006. The review of piping configurations to identify the most vulnerable plants is underway, with an expected completion date in December 2006. No problems have been noted at 12 of the 14 sites review so far.

Staff Resources Expended: 760 hours

AFFECTED DOCUMENTS:

To be determined.

PROBLEM/RESOLUTION:

If the survey uncovers any plant with vulnerabilities, it will not be possible to conclude that non-surveyed plants are unaffected by the issue. The entire list of plants will need to be examined, and a more detailed piping configuration review will have to be performed on those plants with high energy piping within line of sight of the cable penetrations.

REASONS FOR SCHEDULE CHANGES:

Arrangement for plant visits was delayed to pursue design drawings that would preclude walkdowns.

Milestone	Original Date	Current Dat	Actual Date
Task Action Plan Approved	05/01/2001		05/30/2001
Task Manager Reassigned to Other Duties	07/01/2001		07/01/2001
New Task Manager Assigned	01/01/2002		01/01/2002
Draft Contractor Report	09/01/2002		12/31/2002
Meeting to Discuss Options	03/19/2003		03/19/2003
Complete Draft Task Action Plan	11/01/2002		07/31/2003
Decision to Integrate GSI-80 into Technical Assessment of GSI-156.6.1	10/02/2003		10/02/2003
Approval of Task Action Plan	11/30/2003		02/03/2004
High Energy Piping Interactions with BWR Mark I Drywell Shells	03/31/2004		03/31/2004
Analysis and Documentation of Calculation Results	06/30/2004		07/31/2004
Identify Plants to be Visited	11/30/2005		11/30/2005
Select PWRs for Site Visits	09/30/2005		06/08/2006
Complete NRR PMs Survey of Affected Plants	03/31/2006		09/30/2006
Complete Review of Piping Configurations at PWR Plants	09/30/2005		10/17/2006
Perform Probabilistic Assessment of Vulnerable Plants (Based on Specific Piping Configuration)	04/30/2007	04/30/2007	
Draft Recommendations	08/31/2004	06/30/2007	
Meet with ACRS	02/28/2006	09/30/2007	
Close Out Issue with Memo to the EDO	06/30/2006	12/31/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0163 **Type:** GSI **Office/Division/Branch:** NRR/DCI/CSG

Title: MULTIPLE STEAM GENERATOR TUBE LEAKAGE

Priority: H **Action Level** ACTIVE **Resolution Status:**

Task Manager: E. Murphy **TAC Number:** MB7216, MA7147

Identification: 06/1992 **Prioritization/Screen:** 01/1997 **Technical Assessment:**

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:**

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: TBD **Regulation and Guidance Development Status:** TBD

Implementation: **Verification:** **Closure:**

Implementation Status: TBD **Verification Status:** TBD **Closure Status:**

Work Authorization: January 17, 1997, Memorandum from H. Thompson to D. Morrison

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
	None		$0.00
		Total Resources Expended (K):	**$0.00**

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.

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 1.21, 3.1, and 3.11 of the SG Action Plan.

The staff and the industry have reached agreement on new generic requirements for maintaining SG tube integrity. The industry submitted, and the staff has approved, a generic template, referred to as Technical Specification Task Force (TSTF)- 449, for these requirements. In response to GL 2006-01, "Steam Generator Tube Integrity and Associated Technical Specifications," issued on January 20, 2006, all PWR licensees have submitted license amendment applications to change their Technical Specifications in accordance with TSTF-449. These new Technical Specifications are performance based, and will improve the effectiveness of regulatory requirements in maintaining SG tube integrity since they are more directly focused on tube integrity than the earlier, more prescriptive requirements.

Staff Resources Expended: 670 hours

AFFECTED DOCUMENTS:

Generic Letter 2006-01

PROBLEM/RESOLUTION:

Lessons learned from work completed so far have necessitated several modifications and additions to tasks. These are being formalized in the RES Operating Plan and the SG Action Plan.

REASONS FOR SCHEDULE CHANGES:

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

In order to resolve GSI-163, it is necessary to complete work associated with Tasks 1.21, 3.1, and 3.11 of the SG Action Plan.

Milestone	Original Date	Current Dat	Actual Date
Regulatory Analysis	05/01/1997		05/01/1997
Proposed GL Package	06/01/1997		10/01/1997
ACRS Endorsement	06/01/1997		10/01/1997
GL Package Placed in Concurrence	10/01/1997		10/01/1997
NEI 97-06 Submitted	12/01/1997		12/01/1997
GL Package Sent to CRGR by NRR	07/01/1997		04/01/1998
CRGR Meeting on GL Package	06/01/1998		06/01/1998
CRGR Meeting on Proposed GL	07/01/1998		07/01/1998
NRR Memo to EDO Putting GL on Hold	09/01/1998		09/01/1998
Commission Paper Recommending Hold on Issuance of GL	11/01/1998		10/01/1998
SRM on SECY-98-248	12/01/1998		12/01/1998
DPO Consideration Document to the EDO	09/01/1999		09/01/1999
EDO Establishes an Independent Panel to Review the DPO	02/01/2000		05/01/2000
ACRS to Perform DPO Review Panel Function	10/01/2000		10/01/2000
ACRS to Provide Conclusions and Recommendations	12/01/2000		02/01/2001
NRR & RES Issue Joint Action Plan	05/31/2001		05/31/2001
Issue Generic Letter 2006-01	01/20/2006		01/20/2006
Close Out Issue with Memo to the EDO	02/28/2001		
Completion of GSI-Related Joint Action Plan Issues	03/31/2005		

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0186 **Type:** GSI **Office/Division/Branch:** NRR/DSS/SBP

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

Priority: **Action Level** ACTIVE **Resolution Status:** Cn

Task Manager: S. Jones **TAC Number:**

Identification: 04/1999 **Prioritization/Screen:** 07/2003 **Technical Assessment:** 11/2003

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:** C

Regulation and Guidance Development: 04/2007 **Regulation and Guidance Issuance Status:** 04/2007

Regulation and Guidance Development Status: **Regulation and Guidance Development Status:**

Implementation: **Verification:** **Closure:** 10/2007

Implementation Status: N **Verification Status:** N **Closure Status:**

Work Authorization: Memo from A. Thadani to S. Collins, "Initial Screening of Candidate Generic Issue #186, 'Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants," dated June 28, 2000.

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
None			

Total Resources Expended (K):

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.

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 American Society of Mechanical Engineers (ASME) Code Committee action in support of NRC endorsement of the industry crane standard, ASME NOG-1, "Rules for Construction of Overhead and Gantry Cranes," 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.

The ASME Code Committee action in support of NRC endorsement of the industry crane standard NOG-1 has continued to be delayed. NRR has elected to endorse the ASME NOG-1, 2004, through the Standard Review Plan Update Program in March 2007, and is developing a Supplement to RIS 2005-25 to notify industry of this endorsement.

Staff Resources Expended: 3,000 hours

AFFECTED DOCUMENTS:

NUREG-1774

PROBLEM/RESOLUTION:

None.

REASONS FOR SCHEDULE CHANGES:

The expected ASME Code committee action on the NOG-1 Standard has been delayed.

Milestone	Original Date	Current Dat	Actual Date
Publish NUREG-1774	06/30/2003		06/30/2003
Meet with ACRS Full Committee	09/01/2003		09/11/2003
ACRS Memo to the EDO on Staff Recommendations	09/24/2003		09/24/2003

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Milestone	Original Date	Current Dat	Actual Date
Complete Technical Assessment and Transfer Issue to NRR for Regulation and Guidance Development	10/31/2003		11/12/2003
DSARE/RES Memo to DET/RES Requesting Industry Code Committee Evaluation	11/21/2003		11/21/2003
Issue RIS 2005-25 to Clarify and Reemphasize Existing Regulatory Guidance for Control of Heavy Loads	12/31/2004		10/31/2005
Issue RIS 2005-25, Supplement 1 to Address Endorsement of Industry Standard	02/28/2006	04/30/2007	
Brief ACRS on Implementation of Recommendations	11/30/2004	07/31/2007	
Issue Closeout Memo to the EDO	08/31/2005	10/31/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0189 **Type:** GSI **Office/Division/Branch:** NRR/DSS/SBP

Title: SUSCEPTIBILITY OF ICE CONDENSER AND MARK III CONTAINMENTS TO EARLY FAILURE FROM HYDROGEN COMBUSTION DURING A SE

Priority: **Action Level** ACTIVE **Resolution Status:** Cn

Task Manager: S. JONES **TAC Number:** MB7245

Identification: 05/2001 **Prioritization/Screen:** 02/2002 **Technical Assessment:** 12/2002

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:** C

Regulation and Guidance Development: 04/2007 **Regulation and Guidance Issuance Status:** 04/2007

Regulation and Guidance Development Status: TBD **Regulation and Guidance Development Status:**

Implementation: 06/2008 **Verification:** 06/2009 **Closure:** 06/2010

Implementation Status: TBD **Verification Status:** TBD **Closure Status:**

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

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
			$685.00
		Total Resources Expended (K):	**$685.00**

WORK SCOPE:

Description

NUREG/CR-6427, Assessment of the Direct Containment Heat (DCH) Issue for Plants with Ice Condenser Containments," showed that the early containment failure probability of ice condensers is dominated by non-DCH hydrogen combustion events. The staff subsequently extended the issue to include BWR MARK III containments because their relatively low free volume and strength are comparable to PWR ice condensers.

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 the 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 hydrogen 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 GI-189 to NRR in a memorandum dated December 17, 2002. RES concluded that further action to provide back-up 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 GI. NRR prepared a Task Action Plan to complete MD 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 asssociated 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 regardingthe need to provide a backup power supply to the hydrogen igniters and NRR's consideration of rulemaking for the resolution of GI-189.

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 staffs 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 On November 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 III 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.

NRR developed design criteria for the backup power supply, and administered 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 September 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 relativerisk 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-I, will provide a new backup power source as the standard emergency power on 69kv board.

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 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.

Staff Resources Expended: 8,000 hours

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

AFFECTED DOCUMENTS:

10 CFR 50.44
10 CFR 50.34

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 chose to move 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. Subsequently, NRR chose to pursue 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 June 14, 2005, the EDO issued a memorandum to the Commissioners to inform the Commission of the regulatory analysis results and recent staff activities on GSI-189.

REASONS FOR SCHEDULE CHANGES:

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 staffs intent to delay the request for commitments until after the security-related reviews were completed in September 2006. Because this issue was not incorporated in the scope of security-related modifications, the staff has held closed meetings in December 2006 and January 2007 to further explore the proper consideration of security insights in the design of the modifications. On January 30, 2007, the EDO issued a memo summarizing the outcome of the meetings. The staff expects to receive industry proposals for modifications that incorporate security insights by March 2007. The staff expects final resolution of safety, security, and regulatory issues by December 2007 and full implementation of the modifications to be completed by June 2008.

Milestone	Original Date	Current Dat	Actual Date
Draft Technical Assessment	05/01/2002		05/01/2002
Meet with ACRS	06/01/2002		06/06/2002
Second Meeting on Technical Assessment with ACRS Sub-Committee	10/01/2002		11/05/2002
Final Technical Assessment	11/01/2002		11/10/2002
Meet with ACRS Full Committee	11/01/2002		11/13/2002
Transfer GSI to NRR	12/01/2002		12/17/2002
Public Meeting with Stakeholders	02/28/2003		02/28/2003
Review RES Technical Assessment	02/28/2003		02/28/2003

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Milestone	Original Date	Current Dat	Actual Date
Determine Best Course of Action	02/28/2003		02/28/2003
Finalize CRGR Package	03/26/2003		03/26/2003
Distribute Draft Order and SECY Paper	03/26/2003		03/26/2003
Prepare Guidance and Provide Results to NRR Management	03/26/2003		03/26/2003
Provide Draft Order to OGC and Draft SECY to EDO	03/28/2003		03/28/2003
Meet with Rulemaking Committee	05/05/2003		05/05/2003
Conduct Public Meeting	06/18/2003		06/18/2003
Meet with OPA to Develop Communication Plan	06/24/2003		06/24/2003
Complete Communication Plan	07/10/2003		07/10/2003
Public Meeting to Address Design Criteria	11/06/2003		11/06/2003
NRR Meeting with ACRS	11/06/2003		11/06/2003
Public Meeting with Stakeholders	02/03/2004		02/03/2004
Brief Commissioner Merrifield	03/04/2004		03/04/2004
Public Meeting with Stakeholders	03/31/2004		03/31/2004
Issue Draft Design Criteria for Comment	08/13/2004		08/13/2004
Public Meeting with Stakeholders	09/21/2004		09/21/2004
Internal Meeting to Discuss Pursuit of Rulemaking	11/02/2004		11/02/2004
Finalize Design Criteria	11/30/2004		11/30/2004
Decision on Voluntary Licensee Initiatives as Alternative to Rulemaking	11/30/2004		11/30/2004
Perform Sensitivity Analysis to Determine Whether 2-Hour Startup Time for BWRs is Acceptable	11/30/2004		11/30/2004
Evaluate Safety/Security Interface	03/31/2005		03/30/2005
Issue Status Paper to Commission	05/31/2005		06/14/2005
Brief Commissioner Jaczko on Regulatory Analysis Results and Safety Significance	07/18/2005		07/18/2005

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Milestone	Original Date	Current Dat	Actual Date
Meet with Owners to Discuss Safety-Security Interface Issues	08/03/2005		08/03/2005
Update Commission Regarding Licensee Plans for Voluntary Measures	03/01/2006		03/01/2006
Complete Regulation and Guidance Development	06/30/2006	04/30/2007	
Seek Commitment for Implementation of Voluntary Initiatives	08/31/2005	04/30/2007	
Request Information from Owners on Voluntary Actions Implemented	12/31/2005	12/31/2007	
Complete Implementation	06/30/2008	12/31/2008	
Complete Verification	06/30/2009	06/30/2009	
Close Out Issue with Memo to the EDO	06/30/2010	06/30/2010	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0191 **Type:** GSI **Office/Division/Branch:** NRR/DSS/SSI

Title: ASSESSMENT OF DEBRIS ACCUMULATION ON PWR SUMP PERFORMANCE

Priority: H **Action Level** ACTIVE **Resolution Status:**

Task Manager: T. Hafera **TAC Number:** MA6454, MB4864

Identification: 09/1996 **Prioritization/Screen:** 09/1996 **Technical Assessment:** 09/2001

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:** C

Regulation and Guidance Development: 09/2004 **Regulation and Guidance Issuance Status:** 09/2004

Regulation and Guidance Development Status: C **Regulation and Guidance Development Status:** C

Implementation: 12/2007 **Verification:** 06/2008 **Closure:** 06/2008

Implementation Status: **Verification Status:** TBD **Closure Status:**

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

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
W6650	SEA	Technical Assistance in Resolving Generic Safety Issues	$20.00
Y6041	LANL	Assessment of Debris Accumulation on Pressurized Water Reactors Sump Performance	$4,517.30
J3213	ISL	Technical Support of GSI-191 Review Activities	$835.90
J2978	LANL	Technical Assistance for the Resolution of the PWR Sump Clogging Issue	$835.90
J3130	LANL	Technical Assistance in Support of the Plant Systems Branch	$835.90
		Total Resources Expended (K):	**$7,045.00**

WORK SCOPE:

Description

This issue concerns the possibility that debris accumulating on the ECCS sump screen in PWRs may result in a loss of the net positive suction head (NPSH) margin. Loss of NPSH margin could impede or prevent the flow of water from the sump, which is necessary to meet the criteria of 10 CFR 50.46.

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 were representative of, but not identical to, the operating PWR population. he staff's Technical Assessment concluded that GSI-191 was a credible concern for the population of domestic PWRs, and that detailed plant-specific evaluations were needed to determine the susceptibility of each U.S.-licensed PWR to ECCS sump blockage. 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 lead for Stages 4 through 6 of the Generic Issues Process for GSI-191. NRR has evaluated the technical assessment, and prepared a Task Action Plan for developing appropriate regulatory guidance and resolution of GSI-1 91.

STATUS:

Following meetings with stakeholders on March 5 and April 29, 2003; the NRC issued Bulletin 2003-01 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. All PWR licensees provided a response to the Bulletin, indicating interim compensatory measures and candidate operator actions that would be implemented. The Safety Issues Resolution Branch (SSIB) reviewed and evaluated the information provided and determined that the licensee's actions were responsive, and met the requirements of Bulletin 2003-01. The Division of Reactor Licensing (DORL) issued close-out letters to the PWR licensees as these reviews were completed. Generic close-out of Bulletin 2003-01 was completed in December, 2005.

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 a guidance report (GR) to the staff in May 2004 containing the industry's proposed evaluation methodology for performing the plant-specific evaluations. The staff reviewed the GR and issued a draft Safety Evaluation (SE), which provided supplementation to the GR. The staff presented 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, resulting in an NRC-approved evaluation methodology. 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 were performed using the SE and GR.

Generic Letter 2004-02 required licensees to respond within 90 days to document the actions planned by the licensee to perform the sump evaluation, and the proposed schedule for completion. All PWR licensees responded to the GL on schedule in September 2005. All PWR licensees committed to modify their containment sump strainer, except for three plants who modified their containment sump strainers within the last five years. The staff evaluated all 90 day responses to Generic Letter 2004-02 and issued comments to licensees to be addressed in their final response submittals in January, 2006. The staff will continue to review final licensee responses to Generic Letter 2004-02.

To address concerns regarding the potential for chemical precipitates and corrosion products to significantly block a fiber bed and increase the head loss across an ECCS sump screen, a joint NRC/Industry Integrated Chemical Effects Testing program was started in 2004 and completed in August 2005. Chemical precipitation products were identified during the test program, and follow-up testing and analyses will be needed to address the effect on head loss. IN 2005-26, "Results of Chemical Effects Head Loss Tests in a Simulated PWR Sump Pool Environment," was issued on September 16, 2005.

The NRC conducted additional research in certain areas to support evaluation efforts and provide confirmatory information. These areas include research on chemical effects to determine if the pressurized-water reactor sump pool environment generates byproducts which contribute to sump clogging, research on pump head losses caused by accumulation of containment materials and chemical byproducts, and research to predict the chemical species that may form in these environments. 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. Research was also conducted on the transportability of coating chips in containment pool environments, and on the effect of ingested debris on downstream valve performance. Draft test reports have been issued for these items, final issuance is expected in FY07.

Between July and September 2006, the staff completed research on: (1) the thermodynamic simulation of containment sump pool chemical constituents, to predict the chemical reactions/byproducts in the pools; (2) the pressure loss across containment sump screens due to fiber insulation, chemical precipitates, and coating debris; and (3) a literature survey to summarize the knowledge base to date on the potential contribution of material leached from containment coatings to the chemical products formed in the containment sump pool, after a loss-of-coolant accident.

As part of the plan to confirm adequate implementation and resolution of GSI-191, the NRC is conducting
detailed plant audits examining the analyses and design changes used to address the technical issues. Visits to strainer vendor test facilities may also be included as part of this audit process. Two pilot audits were performed in 2005 (Crystal River Unit 3 and Fort Calhoun) to provide opportunities to exercise and improve the NRC evaluation process. Currently, 11 plant audits are planned. As of January 2007, one audit (Watts Bar) is complete, and two (San Onofre and Prairie Island) are in various stages of progress. Audit reports will be posted on the NRC's ADAMS document control system as they become available. To support the audits, NRC staff also made visits to two sump strainer vendor facilities to observe head loss testing during the 4th Quarter of FY-2006; these were at Control Components, Inc. (CCI) in Switzerland and at the Continuum Dynamics, Inc. (CDI) test facility in Ewing, NJ.

Some plant-specific issues (ex. outage schedule availability, steam generator replacement scheduled) have led to some licensees identifying a need to request an extension beyond the NRC identified GSI-191 resolution date of December 31, 2007. Because they are plant-specific, these extension requests must be evaluated on a case-by-case basis. As of January 2007, 12 extension requests have been approved based on strong sets of interim compensatory measures, significant interim or final screen areas, Cal-Sil removal or lack of Cal-Sil issues, installation of debris interceptors, and short periods of extension. Three additional extension requests are currently under review.

To provide open communication on NRC activities associated with GSI-191 resolution, public meetings with NEI and industry representatives continue to be held regularly, as schedules allow. Briefings of ACRS have been scheduled periodically to provide opportunities for communication on technical issues and additional public involvement. The going forward project schedule for resolution of GSI-191 includes public meetings with industry on a regular basis (approximately 2 per quarter) and briefings for the ACRS (approximately 2 per year). Experience has shown that flexibility in meeting/briefing scheduling is beneficial to allow milestones to be complete prior to meeting/briefing occurrence.

Staff Resources Expended: 39,000 hours

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:

Complexities associated with Chemical Effects is making it difficult for licensees to design modified sump screens, and the NRC to evaluate the adequacy of the modified screens. Data is being generated both by the industry and RES to address this issue.

REASONS FOR SCHEDULE CHANGES:

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

None

Milestone	Original Date	Current Dat	Actual Date
NRR User Need Request Sent to RES	12/01/1995		12/01/1995
User Need Request Assigned to GSIB/RES	01/01/1996		01/01/1996
Reassessment Declared a New GSI	09/01/1996		09/01/1996
Issue SOW for Evaluation of GSI A-43	11/01/1996		11/01/1996
Complete Evaluation of GSI A-43	04/01/1997		03/01/1997
Issue SOW for Reassessment of Debris Blockages in PWR Containments Impact on ECCS Performance	09/01/1998		09/01/1998
Complete Collection and Review of PWR Containment and Sump Design and Operation Data	12/01/1999		12/01/1999
Complete All Debris Transport Tests	09/01/2000		08/01/2000
Complete Parametric Evaluation	07/01/2001		07/31/2001
Proposed Recommendations to the ACRS	08/31/2001		08/31/2001
ACRS Review Completed	09/30/2001		09/14/2001
Complete Reassessment of Debris Blockages in PWR Containments Impact on ECCS Performance	09/30/2001		09/28/2001
Complete Estimate of Average CDF Reduction, Benefits, and Costs	04/01/2002		09/28/2001
Prepare Memo Discussing Proposed Recommendations (End of Technical Assessment Stage of Generic Issue Process)	04/01/2002		09/28/2001
Issue Transferred from RES to NRR	09/28/2001		09/28/2001
Issue Bulletin 2003-01	05/01/2003		06/01/2003
Complete Development of Models and Methods for Analyzing Impact of Debris Blockages in PWR Containments on ECCS Performance	04/01/2001		06/09/2003
Discuss Reg. Guide 1.82, Rev. 3 with ACRS SubCommittee on Thermal-Hydraulic Phenomena	08/20/2003		08/20/2003
Present Final Version of Reg. Guide 1.82, Rev. 3 to ACRS Full Committee	09/11/2003		09/11/2003
ACRS Letter on Final Version of Reg. Guide 1.82, Rev. 3	09/30/2003		09/30/2003

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Milestone	Original Date	Current Dat	Actual Date
Draft Industry Guidance for Plant-Specific Analyses	10/30/2003		10/31/2003
Issue Reg. Guide 1.82, Rev.3	09/30/2003		11/30/2003
NRC Meeting with Stakeholders	03/23/2004		03/23/2004
NRC Meeting with Stakeholders	05/25/2004		05/25/2004
Receive Industry Guidance for Plant-Specific Analyses	09/30/2003		05/28/2004
NRC Meeting with Stakeholders	06/17/2004		06/17/2004
Brief ACRS SubCommittee on Proposed Generic Letter	06/22/2004		06/22/2004
NRC Meeting with Stakeholders	06/29/2004		06/29/2004
Develop Generic Letter for Resolution of GSI	07/07/2004		07/07/2004
Brief Full ACRS Committee on Proposed Generic Letter	07/07/2004		07/07/2004
Meet with CRGR on Proposed Generic Letter	08/10/2004		08/10/2004
Issue Generic Letter 2004-02	09/13/2004		09/13/2004
Meet with ACRS on Safety Evaluation of NEI 04-07	10/07/2004		10/07/2004
ACRS Response on Safety Evaluation of NEI 04-07	10/18/2004		10/18/2004
Brief Commissioners Jaczko and Lyons on Status	07/18/2005		07/18/2005
EDO Briefing of ACRS on Status	09/09/2005		09/09/2005
Receive All GL Responses Addressing Plant-Specific Analyses	05/31/2005		09/15/2005
Issue Information Notice 2005-26	09/16/2005		09/16/2005
Issue Supplement 1 to IN 2005-26	01/20/2006		01/20/2006
Complete Review of Licensee Responses to GL 2004-02	01/20/2006		01/20/2006
Complete Research Programs Evaluating Coating Transportability and Surrogate Throttle Valve Debris Ingestion	02/28/2006		02/28/2006
Brief ACRS on Staff Evaluation of Licensee Responses to GL 2004-02 and Results of Chemical Effects Tests	03/09/2006		03/09/2006
Complete Testing and Analysis Associated with Initial Phase of Chemical Effects Research	05/30/2006		05/30/2006

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Milestone	Original Date	Current Dat	Actual Date
Complete Containment Material Head Loss Testing	06/15/2006		06/15/2006
Complete Thermodynamic Simulation of Containment Sump Pool Chemical Constituents	09/30/2006		09/30/2006
Review Licensee GL Responses for Adequacy and Audit Selected Plants	12/31/2007	04/30/2008	
Licensees Complete GSI-191 Activities, Including All Modifications	01/31/2007	05/31/2008	
Close Issue with Memo to the EDO	03/02/1987	06/30/2008	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0193 **Type:** GSI **Office/Division/Branch:** RES/DRASP/NRCA

Title: BWR ECCS SUCTION CONCERNS

Priority: **Action Level** ACTIVE **Resolution Status:** Cn

Task Manager: P. Kadambi **TAC Number:**

Identification: 05/2002 **Prioritization/Screen:** 10/2003 **Technical Assessment:**

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:** TBD

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: TBD **Regulation and Guidance Development Status:** TBD

Implementation: **Verification:** **Closure:**

Implementation Status: TBD **Verification Status:** TBD **Closure Status:**

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

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
	None		
		Total Resources Expended (K):	

WORK SCOPE:

Description

This GI 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.

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.

STATUS:

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

A proposal for performing tecnical analyses was received from BNL in June 2005, in response to an RFP issued by the NRC in April 2005. 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. A new Task Manager (Prasad Kadambi) was assigned to the issue in May 2006.

During the 4th Quarter of FY-2006, discussions were initiated with NRR regarding commonality of concerns between GI-193 and those being addressed in a proposed Generic Letter addressing gas accumulation in ECCS suction piping covering all reactors. It was decided initially that the resolution of GI-193 would be pursued by RES independently, but with appropriate coordination with the NRR activities on gas management issues. After consideration of a research project to model the central issue in GI-193 (ie. ability of Mark-1 BWR ECCS pumps to tolerate short periods of high void fraction operation) RES reached a decision in favor of working with NRR to issue an appropriate generic communication to affected licensees. The milestones were revised accordingly. Discussions with NRR are continuing on the specifics of the generic communication and the schedule for its issuance.

Staff Resources Expended: 1,668 hours

AFFECTED DOCUMENTS:

To be determined.

PROBLEM/RESOLUTION:

None

REASONS FOR SCHEDULE CHANGES:

The previous Task Manager left the NRC in December 2005. The new Task Manager was assigned in May 2006.

Milestone	Original Date	Current Dat	Actual Date
Complete Task Action Plan for a Technical Assessment	03/31/2004		05/24/2004
ECCS Pump Performance Literature Search	03/31/2005		03/31/2005
Issue RFP to BNL for Technical Assistance	04/26/2005		04/26/2005
Receive Proposal for Technical Assistance from BNL	06/03/2005		06/03/2005
Request Information from Technical Research Center of Finland	09/12/2005		09/12/2005
Evaluate Experimental Results on Thermal-Hydraulic Phenomena	09/30/2005		09/30/2005
Complete Literature Search for Two Specific Thermal-Hydraulic Phenomena	09/30/2005		09/30/2005
Assign New Task Manager	05/15/2006		05/15/2006

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Milestone	Original Date	Current Dat	Actual Date
RES Decision to Work with NRR on Generic Communication	08/31/2006		08/31/2006
Close Out Issue with Memo to the EDO	03/31/2007	03/31/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0196 **Type:** GSI **Office/Division/Branch:** RES/DRASP/OERA

Title: BORAL DEGRADATION

Priority: **Action Level** ACTIVE **Resolution Status:** Cn

Task Manager: R. Tripathi **TAC Number:**

Identification: 11/2003 **Prioritization/Screen:** 11/2004 **Technical Assessment:** 02/2007

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:** TBD

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: N **Regulation and Guidance Development Status:** N

Implementation: **Verification:** **Closure:** 02/2007

Implementation Status: N **Verification Status:** N **Closure Status:**

Work Authorization:

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
NoneY6517	ORNL	Task 7, "High Burnup Source Term for Spent Fuel Storage"	
		Total Resources Expended (K):	

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

RES 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.

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.

The technical assessment of GI-196 was completed in August 2006 and submitted to the Advisory Committee on Nuclear Waste (ACNW) for review. The objective of GI-196 is to determine the safety/criticality implications of Boral blistering in spent fuel dry storage casks, in the event of water intrusion (e.g., submersion in a pool of water for repair or inspection). Boral has been widely used as a neutron absorber for dry cask storage of spent nuclear fuel, and several instances of Boral blistering and deformation have been reported. The blisters are usually located at the site of corrosion pits or impurities, and the root cause of blistering has been attributed to escaping hydrogen and steam. The staff proposes to close the issue with no new requirements for licensees, and discussed its findings with the ACNW in December 2006. The ACNW agreement with the staff's closeure of the GI was issued on December 13, 2006.

Staff Resources Expended: 500 Hours

AFFECTED DOCUMENTS:

None.

PROBLEM/RESOLUTION:

None.

Milestone	Original Date	Current Dat	Actual Date
Develop Task Action Plan for the Technical Assessment of the GSI	02/28/2005		03/31/2005
Review the NMSS-Supplied Literature and Other Information for Evaluating Effects of Boral Degradation and Their Impact on Potential Inadvertent Criticality	09/30/2005		09/30/2005
Expand Literature Review and Prepare Report	12/31/2005		11/30/2005
Obtain Funding for Peer Review of Staff Report	04/20/2006		04/20/2006
Transmit Technical Assessment to the ACRS/ACNW	08/31/2006		08/31/2006
Peer Review Completed by ORNL	05/31/2006		08/31/2006
Complete Technical Assessment	06/30/2006		08/31/2006
Receive ACRS/ACNW Comments	01/31/2007		12/13/2006
Meet with ACRS/ACNW	12/15/2006		12/13/2006
Close Out Issue with Memo to the EDO	06/30/2006	02/28/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0198 **Type:** GSI **Office/Division/Branch:** RES/DRASP/OERA

Title: HYDROGEN COMBUSTION IN PWR PIPING

Priority: **Action Level** ACTIVE **Resolution Status:**

Task Manager: H. Vandermolen **TAC Number:** K81095

Identification: 02/2004 **Prioritization/Screen:** 02/2007 **Technical Assessment:**

Identification Status: Complete **Priority/Screen Status:** Incomplete **Technical Assessment Status:** TBD

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: TBD **Regulation and Guidance Development Status:** TBD

Implementation: **Verification:** **Closure:** 02/2007

Implementation Status: TBD **Verification Status:** TBD **Closure Status:**

Work Authorization: Memo from John Flack to Ashok Thadani, "Results of Initial Screening of Generic Issue 195, "Hydrogen Combustion in Foreign BWR Piping, dated February 23, 2004

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
	None		$0.00
		Total Resources Expended (K):	**$0.00**

WORK SCOPE:

Description

Under some circumstances, an hydrogen explosion in the primary system piping and equipment could lead to an "unisolatable" LOCA. The effect on PWR plant safety of a hydrogen detonation is to either cause a pipe break or damage a safety or relief valve. In either case, the effect is to cause a loss of coolant from the primary system. Additionally, there have been some instances of personnel injury and fatalities stemming from hydrogen explosions. These, however, have not posed significant risk to the public, but instead are of significance for occupational safety and health.

STATUS:

A screening analysis was completed in May 2006, and a screening panel was convened on February 8, 2007, after a long delay in the completion of OERA/RES review of the analysis.

Staff Resources Expended: 600 Hours

PROBLEM/RESOLUTION:

The panel meeting was delayed pending completion of review of the screening analysis by OERA/RES in January 2007.

Milestone	Original Date	Current Dat	Actual Date
Complete Screening Analysis	05/15/2006		05/15/2006
Convene Panel for Review of Analysis	06/30/2006	02/08/2007	
Resolve Panel Comments and Complete Screening of Issue	09/30/2006	02/28/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0199 **Type:** GSI **Office/Division/Branch:** RES/DRASP/OERA

Title: IMPLICATIONS OF UPDATED PROBABILISTIC SEISMIC HAZARD ESTIMATES IN CENTRAL AND EASTERN UNITED STATES

Priority: **Action Level** ACTIVE **Resolution Status:**

Task Manager: R. Emrit **TAC Number:** K81095

Identification: 05/2005 **Prioritization/Screen:** 12/2006 **Technical Assessment:**

Identification Status: Complete **Priority/Screen Status:** Incomplete **Technical Assessment Status:** TBD

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: TBD **Regulation and Guidance Development Status:** TBD

Implementation: **Verification:** **Closure:**

Implementation Status: TBD **Verification Status:** TBD **Closure Status:**

Work Authorization:

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
Y6912	ISL	Assistance for Screening Analysis of Generic Issue 199	$25.00
		Total Resources Expended (K):	**$25.00**

WORK SCOPE:

Description

Regulatory Guide 1.165, developed in the early 1990s, specifies a reference probability for exceedance of a safe shutdown earthquake (SSE) ground motion, i.e., seismic hazard, at a median annual value of 10E-5. This reference probability value is based on the annual probability of exceeding the SSEs for 29 Central and Eastern United States nuclear power sites and is used to establish the SSEs for future nuclear facilities. Preliminary results from a 2004 USGS report indicated that the reference probability for the 29 CEUS is now about 6 to 7 x 10E-5. The increase in the reference probability value is primarily due to recent developments in the modeling of earthquake ground motion in the CEUS. No new plants have applied for a construction permit or ESP since 10 CFR Part 100 was revised and Regulatory Guide 1.165 was issued in 1997. Therefore, the impact of the revised regulation and the regulatory guide as they relate to future plants and operating reactors was not realized until the staff began its review of the ESP applications.

Work Scope

This GI is in Stage 2 (Screening) of the MD 6.4 process.

STATUS:

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

A contract for technical assistance was awarded to ISL in August 2005. However, ISL work has been delayed pending release of information by EPRI. OGC advised RES aginst paying for EPRI NP-6395-D which is needed for ISL to complete its Task. Discussions continued among EPRI, RES, and NRC Division of Contracts to make the report available to ISL at minimal cost to the NRC.

Staff Resources Expended: 160 staff-hours

PROBLEM/RESOLUTION:

The ISL analysis has been delayed pending resolution of the cost of procuring EPRI NP-6395-D.

Milestone	Original Date	Current Dat	Actual Date
Issue RFP to ISL for Technical Assistance	07/07/2005		07/07/2005
Receive Proposal from ISL	08/11/2005		08/11/2005
Receive Technical Information from ISL	07/31/2006	04/30/2007	
Generate Screening Analysis	10/31/2006	06/30/2007	
Screening Panel Meeting	11/30/2006	07/31/2007	
Complete Screening	01/31/2007	08/31/2007	
Issue Panel Report to RES Director	12/31/2006	09/30/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0200 **Type:** GSI **Office/Division/Branch:** RES/DRASP/OERA

Title: TIN WHISKERS

Priority: **Action Level** ACTIVE **Resolution Status:**

Task Manager: C. Antonescu **TAC Number:** K81095

Identification: 08/2005 **Prioritization/Screen:** 01/2007 **Technical Assessment:**

Identification Status: Complete **Priority/Screen Status:** Incomplete **Technical Assessment Status:** TBD

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: N **Regulation and Guidance Development Status:** TBD

Implementation: **Verification:** **Closure:** 01/2007

Implementation Status: N **Verification Status:** N **Closure Status:**

Work Authorization:

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
	ORNL		$0.00
		Total Resources Expended (K):	**$0.00**

WORK SCOPE:

Description

Tin whiskers have the possibility of creating significant safety challenges to nuclear power plants throughout the United States. The nuclear industry has experienced spurious alarms, component failures in the solid state protection system, and complicated reactor trips due to tin whiskers. There is a possibility that tin whiskers are present in the solid state protection systems of other nuclear power plants.

A tin whisker is an electrically conductive, individual crystal of tin that grows spontaneously from a tinned surface. They are typically only a few microns in diameter but can grow up to 10 millimeters in length as straight, kinked, or spiraled single crystal of tin. Tin whiskers can also be transported from the site where they grew to other circuits and subsequently cause short circuits. The incubation period for tin whiskers ranges from days to years. Several other metals are known to be capable of whiskering as well, i.e., zinc, cadmium, indium, silver, lead and antimony.

Tin whisker formation is not a new phenomenon. Numerous electronic system failures have been attributed to short circuits caused by tin whiskers that bridge closely-spaced circuits. The first published reports of tin whiskers date back to the 1940's. The whisker phenomenon should not be confused with the dendrities phenomenon. Dendrities form in fern-like patterns on a surface rather than outward as whiskers do. The growth mechanism for dendrities is well-understood and requires some type of moisture capable of dissolving the metal into a solution of metal ions which are then redistributed by electromigration in the presence of an electromagnetic field. While the precise mechanism for whisker formation remains unknown, it is known that whisker formation does not

require either dissolution of the metal or the presence of an electric field. The theory is that whiskers are caused by compressive stress buildup during the plating process.

Work Scope

Work on this GI was limited to a screening analysis in accordance with MD 6.4.

STATUS:

A review of pertinent literature was completed by the staff to collect information needed for the screening of the GI. The screening analysis for this GI was completed and sent to the screening panel in October 2006. The panel met on November 29, 2006, and agreed to eliminate the GI from further pursuit since is was deemed to a compliance issue.

Staff Resources Expended: 160 Hours

AFFECTED DOCUMENTS:

None.

PROBLEM/RESOLUTION:

None.

Milestone	Original Date	Current Dat	Actual Date
Select Panel Members	09/08/2006		09/08/2006
Develop Draft Report with Rationale for Review	09/15/2006		09/15/2006
Issue Request for Management Approval of Panel Member	09/15/2006		09/15/2006
Issue Screening Report to Panel	10/27/2006		10/27/2006
Screening Panel Meeting	01/31/2007		11/29/2006
Receive Panel Comments	12/04/2006		12/04/2006
Finalize Screening Analysis for RES Director Approval	12/18/2006		12/18/2006
Complete Screening With Approval of Panel Report by RES Director	02/28/2007	01/26/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0201 **Type:** GSI **Office/Division/Branch:** RES/OERA/GSIT

Title: SMALL-BREAK LOCA AND LOSS OF OFFSITE POWER

Priority: U **Action Level** ACTIVE **Resolution Status:**

Task Manager: A. Salomon **TAC Number:**

Identification: 08/2007 **Prioritization/Screen:** **Technical Assessment:**

Identification Status: Complete **Priority/Screen Status:** Incomplete **Technical Assessment Status:**

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: **Regulation and Guidance Development Status:**

Implementation: **Verification:** **Closure:**

Implementation Status: **Verification Status:** **Closure Status:**

Work Authorization:

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)

WORK SCOPE:

Description

The safety concern is the postulated small-break LOCA and loss of offsite power scenario.

STATUS:

The issue is undergoing initial screening in RES, in accordance with Management Directive 6.4.

AFFECTED DOCUMENTS:

TBD

PROBLEM/RESOLUTION:

None.

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

REASONS FOR SCHEDULE CHANGES:

Not applicable at this time.

Milestone	Original Date	Current Dat	Actual Date
Complete Initial Screening	03/31/2007	03/31/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number 0202 **Type:** **Office/Division/Branch:** DSARP/OERA/GSIT

Title: SPENT FUEL POOL LEAKAGE LIMITS

Priority: U **Action Level** ACTIVE **Resolution Status:**

Task Manager: R. Emrit **TAC Number:**

Identification: 08/2006 **Prioritization/Screen:** **Technical Assessment:**

Identification Status: Complete **Priority/Screen Status:** Incomplete **Technical Assessment Status:**

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: **Regulation and Guidance Development Status:**

Implementation: **Verification:** **Closure:**

Implementation Status: **Verification Status:** **Closure Status:**

Work Authorization:

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)

DESCRIPTION:

In September 2002, Salem Unit 1 identified1 evidence of radioactive water leakage through the interior walls or penetrations in both the auxiliary and fuel handling buildings (FHB). Investigations of the leakage by the licensee in February 2003 revealed the radionuclide tritium in the groundwater near the FHB. Further licensee inspections identified long-term leakage of borated water through cracks in the structural walls of the spent fuel pool (SFP). The leakage was due to clogged tell-tale drains that are used to drain SFP leakage that collects between the pool liner and concrete walls. Since the Salem Unit 1 finding, similar leakage affecting SFP structures was found at Indian Point and Seabrook (transfer canal). As a result of the number of plants that reported SFP leakage, this issue was identified by NRR to address the long-term, structural effects on SFPs of borated water flowing through cracks in the concrete walls and around reinforcing steel (rebar) which traverses the cracks.

WORK SCOPE:

The issue is undergoing screening in accordance with Management Directive 6.4.

STATUS:

The issue is undergoing screening in accordance with Management Directive 6.4.

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

AFFECTED DOCUMENTS:

None identified.

PROBLEM/RESOLUTION:

None at this time.

Milestone	Original Date	Current Dat	Actual Date
Complete Initial Screening			

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number NMSS-0007 **Type:** GSI **Office/Division/Branch:** NMSS/FCSS/SPTS

Title: CRITICALITY BENCHMARKS GREATER THAN 5% ENRICHMENT

Priority: H **Action Level** ACTIVE **Resolution Status:**

Task Manager: C. Hrabal **TAC Number:**

Identification: 05/1998 **Prioritization/Screen:** 05/1998 **Technical Assessment:** 05/1998

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:** C

Regulation and Guidance Development: 03/2007 **Regulation and Guidance Issuance Status:** 03/2007

Regulation and Guidance Development Status: **Regulation and Guidance Development Status:**

Implementation: **Verification:** **Closure:** 05/2007

Implementation Status: TBD **Verification Status:** TBD **Closure Status:**

Work Authorization:

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
	ORNL		$600.00
		Total Resources Expended (K):	**$600.00**

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.

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.

Staff Resources Expended: 2,200 hours

AFFECTED DOCUMENTS:

ISG-10

PROBLEM/RESOLUTION:

None

REASONS FOR SCHEDULE CHANGES:

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Milestone	Original Date	Current Dat	Actual Date
Development of Generalized Sensitivity Methods	12/01/1997		12/01/1997
Acquisition and Documentation of Russian Data	05/01/1998		05/01/1998
Development of Guidance for Defining Ranges of Applicability	07/01/1998		11/01/1998
Application of Guidance to Extend Low Enrichment Range	09/30/1998		11/30/1998
Technical Assistance and Project Planning	03/01/1999		03/01/1999
Receive Final ORNL Contract Reports	03/01/1999		10/01/1999
Publish Final ORNL Contract Reports	10/01/1999		11/01/1999
User Need Request Memo to RES	12/01/2000		06/01/2001
Cancel User Need Request Memo to RES	06/30/2004		06/30/2004
Make New Computer Codes Available Through Scale 5.0 Release	03/01/2001		06/30/2004
Training to NRC Staff and Licensees on S/U Methods in SCALE 5.0	09/01/2002		06/30/2004
Revise Staff Procedures (ISG-10) and Communicate Acceptability of New Methods to Licensees	10/01/2000	03/31/2007	
Determine If User Needs Have Been Met	11/01/2000	04/30/2007	
Close Out Issue	03/31/2003	05/31/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number NMSS-0014 **Type:** GSI **Office/Division/Branch:** FSME/DWMEP/

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

Priority: M **Action Level** ACTIVE **Resolution Status:**

Task Manager: R. Weller **TAC Number:**

Identification: 06/1998 **Prioritization/Screen:** 07/1998 **Technical Assessment:** 02/2007

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:**

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: N **Regulation and Guidance Development Status:** N

Implementation: **Verification:** **Closure:** 02/2007

Implementation Status: N **Verification Status:** N **Closure Status:**

Work Authorization: NMSS Operational Events Briefing on 06-08-98.

FIN NUMBER	CONTRACTOR	CONTRACT TITLE	EXPENDED ($k)
None.			$613.00
		Total Resources Expended (K):	**$613.00**

WORK SCOPE:

Description

This issue was identified by NMSS to pursue research to provide a methodology to calculate sureties for groundwater restoration activities at in situ leach uranium extraction facilities and develop 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 sureties for groundwater restoration activities at in situ leach uranium extraction facilities and estimate a post-restoration groundwater quality stability monitoring period. 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 worked with the contractor to address the comments received, and NUREG/CR-6870 was finalized and published in January 2007.

Staff Resources Expended: 200 hours

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.

REASONS FOR SCHEDULE CHANGES:

None

Milestone	Original Date	Current Dat	Actual Date
Pore Volume - Data Evaluation (Task 1)	12/01/1997		06/30/1998
Commission Response to SECY-99-013	08/01/1999		07/01/2000
Complete Statement of Work	06/01/2001		07/01/2001
Draft NUREG to Staff for Comment	08/31/2002		08/01/2003
Revised Draft NUREG	04/30/2004		12/31/2004
Draft NUREG/CR-6870 Issued for Public Comment	09/30/2002		06/30/2005
Receive Public Comments on Draft NUREG/CR-6870	08/31/2005		08/31/2005
Issue Final NUREG/CR-6870	09/30/2002		01/30/2007
Close Issue	05/31/2006	02/28/2007	

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

Issue Number NMSS-0016 **Type:** GSI **Office/Division/Branch:** FSME/DILR/RB-A

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

Priority: M **Action Level** ACTIVE **Resolution Status:**

Task Manager: G. Comfort **TAC Number:**

Identification: 06/1998 **Prioritization/Screen:** 07/1998 **Technical Assessment:** 11/2006

Identification Status: Complete **Priority/Screen Status:** Complete **Technical Assessment Status:** C

Regulation and Guidance Development: **Regulation and Guidance Issuance Status:**

Regulation and Guidance Development Status: N **Regulation and Guidance Development Status:** N

Implementation: **Verification:** **Closure:** 11/2006

Implementation Status: N **Verification Status:** N **Closure Status:** C

Work Authorization: NMSS Operational Events Briefing on 06-08-98.

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

Total Resources Expended (K):

WORK SCOPE:

Description

This issue concerns the adequacy of transferring source material containing less than 0.05 Wt% uranium or thorium in quantities that could result in annual doses that exceed NRC's public dose limit of 100 millirem/year from all sources.

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:

GENERIC ISSUE MANAGEMENT CONTROL SYSTEM

Active Only: All Issue(s)

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, and has been prioritized as low priority with minimal funding.

The Commission has provided direction on handling cases related to this GI on a case-by-case basis. The GI was closed with a memo to the EDO on November 27, 2006 (ML062000507). No new requirements were issued.

Staff Resources Expended: 950 hours

AFFECTED DOCUMENTS:

None

PROBLEM/RESOLUTION:

None

REASONS FOR SCHEDULE CHANGES:

Project prioritized as low priority.

Milestone	Original Date	Current Dat	Actual Date
Issue Options Paper (SECY-99-259)	07/01/1998		11/01/1999
Receive SRM	02/01/2000		03/01/2000
Proposed Rule to the Commission	08/01/2000		09/01/2000
Publish Proposed Rule	08/31/2002		08/31/2002
SECY-03-0106 to Commission	06/24/2003		06/24/2003
SRM from Commission	10/08/2003		10/08/2003
Close Out Issue	12/01/2001		11/27/2006