Description and Status of Open GSIs as of June 8, 2005

GSI Number	Title	Lead Office	Description	Status
80	Pipe Break Effects on Control Rod Drive Hydraulic Lines in the Drywells of BWR MARK I and II Containments	RES	This issue involves a concern about the likelihood and effects of a LOCA, which could cause interactions with the CRD hydraulic lines and prevent rod insertion, and create the potential for recriticality when the reactor core is reflooded.	The staff completed a technical analysis of the effects of postulated pipe breaks inside BWR Mark I and Mark II containments. A finite element code was used to perform nonlinear transient analysis to determine the impact of pipe break impulsive loads on CRD bundles. The analysis indicated that the CRD bundles will not be impacted by breaks in recirculation, steam, and feedwater system piping after a postulated break. The staff continued to document its technical assessment and is planning to brief the ACRS on its findings in September 2005. The issue is scheduled for completion in December 2005.
156.6.1	Pipe Break Effects on Systems and Components	RES	This issue involves a safety concern about whether the designs of some plants adequately address the effects of pipe breaks inside containments.	A finite element code was used to analyze the impact of impulsive loads due to pipe breaks in feedwater, main steam, and recirculation system piping on the drywell steel. The analysis indicated that the structural integrity and leak-tightness of drywell steel shells will not be compromised by piping breaks. The staff plans to validate its analysis by reviewing the piping configurations of three plants before making any recommendations. This issue is scheduled for completion in June 2006.

Attachment

Description and Status of Open GSIs as of June 8, 2005

GSI Number	Title	Lead Office	Description	Status
163	Multiple Steam Generator Tube Leakage	NRR	This issue addresses a safety concern about multiple steam generator tube leaks during a main steam line break that cannot be isolated.	Resolving this issue is an integral part of the NRC's Steam Generator Action Plan (Items 3.1, 3.7, 3.8, and 3.9). The staff is developing a more technically robust position on the treatment of radionuclide releases for use in the safety analyses of design basis events. The technical assessment of the issue is scheduled for completion by December 31, 2005.
185	Control of Recriticality Following Small-Break LOCA in PWRs	RES	This issue addresses small-break LOCA scenarios in PWRs that involve steam generation in the core and condensation in the steam generators, which may cause deborated water to accumulate in part of the reactor coolant system (RCS). In such scenarios, restarting the RCS circulation may cause a recriticality event (reactivity excursion) by moving the deborated water into the core.	The study of "Boron Dilution Effects During Small-Break LOCAs in PWRs" was completed with the conclusion that there would be no recriticality for CE and Westinghouse reactors, based on the relatively small loop seal volumes. Recriticality is possible in B&W plants under certain circumstances, but existing procedures should prevent severe fuel damage. The staff findings were presented to the ACRS on October 7, 2004. The staff is proceeding with closing the issue without the imposition of any new regulatory requirements for all Framatome B&W, Westinghouse, and Combustion Engineering plants. The staff is scheduled to complete documenting the technical assessment of the issue by September 2005.

Description and Status of Open GSIs as of June 8, 2005

GSI Number	Title	Lead Office	Description	Status
186	Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants	RES	This issue resulted from a staff review of licensees' programs for handling heavy loads, which revealed that dropping a heavy load has a substantially greater potential for severe consequences than the industry previously envisioned.	The staff is currently developing a Regulatory Issue Summary to clarify and reemphasize existing regulatory guidance on the control of heavy loads, and 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. However, the expected support of this endorsement from the ASME Code Committee has been delayed. The staff plans to brief the ACRS on the implementation of the staff's recommendations in August 2005. The issue is scheduled for completion by March 2006.
188	Steam Generator Tube Leaks/Ruptures Concurrent With Containment Bypass	RES	This issue addresses the effects on the validity of steam generator tube leak and rupture analyses of resonance vibrations in steam generator tubes during steam line break depressurization.	A draft study completed by the staff in July 2004 showed that the dynamic loads associated with an MSLB had little impact on the integrity of the tubes unless extensive circumferential cracking is present. This study will be issued as a NUREG report, and the staff is scheduled to close the issue in September 2005 without imposing any new or revised requirements on licensees.

Description and Status of Open GSIs as of June 8, 2005

GSI Number	Title	Lead Office	Description	Status
189	Susceptibility of Ice Condenser and MARK III Containments to Early Failure From Hydrogen Combustion During a Severe Accident	NRR	NUREG/CR-6427, “Assessment of the Direct Containment Heat (DCH) Issue for Plants with Ice Condenser Containments,” showed that the early containment failure probability in 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.	The staff concluded that regulatory guidance on providing backup power to one train of hydrogen igniters is needed for plants with ice condenser or MARK III containments. In pursuing rulemaking, the staff met with stakeholders on September 21, 2004, to gather input on the draft design criteria for a backup power supply for hydrogen igniters. The criteria were generally accepted and the licensees proposed voluntary alternatives for providing backup power sources. The staff will issue letters to the affected licensees to obtain information on their activities related to voluntary actions. In February and early March 2005, the staff met with industry representatives to discuss this issue. On March 30, 2005, the staff met with senior representatives of the six affected utilities to present additional insights. The issue is scheduled to be completed by June 2010.

Description and Status of Open GSIs as of June 8, 2005

GSI Number	Title	Lead Office	Description	Status
191	Assessment of Debris Accumulation on PWR Sump Performance	NRR	This issue concerns the possibility that debris accumulating on the ECCS sump screen 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.	The staff issued Generic Letter 2004-02 on September 13, 2004, requiring licensees of operating PWRs to perform plant-specific evaluations of the recirculation functions of their emergency core cooling and containment spray systems. In October 2004, the ACRS reviewed the staff's safety evaluation of the methodology proposed by the industry for performing the plant-specific evaluations. In January and April 2005, the staff held public meetings with the Nuclear Energy Institute (NEI) and owners to discuss Generic Letter (2004-02 and the staff's safety evaluation (SE), and to address questions about the use of the SE and NEI's guidance report. A pilot program to audit implementation of the GL has been initiated.
193	BWR ECCS Suction Concerns	RES	This issue involves a concern about the possible failure of the ECCS caused by 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 loss-of-coolant accidents (LOCAs), and could potentially lead to pump failure or degraded performance as a result of gas binding, vapor locking, or cavitation.	The staff completed a literature search for information on ECCS pump performance during high voiding intake conditions in March 2005. Efforts are underway to secure contractor assistance to perform technical analyses for (1) gas ingress into the ECCS due to the downcomer blowdown, (2) pool dynamics, and (3) gas-liquid flow through a perforated plate.

Description and Status of Open GSIs as of June 8, 2005

GSI Number	Title	Lead Office	Description	Status
196	Boral Degradation	RES	This issue involves a concern about degradation mechanisms that could impair the effectiveness of Boral as a neutron absorber in spent fuel casks.	The staff completed the initial screening of this issue was completed on November 19, 2004, and recommended continuing work on the issue. 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.
197	Iodine Spiking Phenomena	RES	This issue involves the ACRS concern about the conservative, empirical treatment of iodine spiking in accident consequence analyses. The ACRS recommended that the staff develop a mechanistic understanding of iodine spiking phenomena so that analyses would reflect current plant operations and the capabilities of modern fuel rods to prevent coolant contamination.	This issue was identified in July 2004, and the staff is scheduled to complete the initial screening in June 2005.
198	Hydrogen Combustion in PWR Piping	RES	This issue emerged in the analysis of GI-195 when it was observed that numerous hydrogen detonation/explosion events had also been reported at PWR plants.	The screening analysis is in progress and is scheduled for completion in December 2005.
199	Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States	RES	The issue involves the concern about the higher seismic hazard at current nuclear power plants in the Central and Eastern United States according to the latest studies conducted by the U.S. Geological Survey.	The staff is collecting all background information on this issue before beginning the screening analysis.

Description and Status of Open GSIs as of June 8, 2005

GSI Number	Title	Lead Office	Description	Status
NMSS-07	Criticality Benchmarks Greater Than 5% Enrichment	NMSS	This issue requires developing and confirming the adequacy of methods, analytical tools, and guidance for criticality safety software for validating criticality calculations, including requests to process higher enrichments, in the licensing of nuclear facilities.	The staff is scheduled to inform licensees by the end of June 2005 of the acceptability of new methods for criticality safety software for validating criticality calculations. The issue is scheduled for completion in January 2006.
NMSS-14	Surety Estimates for Groundwater Restoration at In Situ Leach Facilities	NMSS	This issue concerns the development of methodologies to (1) calculate surety for groundwater restoration activities at in situ leach uranium extraction facilities and (2) monitor the post-restoration stability of groundwater quality.	The U.S. Geological Survey revised its August 2003 draft report “Consideration of Geochemical Issues in Groundwater Restoration at Uranium In Situ Leach Mining Facilities” to incorporate additional information provided by the industry, and submitted the report to the NRC in December 2004. The technical assessment of the issue is scheduled for completion by July 2005.
NMSS-16	Adequacy of 0.05 Weight Percent Limit in 10 CFR Part 40	NMSS	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.	On June 24, 2003, the staff notified the Commission in SECY-03-0106 that it planned to postpone work on a rule until the Commission could review the issue and direct the staff regarding other related issues that could impact the action taken in the final rule. The Commission responded in an October 2003 SRM by directing the staff to continue reviewing transfers of materials containing less than 0.05 Wt% uranium and thorium, using previous Commission guidance. Work on the Rule has not restarted.