BWR OWNERS' GROUP

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NRC Project Number 691

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Subject: BWR Owners' Group Actions in Response to Pipe Ruptures in Non-U.S. BWRs
NRC Project Number 691

Attention: Chief, Information Management Branch
Policy Management, Policy Development and Analysis Staff

Per our December 2002 letter, the BWROG formed the Hydrogen Accumulation Committee to provide detailed guidance to the BWR utilities for identification, disposition, and mitigation of potential radiolytic hydrogen and oxygen accumulation in plant piping and equipment. The BWROG provided the committee's guidance document "BWR Piping and Component Susceptibility to Hydrogen Detonation" to all the U.S. utilities in December 2002.

The BWROG has recently surveyed the U.S. utilities regarding actions taken at each of the 34 BWRs to address the hydrogen accumulation and potential rupture concern. The results of the survey are as follows:

- All plants have reviewed the available literature (e.g., RICSIL, SIL, Information Notice, WANO summary, and BWROG guidance document).
- To date, 15 of the 16 plants with RHR-SCM piping[1] and 18 of the 19 plants with RHR head spray piping[1] have evaluated that piping. Remaining plant evaluations are ongoing, but are not yet complete
- A risk category assessment of plant equipment has been completed or is in progress at all of the plants.
- To date, 13 plants have completed or are currently performing physical walk-downs of plant equipment.
- Seven plants have reviewed plant drawings. Some of these plants may substitute the drawing reviews for a walkdown, some may conduct a walkdown at a later date.
- 17 plants have identified potentially vulnerable equipment and are pursuing appropriate solutions to address these configurations (e.g., procedure notes, procedure changes, equipment temperature monitoring, configuration analysis, and equipment modification, if necessary).

The survey results are attached.

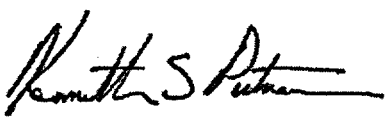
[1] Survey response answers "NA" are interpreted to mean that the piping is not present or is disconnected.

D044

"Survey Answers to NRC 8-4-03.xls"

If you have any questions regarding the BWR Owners' Group activities in response to NSSS pipe ruptures, please contact the undersigned at 319-851-7238.

Sincerely,



K. S. Putnam, Chairman
BWR Owners' Group

cc: A. Wang, USNRC
K. S. Putnam, BWROG Chairman
J. E. Conen, BWROG Vice Chairman
BWROG EOC
BWROG Primary Representatives
BWROG Hydrogen Accumulation Committee
T.G. Hurst, GE Nuclear Energy
C.B. Kincaid, GE Nuclear Energy

		Plants 1 and 2	Plants 3 and 4	Plant 5	Plant 6	Plant 7	Plant 8	Plants 9 and 10
	Question	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
1	Have you reviewed:							
1.1	- NRC Information Notice?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.2	- GE RICSIL 085 "HPCI/RHR steam supply line rupture"?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.3	- GE SIL 643 "Potential for radiolytic gas detonation"?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4	- BWROG Hydrogen Accumulation Committee "BWR Piping and Component Susceptibility to H_2 Detonation"	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.5	- WANO SE2003-2, "Piping Ruptures Caused by Hydrogen Explosions," February 2003?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	Have you examined/evaluated your RHR/HPCI steam condensing mode piping?	N/A	Yes-not susceptible	Yes - abandoned	Ongoing	Yes	Yes - Do not have RHR/HPCI steam condensing mode piping	Yes
3	Have you examined/evaluated your RHR Head Spray piping?	N/A	Yes-not susceptible	Yes	Ongoing	Yes: See Below (2)	Yes	No RHR head spray, but CRD head spray
4	Have you performed a plant specific equipment bin evaluation per BWROG H_2 Accumulation Committee Report?	In Progress	In progress	Yes - NSSS portion	Ongoing - Scheduled to complete 09/2003	No: Bin 1 evaluation complete; Remaining bins are scheduled.	Yes	Yes
5	Did you perform walk-downs of equipment identified in your bin evaluation?	No	In progress	Not accessible at power	Bin evaluation ongoing. Evaluations performed via drawing reviews supplemented with walkdowns of accessible areas as necessary to complete evaluation.	Yes	Currently Underway. See number 6.	Yes
6	Did you identify any equipment or piping that might be subject to H_2 detonations*? If yes, what was it?	No	No	YES RHR Head Spray/ Capped RHR Steam Condensing Mode Piping	No. Evaluation still in progress.	Yes: RHR/HPCI steam condensing mode piping, steam side. See Below.	None identified yet to date. Initial binning of systems completed on 4/30/03, 9 addenda ARs cut for more intensive reviews against 11 SUS's. See OTH025271 for more info.	No, but are re-evaluating Head spray

		Plant 11	Plant 12	Plant 13	Plants 14 and 15	Plant 16	Plants 17 and 18	Plants 19 and 20
	Question	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
1	Have you reviewed:			(3)				
1.1	- NRC Information Notice?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.2	- GE RICSIL 085 "HPCI/RHR steam supply line rupture"?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.3	- GE SIL 643 "Potential for radiolytic gas detonation"?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4	- BWROG Hydrogen Accumulation Committee "BWR Piping and Component Susceptibility to H_2 Detonation"	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.5	- WANO SE2003-2, "Piping Ruptures Caused by Hydrogen Explosions," February 2003?	Yes	Yes	No	Yes	Yes	Yes	Yes
2	Have you examined/evaluated your RHR/HPCI steam condensing mode piping?	N/A	Yes	Yes	Yes; system has been removed	Yes	Yes/NA	Yes
3	Have you examined/evaluated your RHR Head Spray piping?	N/A	N/A	Yes	Yes; system has been removed	Yes	Yes	Yes
4	Have you performed a plant specific equipment bin evaluation per BWROG H_2 Accumulation Committee Report?	Safety-related – yes Non-safety-related in progress	Yes – RHR Stm Cnd, RPV Hd Vent, RPV Lvl Inst	Yes	In progress; approximately 75% complete	Yes	Yes	Yes
5	Did you perform walk-downs of equipment identified in your bin evaluation?	Bin evaluation ongoing. Evaluations performed via drawing reviews supplemented with walkdowns of accessible areas as necessary to complete evaluation.	Accessible RHR Stm Cnd	N/A	Minimal; requires outage	Piping isometrics were reviewed instead of field walkdowns.	Used as-built isometrics	Yes
6	Did you identify any equipment or piping that might be subject to H_2 detonations*? If yes, what was it?	MS drains, R/V tailpipes were identified but initial pressure is low.	No	Yes, RHR/RCIC Interface Piping	No; evaluation still in progress	Steam Condensing mode piping and Head Spray Piping	Yes, RCIC Head Spray	No

		Plant 21	Plant 22	Plant 23	Plant 24	Plants 25 and 26
	Question	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
1	Have you reviewed:					
1.1	- NRC Information Notice?	Yes	Yes	Yes	Yes	Yes
1.2	- GE RICSIL 085 "HPCI/RHR steam supply line rupture"?	Yes	Yes	Yes	Yes	Yes
1.3	- GE SIL 643 "Potential for radiolytic gas detonation"?	Yes	Yes	Yes	Yes	Yes
1.4	- BWROG Hydrogen Accumulation Committee "BWR Piping and Component Susceptibility to H_2 Detonation"	Yes	Yes	Yes	Yes	Yes
1.5	- WANO SE2003-2, "Piping Ruptures Caused by Hydrogen Explosions," February 2003?	Yes	Yes	Yes	Yes	Yes
2	Have you examined/evaluated your RHR/HPCI steam condensing mode piping?	Plant 21 does not have a RHR/HPCI steam condensing mode.	N/A - Plant 22 Does not have Steam Condensing mode	Yes	N/A	N/A
3	Have you examined/evaluated your RHR Head Spray piping?	Yes. Plant 21 has removed the RHR head spray piping as a result.	N/A - Plant 22 has cut and capped our Head Spray piping at the vessel.	Yes	Yes	Yes
4	Have you performed a plant specific equipment bin evaluation per BWROG H_2 Accumulation Committee Report?	This is currently in progress. Outage walkdowns needed to be completed.	Yes	Preliminary evaluation performed. Detailed evaluation continues.	Yes	Yes
5	Did you perform walk-downs of equipment identified in your bin evaluation?	Yes. However, some of the binning is being done as a result of the walkdowns.	No, Drawing Reviews Only	No, Drawing Reviews Only	Yes	N/A
6	Did you identify any equipment or piping that might be subject to H_2 detonations*? If yes, what was it?	Yes. RHR Head Spray.	Yes-Isolation Condenser steam supply piping	Yes-RCIC injection line, turbine bypass header, main steam drain and warm up lines, MSR reheat steam supply line with Reheater OOS	Reactor Head Cooling	None noted

		Plant 27	Plant 28	Plants 29 and 30	Plant 31	Plants 32 and 33	Plant 34
	Question	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
1	Have you reviewed:						
1.1	- NRC Information Notice?	Yes	Yes	Yes	Yes	Yes	Yes
1.2	- GE RICSIL 085 "HPCI/RHR steam supply line rupture"?	No	Yes	Yes	Yes	Yes	Yes
1.3	- GE SIL 643 "Potential for radiolytic gas detonation"?	Yes	Yes	Yes	Yes	Yes	Yes
1.4	- BWROG Hydrogen Accumulation Committee "BWR Piping and Component Susceptibility to H_2 Detonation"	Yes	Yes	Yes	Yes	Yes	Yes
1.5	- WANO SE2003-2, "Piping Ruptures Caused by Hydrogen Explosions," February 2003?	As a result of this survey, a copy of the report was obtained and reviewed.	Yes	Yes	Yes	Yes	Yes
2	Have you examined/evaluated your RHR/HPCI steam condensing mode piping?	Yes	N/A	N/A - No steam condensing mode	Yes	RHR Steam Condensing mode piping was removed in 1980's	NA – Not a VY system
3	Have you examined/evaluated your RHR Head Spray piping?	Yes (RCIC). Currently a modification is in development for keepfill/reroute.	N/A	N/A - No RHR Head Spray	RHR Head Spray piping was removed from the Plant 31.	Yes	NA – Removed in 1980's
4	Have you performed a plant specific equipment bin evaluation per BWROG H_2 Accumulation Committee Report?	Currently in process. Based on the BWROG Report, RCIC head spray, Steam condensing piping, and RPV level instruments reviewed.	Yes	Yes	Yes	Yes	Yes
5	Did you perform walk-downs of equipment identified in your bin evaluation?	Yes. RPV level and steam line flow element condensing pots walked down during current outage for routing and insulation. Deficiencies identified and corrected. RCIC head spray piping inside containment/dry well was walked down to the extent possible for signs of any deformation. Head vent piping verified for proper insulation/routing.	Yes	Yes	Yes. Walked down the RHR steam condensing piping.	Not required	Yes, for our inaccessible areas during our 10/02 outage.
6	Did you identify any equipment or piping that might be subject to H_2 detonations*? If yes, what was it?	RCIC head spray piping, assuming combination of valve leakage existed. Modification in design phase.	Yes (HPCI/RCIC instr line)	Yes HPCI/ RCIC steam supply line	Yes. The dead leg of RHS steam condensing piping.	No - all piping/equipment screened out	Yes. A) Steam PressureTransmitters B) Iodine filter

	Question	Plants 1 and 2	Plants 3 and 4	Plant 5	Plant 6	Plant 7	Plant 8	Plants 9 and 10	Plant 11	Plant 12	Plant 13	Plants 14 and 15	Plant 16
		Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
7	If the answer to any question above is "no," please enter your scheduled completion date for that activity.	5/9/2003	August, 2003	C1R09 2/04	2. 09/2003. 3. 09/2003. 4. 09/2003. 5. 09/2003 for all accessible areas (excludes hi-rad and containment)	See below for Bin 2 through 4G evaluation completion dates.	N/A at this time. Nine addenda ARs initiated on 4/30/03, require supervisory review and assignment (including due dates).	N/A	The review of non-safety related piping will be complete by 12/03	N/A	9/30/2003	3rd quarter of 2003	Complete
8	Did you identify any equipment or piping that had experienced hydrogen detonations*? If yes, what is it?	No	No	No	None identified to date	Yes: See Below	*None identified to date.	No	No	Not in this content; we have had offgas fires/detonations	No	No	No—RF11 just completed, No damaged piping/eqpt identified.
9	Did you mitigate these found configurations by:												
9.1	- Insulation assessment?	N/A	N/A	No	N/A	N/A	N/A	N/A	NA	NA	N/A	No	N/A
9.2	- Pipe strength assessment?	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	NA	N/A	No	N/A
9.3	- Condensing pot assessment?	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	NA	N/A	No	N/A
9.4	- Procedure change to establish purge?	N/A	N/A	No	N/A	N/A	N/A	N/A	NA	NA	N/A	No	N/A
9.5	- Procedure change to establish warnings?	N/A	N/A	No	N/A	N/A	N/A	N/A	NA	NA	N/A	No	N/A
9.6	- Design change to eliminate vulnerable configuration?	N/A	N/A	Yes - Design change to eliminate abandoned steam piping in C1R09	N/A	Yes	N/A	N/A	NA	NA	N/A	No	Head Spray removal RF12 & Steam Condensing Mode Flange Installation RF12
9.7	- Installation of thermocouples / RTDs?	N/A	N/A	Yes - Installed RTD to monitor temperature interface in Head Spray line.	N/A	N/A	N/A	N/A	NA	NA	N/A	No	N/A

	Question	Plants 17 and 18	Plants 19 and 20	Plant 21	Plant 22	Plant 23	Plant 24	Plants 25 and 26	Plant 27	Plant 28	Plants 29 and 30	Plant 31	Plants 32 and 33	Plant 34
		Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
7	If the answer to any question above is "no," please enter your scheduled completion date for that activity.	N/A	N/A	Scheduled completion date for binning and final plant specific report is 07/2003.	No system walk downs planned	No system walk downs planned	N/A	N/A	The extent of condition is in process and expected to be completed this year.	N/A	N/A	N/A	N/A	Accessible area walk-downs will be covered by System Engineers during normal plant walk-downs by 12/03
8	Did you identify any equipment or piping that had experienced hydrogen detonations*? If yes, what is it?	No	No	No.	No	No	Yes IC and OG	No	None identified to date.	No	No	No	No	No equipment damage had been identified during walk-downs. Via design change, VY corrected previous H2 detonation damage in isolated SJAE condensers and off-gas fuel monitoring instrumentation lines.
9	Did you mitigate these found configurations by:												None Required	
9.1	- Insulation assessment?	N/A	N/A	No.	N/A	N/A	N/A	N/A	N/A	No	No	No		NA -- Did not need insulation assessment for mitigation, but did utilize BWROG report to verify adequate insulation present for HPCI/RCIC.
9.2	- Pipe strength assessment?	N/A	N/A	No.	N/A	N/A	N/A	N/A	N/A	No	No	No		NA – (Evaluated Bin 4F and screened)
9.3	- Condensing pot assessment?	N/A	N/A	Yes.	N/A	N/A	N/A	N/A	N/A	No	No	Yes		In part, Yes
9.4	- Procedure change to establish purge?	N/A	N/A	No.	N/A	N/A	N/A	N/A	N/A	No	No HPCI/RCIC was already regularly purged.	No		Considering use for Iodine Filter config.
9.5	- Procedure change to establish warnings?	N/A	N/A	No.	N/A	N/A	N/A	N/A	N/A	No	No	No		Considering use for Iodine Filter config and press transmitters
9.6	- Design change to eliminate vulnerable configuration?	Yes	N/A	Yes.	N/A	N/A	Yes	N/A	N/A	No	No	No		Yes, but not for 2003 evaluation, only for early 1980s work.
9.7	- Installation of thermocouples / RTDs?	N/A	N/A	No.	N/A	N/A	N/A	N/A	N/A	No	No	No		No

	Question	Plants 1 and 2	Plants 3 and 4	Plant 5	Plant 6	Plant 7	Plant 8	Plants 9 and 10	Plant 11	Plant 12	Plant 13	Plants 14 and 15	Plant 16	Plants 17 and 18	Plants 19 and 20	Plant 21	Plant 22	Plant 23	Plant 24	Plants 25 and 26	Plant 27	Plant 28	Plants 29 and 30	Plant 31	Plants 32 and 33	Plant 34
		Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
9.8	- Other (provide details)?	N/A	N/A	N/A	N/A	N/A	N/A	N/A		NA	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	A field walk down was performed to determine the piping temperature at the terminal ends of the dead legs in order to estimate moisture content. The minimum temperature at the points of maximum heat loss in both dead legs indicated vapor concentrations in excess of 50% such that it is not detonatable. However, as hydrogen concentrations can build up over time, it will be necessary to further analyze the rate of hydrogen buildup in the line. Thus, a corrective action was generated to		NA
10	If not immediately mitigated, did you enter these configurations into your corrective action program?	N/A	N/A	Yes	N/A	N/A	N/A	N/A	Yes	NA	Yes	No	Yes	N/A	N/A	Configurations that were felt to be most vulnerable were evaluated first. This resulted in the RHR head spray line removal. Assessment of remaining piping systems is in progress and corrective actions will stem from this.	N/A	No	N/A	N/A	N/A	N/A	N/A	Yes, A corrective action was generated to perform an analysis to determine the rate of hydrogen buildup in the dead leg of steam condensing line and to monitor the surface temperature of piping in the dead leg of piping.	Not required	Yes – Completion anticipated by mid-year with commitment for completion by 12/03
11	Did you identify any equipment or piping that had experienced hydrogen detonations, but was determined to be not susceptible to failure? If yes, what is it?	No	No	No	No	No	None identified to date.	No	No	Offgas piping	No	No	No—RF11 just completed. No damaged piping/eqpt identified.	No	No	No.	N/A	No	Yes IC & OG	No	No detonations are known to have occurred.	No	No	No	No	AOG off gas fuel monitoring sampling system
12	Did you determine equipment non-susceptible by																									
12.1	- Insulation assessment?	N/A	Yes	No	N/A	No	N/A	No	No	Yes	No	No	No	N/A	No	No.	N/A	N/A	No	No	N/A	No	N/A	No	Yes	Yes – Utilized BWROG report
12.2	- Pipe strength assessment?	N/A	Yes	No	N/A	No	N/A	No	Yes	No	N/A	No	In case of SRV Tail pipes. Non-susceptible piping/eqpt was discussed in eval for STL 643.	N/A	No	No.	N/A	N/A	No	No	N/A	No	N/A	No	No	Yes – Utilized BWROG report for several configuration evals
12.3	- Other (provide details)?	N/A	In progress, see discussion below (1)	All equipment was evaluated with guidance provided by the Owners Group.	N/A	No	N/A	All equipment was evaluated with guidance provided by the Owners Group.	Not yet	Consideration of piping geometry and lack of noble metal application	N/A		Configuration/ Geometry	All equipment was evaluated with guidance provided by the Owners Group.	No	Geometry, Periodic Purging, Vapor Pressure Assessment, Line Temperatures and Pressures.	N/A	N/A	No	No	N/A	No	N/A	Yes. The two relief valves on each MSR vessel were reviewed. Some plants have a relief valve piping configuration that includes inlet piping, which would provide an area for hydrogen accumulation. Since River Bend's relief valve design does not incorporate inlet piping, hydrogen accumulation will not take place.	Based on gelometry piping found not susceptible, also based on periodically running (purging) system, piping found not susceptible to H2 detonation	NA

		Plants 1 and 2	Plants 3 and 4	Plant 5	Plant 6	Plant 7	Plant 8	Plants 9 and 10	Plant 11	Plant 12	Plant 13	Plants 14 and 15	Plant 16
	Question	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
12.4	If not immediately mitigated, did you enter these configurations into your corrective action program?	N/A	Yes		Assessment still in process. Corrective Action Program will be used to track necessary actions that come out of the assessment.	No	N/A	N/A	Yes		N/A	No	Yes, see Section 9.6.
	*Detonation in this case means ignition, burn, conflagration, or explosion.												

		Plants 17 and 18	Plants 19 and 20	Plant 21	Plant 22	Plant 23	Plant 24	Plants 25 and 26	Plant 27	Plant 28	Plants 29 and 30	Plant 31	Plants 32 and 33	Plant 34
	Question	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment	Yes / No / NA / Comment
12.4	If not immediately mitigated, did you enter these configurations into your corrective action program?	N/A	N/A	As stated above, the assessment is in process. Corrective actions will result from this assessment.	N/A	N/A	Yes	N/A	N/A	No	N/A	Yes. The BWR Piping and Component Susceptibility to H2 Detonation report recommends that a evaluation of non-safety related steam line pressure taps, sensing lines, and instruments lines be performed. A corrective action was assigned to Mechanical System group to evaluate these lines.	N/A	Yes
	*Detonation in this case means ignition, burn, conflagration, or explosion.													

	Question	Plants 1 and 2 Yes / No / NA / Comment	Plants 3 and 4 Yes / No / NA / Comment	Plant 5 Yes / No / NA / Comment	Plant 6 Yes / No / NA / Comment	Plant 7 Yes / No / NA / Comment	Plant 8 Yes / No / NA / Comment	Plants 9 and 10 Yes / No / NA / Comment	Plant 11 Yes / No / NA / Comment	Plant 12 Yes / No / NA / Comment	Plant 13 Yes / No / NA / Comment	Plants 14 and 15 Yes / No / NA / Comment	Plant 16 Yes / No / NA / Comment	Plants 17 and 18 Yes / No / NA / Comment	Plants 19 and 20 Yes / No / NA / Comment	Plant 21 Yes / No / NA / Comment	Plant 22 Yes / No / NA / Comment	Plant 23 Yes / No / NA / Comment	Plant 24 Yes / No / NA / Comment	Plants 25 and 26 Yes / No / NA / Comment	Plant 27 Yes / No / NA / Comment	Plant 28 Yes / No / NA / Comment	Plants 29 and 30 Yes / No / NA / Comment	Plant 31 Yes / No / NA / Comment	Plants 32 and 33 Yes / No / NA / Comment	Plant 34 Yes / No / NA / Comment
		(1) Plants 3 and 4 Discussion for Question 12.3 - Plants 3 and 4 reviews were prepared using the "bin" criteria to isolate the piping sections of concern and address them based on the guidance provided. Credit, as applicable, was taken for insulation and pipe strength, and also for the interval between activities that would flush any concentration of non-condensable gases from each subject pipe section. Based on these guided reviews, no susceptible pipe sections were identified. As an independent verification, an analytical model is under development to assess the potential for gas concentrations to form in the subject pipe sections. The independent verification of the determinations made for the subject pipe sections are being tracked under action assignments administered under the corrective action program. Completion of the assigned verification actions will close the review of these subject pipe sections.																											
		(2) Plant 7 Question 3 Plant 7 removed the RHR Head Spray system in 1986/1987. This included all piping, motor operated valves, vents and drains from the top of the vessel head flange (now blank flanged), back through the drywell penetration and up to the RHR pressure maintenance line. Question 6 The steam side of the RHR/HPCI Steam Condensing Mode piping is considered susceptible to hydrogen accumulation/detonation and is therefore categorized as Bin 1 piping. Plant 7 is currently monitoring the temperature of this section of piping. Working with General Electric, the preliminary conclusion is that the rate of hydrogen generation will not support detonation prior to the next refueling outage. Resolution will entail isolating the steam supply at its' source or entire removal of the affected piping. Question 7 Scheduled Evaluation Completion Dates: Bin 1 - Complete Bin 2 – 6/27/03 (In Progress) Bin 3 – 6/27/03 Bin 4A through 4G – 6/27/03 Isolation or removal of the RHR/HPCI Steam Condensing Mode piping – November, 2004																										
		Question 8 & 9 The Off-Gas System has experienced hydrogen detonation. Early in Plant 7 history the Off-Gas building accumulated hydrogen and an explosion caused extensive damage. Additionally, an explosion in Z-Sump (related to off-gas) caused damage. Design changes were performed to eliminate vulnerable configurations.																										
		(3) Plant 13 Discussion 1. Based on the initial information GE, no known safety hazard exist in the BWR-6 design. Additionally, there have been no known issues at Plant 13. System outages, inspections, and maintenance activities have resulted in no abnormal conditions being noted. A thorough review of the CR and ER database was performed. Additionally, System Health Reports and System Logs were reviewed and no adverse conditions were noted on susceptible systems. 2. Plant 13 Evaluation determined that two systems had the potential to be affected: a. The RHR/RCIC Interface Piping: This section of piping is stagnant. The systems are not cross-connected using this line. The recommendation is to install a "blind flange" at the interface points of each system, basically abandoning this section of piping in place. The modification to do this will be complete in September 2003 in conjunction with other RHR System Modifications and the modification will be installed in April 2004.																										
		b. The N-11 Condensate System: The turbine manufacturer has recommended opening an orifice drain to remove condensate. A change to the Operations Procedure has been initiated to cycle specific drain valves weekly to meet this recommendation. Completion expected in October 2003.																										
		3. Safety Analysis and Design Engineering personnel do not believe that this is a credible situation based on how the plant is operated.																										