August 24, 1995

APPLICANT: Westinghouse Electric Corporation

PROJECT: AP600

SUBJECT: SUMMARY OF MEETING TO DISCUSS AP600 LEAK-BEFORE-BREAK (LBB) ANALYSIS AND MECHANICAL ISSUES

The subject meeting was held in Monroeville, Pennsylvania, on July 25 and 26, 1995, between representatives of Westinghouse Electric Corporation and the Nuclear Regulatory Commission (NRC) staff. The purpose of the meeting was to resolve draft safety evaluation report (DSER) open items and address staff questions related to AP600 LBB, pipe break, and other mechanical engineering issues. Attachment 1 is a list of attendees. The agenda is given in Attachment 2. The NRC handout is given in Attachment 3.

Additional information was required to complete the analysis review. Westinghouse committed to make the necessary information available in the Westinghouse Rockville satellite office for NRC review.

The status of DSER and meeting open items were discussed and progress was made towards resolution of the open items. Of the 53 items discussed, 23 were resolved and the remainder have identified actions required for resolution. The staff continues to interact with Westinghouse to resolve the remaining open items. A summary of the status for the open items is given in Attachment 4.

original signed by:
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Docket No. 52-003

Attachments:
As stated

cc w/attachments:
See next page

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NRC FOLLOWUP AUDIT OF WESTINGHOUSE ON
AP600 LEAK-BEFORE-BREAK ANAYSIS
JULY 25 AND 26, 1995 AT MONROEVILLE, PENNSYLVANIA

MEETING PARTICIPANTS

JULY 25, 1995

NAME	ORGANIZATION
Don Lindgren	Westinghouse
Ed Johnson	Westinghouse
Dulal Bhowmick	Westinghouse
Brian McIntrye (part-time)	Westinghouse
Rao Mandava (part-time)	Westinghouse
David Terao	NRC
Shou-Nien Hou	NRC
Herbert Brammer	NRC
Diane Jackson	NRC
Paul Chen	NRC Consultant/ETEC

JULY 26, 1995

NAME	ORGANIZATION
Don Lindgren	Westinghouse
Ed Johnson	Westinghouse
Dulal Bhowmick	Westinghouse
Dan Prager (part-time)	Westinghouse
Rao Mandava (part-time)	Westinghouse
Lee Tunon-Sanjur (part-time)	Westinghouse
Cheryl Boggess (part-time)	Westinghouse
Norm Singleton (part-time)	Westinghouse
David Terao	NRC
Shou-Nien Hou	NRC
Herbert Brammer	NRC
Diane Jackson	NRC
Paul Chen	NRC Consultant/ETEC
Everett Rodabough (part-time)	NRC

Attachment 1

MRC FOLLOWUP AUDIT OF WESTINGHOUSE ON
AP600 LEAK-BEFORE-BREAK ANALYSIS
JULY 25 AND 26, 1995 AT MONROEVILLE, PENNSYLVANIA

MEETING AGENDA

I. Discuss DSER open items:

- Pipe break protection requirements and acceptance criteria
- Scope, criteria, and justifications for applying leak-before-break

II. Review sample calculations and bounding analyses

- Procedures of bounding analysis
- Stress report, calculation packages, and drawings
- Criteria implementation and compliance of regulatory requirements
- Design specifications of pipe break mitigation devices
- Procedure documents for applying leak-before-break

III. Resolve remaining open issues in mechanical areas

Attachment 2

HANDOUT PROVIDED BY NRC

AT THE JULY 25 AND 26, 1995, MEETING BETWEEN

WESTINGHOUSE AND THE NRC ON

AP600 LEAK BEFORE BREAK ANALYSIS

Attachment 3

3.

7/18/95

SSER

AP600 DSER OPEN ITEMS - CHAPTER 3 - EMEB SCOPE OF REVIEW

(xxxx) = Westinghouse Item No.

1. 3.1.1.4-1 (561) - Radwaste Building design loads and allowables - RG 1.143, RAI 230. Tom Cheng will review.

2. 3.2.1-1 (562) - Appendix B for all Seismic Cat. II - RG 1.29, Position C.4

   Inactive

   In the Open Item Tracking System Database (OITSD), Westinghouse proposes to resolve this issue by developing "an approach for non-Appendix B QA for Seismic II, RTNSS, fire protection, radwaste,... components." The staff does not agree that Seismic II components should be in the same QA group as RTNSS, fire protection, etc. As implied in the DSER for this open item, Seismic II components are not non-Appendix B. In accordance with RG 1.29, the pertinent QA requirements of Appendix B should be applied to Seismic II components.

3. 3.2.1-2 (563) - Appendix B for fuel storage racks - RG 1.29

   Inactive

   In the OITSD, Westinghouse proposes to resolve this issue by adding a note to the fuel rack classifications that they are Seismic Cat. I. As stated in the DSER for this open item, Sheet 19 of SSAR Table 3.2-3 already contains this commitment. The same commitment is in SSAR Sections 9.1.1.3 and 9.1.2.3. The issue in this open item is that Table 3.2-3 should contain a note that the design new and spent fuel storage racks meet the applicable QA requirements of Appendix B.

4. 3.2.2-1 (564) - Classification of ECCS - RAIs 210.1 and 210.29

   Resolved

   In the OITSD, Westinghouse proposes to resolve this issue by revising SSAR Section 3.2.2.5 to state that for AP600 Class C lines that provide an ECCS function, the welds will be required to be spot radiographed. The staff has determined that this commitment will result in a piping system whose construction is enhanced to the extent that the quality of the applicable Class 3 systems will be compatible with that of a Class 2 system. Therefore, this open item will be closed upon receipt of the revised SSAR.

5. 3.2.2-2 (565) - Delete reference to ANS-58.14 - No RAI

Progress

In the OITSD, Westinghouse states that the reference to ANS-58.14 in the response to RAI 210.29 was intended to be an aid to explain the AP600 classification approach, rather than a justification for the classification. The basis for Open Item 3.2.2-1 above was that the staff does not completely agree with the classifcation for ECCS in SSAR Section 3.2.2.5, which agrees with the classifcation in ANS-58.14. If the reference to ANS-58.14 remains in the response to RAI 210.29, the staff's FSER, for the record, will state that the staff's evaluation was conducted without a complete endorsement of 58.14.

6. 3.6.2-1 (592) - 3 inch break (Audit issue)

Proposed

The March 1995 Draft SSAR contains the following changes:

a. In Section 3.6.1, this criterion was changed from a 3" dia. break to a pressurization load of 5 psi. The staff will require that the basis for the 5 psi load be included in Section 3.6.1. The resolution of this Open Item should be coordinated with Open Item 6.2.1.2-1.

b. Section 3.6.1.2.1 was revised, however, the 3" criterion remains. These changes are similar to the response to RAI 210.76, which was part of the staff's basis for Open Items 3.6.2-1 and 3.6.2.3-5.

c. Section 3.6.2.1.1.1 was revised to eliminate the 3" criterion.

During the forthcoming meeting on July 25 & 26, 1995, the staff requests that Westinghouse be prepared to discuss the ~~above items~~ basis for the 5 psi.

7. 3.6.2.1-1 (593) - 2% operating time - definition of "short"

RESOLVED

In a meeting with Westinghouse on Feb. 15, 1995, the staff agreed that the 1% plant operating time criterion is acceptable. Therefore, the March 1995 Draft SSAR did not revise SSAR Section 3.6.1.1. This issue will be closed by the staff.

8. 3.6.2.2-1 (594) - MS compartment break size (Audit issue)

~~Resolved~~ RESOLVED

The March 1995 SSAR Draft revised Sections 3.6.1 (pg.3.6-3) and 3.6.1.2.2 (pg. 3.6-9) to agree with the staff position in

Section 3.6.2.2 of the DSER. This issue will be closed upon receipt of the SSAR Revision.

9. 3.6.2.3-1 - Sketches of break locations & stress summary
(595)
Progress

Rev. 4 is not same as mark Draft. The brief description of the hazards analysis was deleted. Should be included

The March 1995 SSAR Draft revised Section 3.6.2.5 to state that the COL will submit this type of information as a part of its hazard analysis. The Draft also added a new Section 3.6.4, "Combined License Information," which contains a commitment that the COL applicant will complete a pipe rupture hazard analysis which will include the activities listed in Section 3.6.2.5. This part of this Open Item issue will be closed upon receipt of the SSAR Revision.

SSAR 3.6.4.1 was also modified to delete ref. to 3.6.2.5

As discussed in Section 3.6.2.3 of the DSER, part of this open item included a staff review of AP600 Document No. GW-N1-001, "Pipe Rupture Design Criteria," Revision B dated April 26, 1991, which was transmitted to the staff in a letter dated April 14, 1994. The staff's preliminary review has determined that, because this document was issued in 1991, there are several inconsistancies between this document and the SSAR. It is the staff's understanding that the piping designers will use the criteria in GW-N1-001 for the postulation of pipe breaks. Therefore, the staff will require a commitment in the SSAR that the criteria in GW-N1-001 and applicable portions of SSAR Sections 3.6.1, 3.6.2 and 3.6.3 are identical.

10. 3.6.2.3-2 - Environmental qualification - RAI 210.77
(596)
~~Inactive~~

The March 1995 Draft SSAR does not appear to address this item.

11. 3.6.2.3-3 - Reanalyses for as built configurations (Audit issue)
(597)
~~Resolved~~
RESOLVED
In Rev. 4

The March 1995 SSAR Draft revised Section 3.6.2.1.1 to commit to the information requested in this Open Item. This issue will be closed upon receipt of the SSAR Revision.

12. 3.6.2.3-4 - MEB 3-1 B.1.c.(2).(b).(i), flanges & fittings (Audit issue)
(598)
~~Resolved~~
c RESOLVED
In Rev. 4

The March 1995 SSAR Draft revised Section 3.6.1.1.3 to include the information requested in this Open Item. This issue will be closed upon receipt of the SSAR Revision.

13. 3.6.2.3-5 - Separating structures - RAI 210.76
(599)
Active

The March 1995 Draft Revision to SSAR Section 3.6.1.2.1 is identical to the response to RAI 210.76, and does not appear to address this Open Item. As noted in the DSER, pg. 3-103, Westinghouse should revise the SSAR to incorporate the SRP 3.6.2, BTP MEB 3-1 criterion for structures separating high-energy lines from essential components outside the containment penetration area and delete the exception to this gu'deline in WCAP-13054.

14. 3.6.2.3-6 - Identify other high-energy pipe as non-ASME (Audit issue)
(600)
~~Resolved~~
RESOLVED in Rev. 4

The March 1995 SSAR Draft revised Section 3.6.2.1.2.1 to include the information requested in this Open Item. This issue will be closed upon receipt of the SSAR Revision.

15. 3.6.2.3-7 - Stress limits applicable to Eq.(9) & (10) - (Audit issue)
(606)
~~Resolved~~
RESOLVED in Rev. 4

The March 1995 SSAR Draft revised Section 3.6.2.1.2.2 to include the information requested in this Open Issue. This issue will be closed upon receipt of the SSAR Revision.

16. 3.6.2.3-8 - Through-wall cracks for non-analyzed pipe (Audit issue)
(607)
RESOLVED

SSAR Section 3.6.2.1.2.2.E contains an acceptable response to this issue.

17. New Items - Break Exclusion Zones

a. Section 3.6.2.2 of the DSER, the staff discussed the response to RAI 210.40. The basis for the staff's acceptance of this response was that the length of line from the MS & FW outboard isolation valves and the auxiliary building anchors is only 5 feet. The SG blowdown line was included in the RAI, but was not specificaly discussed in the response. In addition, the Draft Revision of SSAR Section 3.6.2.1.1.4 added the startup feedwater piping to the list of break exclusion zones. The basis for the break exclusion zones for the SG blowdown and startup FW is not clear to the staff. Therefore, during the forthcoming meeting on July 25 & 26 1995, the staff requests that Westinghouse provide a clarification of this issue for the SG blowdown, and startup FW lines.

of 3.6.2.1.1.4

Pg. 3.6-16 in Rev. 4

b. In the SSAR Draft Revision dated March 1995, the next to last paragraph (pg.3.6-[illegible]) states "Areas of system piping where no breaks, except as noted in subsections 3.6.1.2, 3.6.1.2.1, and 3.6.1.2.2 are postulated are as follows:." During the forthcoming meeting, the staff requests that Westinghouse explain these exeptions.

c. The SSAR, Section 3.6.1 dated March 1995 requires some clarification. The staff requests that Westinghouse be prepared to discuss this revision during the forthcoming meeting.

18. 3.6.3.4-1 (608) - Bounding LBB analyses (Audit issue)

Action N

The March 1995 SSAR Draft revised several parts of Section 3.6.3 to commit to bounding analyses for LBB. In addition, during a meeting with the staff on March 15, 1995, Westinghouse submitted a handout which contained a detailed description of these analyses. In a letter dated June 26, 1995, Westinghouse submitted information relative to the bounding analysis curve for a 4 inch diameter line. ETEC and the staff will review this issue during the forthcoming meeting with Westinghouse on July 25 & 26, 1995.

19. 3.6.3.4-2 (609) - COL to verify LBB bounding analyses (Same as COL Action Item 3.6.3.4.1)

~~Received~~ PROGRESS

The March 1995 SSAR Draft added a new Section 3.6.4.2 to commit to the staff's request in the DSER. ~~This issue will be closed upon receipt of the SSAR revision.~~ Rev. 4 does not agree with the March Draft. "as built" should not be deleted. Also, change "applicant" to "licensee."

20. 3.6.3.5-1 (610) - Leak detection methods (RAI 252.8)

Progress

In the OITSD, Westinghouse proposed to resolve this issue by revising SSAR Section 5.2.5. The Plant Systems Branch is currently reviewing Revision 3 to Section 5.2.5. Subsequent to completion of this review, EMEB will consider this item to be closed.

21. 3.6.3.5-2 (611) - Class 1 vs. Class 2 LBB analyses - RAI 252.5

Progress

In the OITSD, Westinghouse proposed to resolve this issue by stating that a fatigue crack growth analysis will be performed on each Class 2 and 3 system on which LBB is to be demonstrated, and that this, along with the preservice and Section XI required ISI will provide for the integrity of each

system. During the forthcoming meeting on July 25 and 26, 1995, the staff requests that Westinghouse provide more detailed information relative to this issue.

22. 3.6.3.5-3 - Location of MS and FW anchors (Audit issue)
(612)
Progress In the OITSD, Westinghouse proposed to resolve this issue by stating that the SSAR, Section 3.6.3 and Appendix 3E identifies the scope of the analysis. According to this information, the LBB analyses for the MS & FW lines is applicable up to the anchors at the exterior of the auxiliary building. As discussed in the DSER, it was the staff's understanding that these anchors would be relocated to the shield building. The staff will request clarification of this issue during the forthcoming meeting.

23. 3.6.3.5-4 - MS and FW definitions for LBB (Audit issue)
(613)
Progress The discussion relative to Open Item 612 above should clarify this issue for the staff.

24. 3.6.3.5-5 - Justification of LBB for MS and FW - RAI 252.13
(614)
Active To be discussed during the forthcoming meeting.

25. 3.6.3.6-1 - Soil conditions for LBB analyses - RAI 210.10
(615)
Active To be discussed during the forthcoming meeting.

26. 3.6.3.6-2 - Staff piping audit - RAI 252.11
(616)
Active To be discussed during the forthcoming meeting.

27. 3.6.3.6-3 - 0.5 gpm vs. 1.0 gpm leakage rate (Audit issue)
(617)
RESOLVED The staff has accepted the Westinghouse criteria.

28. 3.6.3.6-4 - Leak rate evaluation methodology (Audit issue)
(618)
Active To be discussed during the forthcoming meeting.

29. 3.6.3.6-5 - Small dia. pipe LBB criteria - RAI 252.12
(619)
Resolved — In the OITSD, Westinghouse agreed to revise the SSAR to reflect the staff's position. This will be verified by the staff during the forthcoming meeting.

30. 3.6.3.6-6 - Waterhammer type loads in LBB analyses (Test results issue)
(620)
Action W — To be discussed during the forthcoming meeting.

31. 3.9.2.1-1 - Scope of preoperational piping tests - No RAI
(780)
Resolved — In the OITSD, Westinghouse agreed to revise SSAR Sections 3.9.2.1 and 14.2.8 to agree with the staff's request. This issue will be closed upon receipt of the SSAR revision.

32. 3.9.2.1-2 - Use 1990 revision of OM-3 - RAI 210.54
(781)
Resolved — In the OITSD, Westinghouse agreed to revise SSAR Sections 3.9.2.1.1 and 3.9.8 to agree with the staff's request. This issue will be closed upon receipt of the SSAR revision.

33. 3.9.2.4-1 - Japanese CRDM tests seismic input - RAI 210.94
(785)
Action W

34. 3.9.3.1-1 - SSE plus LOCA loading combination - RAI 210.62 and 210.79
(786)
Active — The staff's position on this issue remains as described in NUREG-1242, Vol. 3, Part 1, "NRC Review of EPRI's ALWR Utility Requirements Document," Chapter 1, Sections 4.6.1 and 4.6.2, dated August 1994.

35. 3.9.3.1-2 - Fatigue evaluations for Class 2 & 3 SSCs
(787)
Resolved — In a telecon on April 11, 1995, Westinghouse stated that the only components affected are the SG nozzles, and that they are designed to ASME Class 1 rules. This issue will be closed upon receipt of an SSAR Revision which reflects this information.

36. 3.9.3.1-3 - Design specifications - RAI 210.73
(788)

Active

In a letter dated May 5, 1995, Westinghouse transmitted a draft procedure for preparation of ASME piping Design Specifications to Mr. Everett Rodabaugh, consultant to NRR. This draft is numbered AP-3.21, but has no date. Mr. Rodabaugh's review of this document has determined that it provides appropriate guidance for the preparation of Design Specifications for piping as required for the ASME, Section III. However, before the staff can close out this item, the following clarifications are required:

(1) It is not clear to the staff whether Westinghouse agrees that this draft procedure has been submitted on the AP600 Docket. The May 5, 1995 transmittal letter is addressed to the Document Control Desk, Attention Everett Rodabaugh. However, the letter requests that Mr. Rodabaugh return the document after he completes his review. If the staff uses this document as the basis for the FSER on this item, the document must be in final form, dated, and submitted on the Docket. In addition, the title of this document should be changed from "ASME Piping Design Specification" to "Procedure for Preparation of Piping Design Specifications."

(2) The staff's FSER on this issue must conclude that these procedures are applicable to all AP600 ASME Class 1, 2 & 3 components. The title of this draft procedure is limited to piping. The staff needs a commitment from Westinghouse that these same procedures apply to all safety-related components.

(3) On page 1 of the draft procedure, it is stated that the purpose of this document is to provide a supplement to WCAP-9565, Procedure DP-3.2.2, "Design Specification," for the ASME Section III piping Design Specifications that are to be issued in support of the AP600 program. Since the staff has not reviewed WCAP-9565, Westinghouse should provide a commitment that WCAP-9565 does not contain procedures that differ from those in the AP-3.21 draft procedure.

(4) Westinghouse should revise the response to Q210.73 and the Draft Revision 3 of the SSAR, Section 3.9.3 to commit the COL applicant to complete Design Reports and Design Specifications for ASME Class 1, 2, or 3 components shortly after

completion of final design rather than "prior to affixing an N-stamp." In addition, there should be a commitment in the SSAR that the COL applicant will make these documents available for possible staff review at that time.

Resolution of Open Item 3.9.3.1-3 will also resolve Open Item 3.9.3.1-4 and COL Action Item 3.9.3.1-1.

37. 3.9.3.1-4 (789) - COL commitment to design specifications

Active

See comment (4) under Open Item 3.9.3.1-3.

38. 3.9.3.1-5 (790) - ISLOCA criteria - RAI 210.61

Resolved

In the response to RAI 210.61, the proposed revision to the SSAR Sections 1.9.5.1 and 5.4.7.2.2 did not include a commitment to design the low pressure side of the applicable piping systems to 40% of the RCS design pressure. In a telecon on April 11, 1995, Westinghouse agreed to revise the SSAR to include this commitment. This issue will be closed upon receipt of the SSAR Revision.

39. 3.9.3.1-6 (791) - HVAC ductwork design criteria - RAI 210.5

RESOLVED

Revision 3 to the SSAR added Appendix 3H, "HVAC Ducts and Duct Supports," which contains the information requested by the staff in the DSER. This Appendix contains design criteria for HVAC ductwork and supports which is comparable to the critria in the recently approved Design Control Documents for evolutionary ALWRs. Therefore, this issue is closed.

40 3.9.3.3-1 (792) - Snubber criteria - RAI 210.69

Action W

In a telecon on April 11, 1995, the staff attempted to clarify this issue. Westinghouse agreed to review SRP 3.9.3 and provide a response.

41. 3.9.3.3-2 (793) - Anchor bolts (App. B of ACI 349) - RAI 210.107 & 220.84

Active

Draft Revision 3 of the SSAR, Section 3.9.3.4 is identical to the response to RAI 210.107, and is not completely acceptable as stated the DSER, Section 3.9.3.3.

42. 3.9.5-1 (794) – Reactor internals design specifications (Audit issue)

Resolved In a meeting with Westinghouse on May 10,1995, this issue was discussed and the staff's summary of the meeting dated June 22, 1995 identified this issue as being resolved.

43. 3.9.7-1 (812) - Deflection limits for integrated head package (Audit issue)

Progress In the OITSD, Westinghouse agreed to provide a basis for these deflection limits. This will be discussed during the forthcoming meeting.

AP600 DSER CONFIRMATORY ITEMS - CHAPTER 3 - EMEB SCOPE OF REVIEW

(All of the items listed below are resolved unless otherwise noted)

1 3.2.1-1 (1773) - Classification of supports - RAI 210.34

2. 3.2.2-1 (1774) - Classification of Normal RHR System - RAI 210.37

3. 3.2.2-2 (1775) - Classification of Passive RHR HX supports - RAI 210.38

4. 3.2.2-3 (1776) - Passive RHR HX and IRWST designs - RAI 210.39

5. 3.2.2-4 (1777) - Add core barrel to Table 3.2-1 - RAI 210.71

6. 3.6.2.2-1 (1778) - Welds in guard pipe - RAI 210.40

RESOLVED In Rev. 4 — The March 1995 SSAR Draft Revision of Section 3.6.2.1.1.4 contains the response to this RAI. This issue will be closed upon receipt of the SSAR Revision.

7. 3.6.2.2-2 (1779) - Design criteria for guard pipe - RAIs 210.44 and 210.45

RESOLVED In Rev. 4 — The March 1995 SSAR Draft Revision of Sections 3.6.2.4 and 3.6.2.4.2 contains the response to these RAI's. This issue will be closed upon receipt of the SSAR Revision.

8. 3.6.2.3-1 (1780) - SRP 3.6.2, Rev.1

RESOLVED In Rev. 4 — The March 1995 SSAR Draft revised Section 3.6.2.1.1.1 to be consistent with SRP 3.6.2, Rev. 1. This issue will be closed upon receipt of the SSAR Revision.

9. 3.6.2.3-2 (1781) - Consideration of flooding effects - RAI 210.77

RESOLVED In Rev. 4 — The March 1995 SSAR Draft revised Section 3.6.2.1.3.2 to include the response to RAI 210.77. This issue will be closed upon receipt of the SSAR Revision.

10. 3.6.2.3-3 (1782) - Jet impingement load factor - RAI 210.41

RESOLVED In Rev. 4 — The March 1995 SSAR Draft revised Section 3.6.2.3.1 to include the response to RAI 210.41. This issue will be closed upon receipt of the SSAR Revision.

11. 3.6.2.3-4 - Criteria for energy absorbing material - RAI 210.43
(1783)

RESOLVED in Rev. 4

The March 1995 SSAR Draft revised Section 3.6.2.3.4.2 to include the response to RAI 210.43. This issue will be closed upon receipt of the SSAR Revision.

12. 3.9.1.2-1 - Verification of computer programs - RAI 210.33 - Related to Open Item 3.12.4.1-1
(1788)

13. 3.9.2.1-1 - Preop. piping tests on first plant only - RAI 210.53
(1789)

14. 3.9.2.1-2 - Include instrument lines in preop. tests - RAI 210.56
(1790)

15. 3.9.2.1-3 - Use OM-7 rules for preop. thermal tests - RAI 210.55
(1791)

16. 3.9.2.1-4 - Reference SSAR 3.9.2.1.1 in 14.2.8.1.78 - RAI 210.57
(1792)

17. 3.9.2.3-1 - Flow-induced vib. tests for all plants - RAI 210.58
(1793)

18. 3.9.2.4-1 - Use of 1 sq. ft. break when LBB is applied - RAI 210.95
(1794)

19. 3.9.2.4-2 - Reactor internals stability analyses - RAIs 210.21, .96, & .97
(1795)

20. 3.9.2.4-3 - Design rules for reactor internals - RAI 210.70
(1796)

21. 3.9.2.4-4 - Description of CRD tests - RAI 210.94
(1797)

22. 3.9.3.1-1 - Stress limits for active valves - RAI 210.66
(1798)

SSAR Draft Revision 3 provided acceptable revisions to Tables 3.9-9 and 3.9-10. This issue will be closed upon receipt of Revision 3.

23. 3.9.3.2-1 - Design criteria for mounting of relief valves - RAI 210.67
(1799)
closed

SSAR Revision 3 contains an acceptable response to this RAI. SSAR Sections 3.9.3.3 and 10.3.2.2.2 were revised to agree with the staff's request.

24. 3.9.3.3-1 - Delete criteria which allows pipe supports to fail - 210.42
(1800)
closed SSAR Revision 3 contains acceptable responses to this RAI. SSAR Sections 3.9.3.4, 3.6.2.3.2, and 3.10.1.3 were revised to agree with the staff's request.

25. 3.9.3.3-2 - Allowable stresses for active component supports - RAI 210.68
(1801)

SSAR Revision 3 revised Section 3.9.3.4 to agree with the staff's request. However, the response to RAI 210.68 also agreed to revise WCAP 13054 to delete an exception to SRP 3.9.3, SectionII.3.a. This WCAP has not yet been revised.

26. 3.9.3.3-3 - Load rating method for linear supports - RAI 210.74
(1802)

SSAR Revision 3 revised Appendix 1A to agree with the staff's request. However, the response to RAI 210.74 also agreed to revise WCAP 13054. This WCAP has not yet been revised.

27. 3.9.3.3-4 - Load rating method for plate & shell supports - RAI 210.75
(1803)

SSAR Revision 3 revised Appendix 1A to agree with the staff's request. However, the response to RAI 210.75 also agreed to revise WCAP 13054. This WCAP has not yet been revised.

28. 3.9.5-1 - Dimensions of reactor internals - RAI 210.99
(1804)

29. 3.9.5-2 - Thermal stratification inside the RPV - RAI 210.98
(1805)

30. 3.9.6.4-1 - COL submit plant-specific IST program
(1806)

32. 3.9.7-1 - Classification of integrated head package - RAI 210.72
(1807)

33. 3.10-1 - Revisions of Appendix 3D - RAI 210.7
(1808)

34. 3.10-2 - Delete exception to SRP 3.10 in WCAP 13054 - RAI 210.82
(1809)

35. 3.10-3 - Delete exception to SRP 3.10 in WCAP 13054 - RAI 210.83
(1810)

36. 3.10-4 - Delete exception to SRP 3.10 in SSAR and WCAP - RAI 210.86
(1811) & 210.88

37. 3.12.3.6-1 - Equivalent static load method - RAI 210.48
(1812)

39. 3.12.3.6-2 - Delete reference to seismic experience data - RAIs 210.30&46
(1813)

40. 3.12.5.5-1 - Combination of closely spaced modes (Audit issue)
(1814)

41. 3.12.5.13-1 - SAM + inertia loads - RAIs 210.32 & 210.79
(1815)

42. 3.12.5.14-1 - OBE as a design load - RAI 210.79
(1816)

43. 3.12.5.15-1 - Welded attachments (Audit issue)
(1817)

44. 3.12.6.4-1 - Baseplate flexibility - RAI 210.107
(1818)

See Open Item 3.9.3.3-2.

45. No number - Response to RAI 210.84 is acceptable (not in DSER)

46. No number - Response to RAI 210.47 is acceptable (not in DSER). SSAR Revision 2 contains this response.

AP600 DSER COL ACTION ITEMS - CHAPTER 3 - MEB SCOPE OF REVIEW

1. 3.6.3.4-1 - As-built LBB analyses (Audit issue)
(1883)

[redacted] Same comment as that under Open Item 3.6.3.4-2.

PROGRESS

2. 3.9.3.1-1 - Design Specifications and Reports available for audit - 210.73
(1890)

Active See comment (4) under Open Item 3.9.3.1-3.

AP600 DSER OPEN ITEMS - CHAPTER 5 - EMEB SCOPE OF REVIEW

1. 5.2.1.1-1 - Code edition date - RAI 210.112
   (882)

   PROGRESS In a letter dated March 7, 1995, Westinghouse provided a response to this RAI which stated that the 1989 addenda will be used for the AP600. The staff's FSER will state that if 50.55(a) conditions the acceptance of the 1989 addenda, the AP600 design will be required to comply

2. 5.2.1.1-2 - Include COL Action Item 5.2.1.1-1 in the SSAR
   (883)

   RESOLVED Revision 3 of the SSAR added Section 5.2.6.1 to commit to the staff's request.

3. 5.2.1.1-3 - Include COL Action Item 5.2.1.1-2 in the SSAR
   (884)

   RESOLVED Revision 3 of the SSAR added Section 5.2.6.1 to commit to the staff's request.

4. 5.2.1.2-1 - Code Cases - RAI 210.109
   (885)

   RESOLVED In a letter from Shembarger to Liparulo, dated May 10, 1995, Westinghouse was provided with the status of the staff's review of this issue. This letter requested several revisions to the SAAR. In SSAR, Revision 3, Table 5.2-3, Westinghouse committed to all of the staff's requests. This Item is closed.

AP600 DSER COL ACTION ITEMS - CHAPTER 5 - EMEB SCOPE OF REVIEW

1. 5.2.1.1-1 - COL insure that design is consistent with construction
   (1892) practices

   Same comment as that under Open Item 5.2.1.1-2.

2. 5.2.1.1-2 - COL identify editions and addenda of ASME Code later than 1989
   (1893) Edition

   Same comment as that under Open Item 5.2.1.1-3.

AP600 DSER OPEN ITEMS - CHAPTER 20 - EMEB SCOPE OF REVIEW

1. 20.2-1 - Water hammer issues (Issue A-1)
   ( )

2. 20.2-2 - Oregon State test results (Issue A-1)
   ( )

3. 20.2-3 - Issue A-2 as it relates to LBB open items
   ( )

4. 20.3-7 - Thermal shock (Issue 79)
   ( )

5. 20.3-8 - Thermal shock (Issue 79)
   ( )

6. 20.3-13 - ISLOCA (Issue 105)
   ( )

7. 20.4-9 - TMI II.D.1 - Testing of SRVs and associated piping
   ( )

AP600 DSER COL ACTION ITEMS - CHAPTER 20 - EMEB SCOPE OF REVIEW

1. 20.2-1 (1976) - COL applicant to demonstrate acceptability of AP600 design to site-specific seismic characteristics (GI A-40)

NRC FOLLOWUP AUDIT OF
WESTINGHOUSE ON
AP600 LEAK BEFORE BREAK

OPEN ITEM STATUS AND COMMITMENTS
JULY 25 AND 26, 1995

NRC handout No.	OITS Item No.	DSER Section /Question	Status	Action
2	562	3.2.1-1	Action W	Provide additional probability information
3	563	3.5.1.3-2	Resolved	
4	564	3.5.1.3-3	Resolved	
5	565	3.5.1.3-4	Resolved	
6	592	3.6.2-1	Action W	Demonstrate that 5 psi is the miniumum pressure for determining the adequacy of the structures and provide COL action item to confirm 5 psi.
7	593	3.6.2.1-1	Resolved	
8	594	3.6.2.2-1	Resolved	
9	595	3.6.2.3-1	Action W	1) Ensure GW-N1-001 criteria document is consistent with SSAR; 2) Replace the description of hazard analysis that was deleted in Rev. 4; 3) Propose action for COL to provide specific pipe break analysis information
10	596	3.6.2.3-2	Action W	Provide clarification
11	597	3.6.2.3-3	Resolved	
12	598	3.6.2.3-4	Resolved	
13	599	3.6.2.3-5	Resolved	
14	600	3.6.2.3-6	Resolved	
15	606	3.6.2.3-7	Resolved	
16	607	3.6.2.3-8	Resolved	
18	608	3.6.3.4-1	Action W	Make available at the Rockville satellite office: 1)BAC-1(Bounding Analysis Curve): pp. 4-7,38-39; 2) Appendix I: p. 106, hand calculation to verify App. I; 3) BAC-4, -5, -8, -10, -12, -18, -19, -24, -26, -27: summary, input parameters, curve, results.
19	609	3.6.3.4-2	Action W	Update 3.6.4.2 to include the words "as-built" stresses
20	610	3.6.3.5-1	Resolved	
21	611	3.6.3.5-2	Action W	Provide crack growth evaluation for Class 2 feedwater line for LBB applicability
22	612	3.6.3.5-3	Resolved	
23	613	3.6.3.5-4	Resolved	
24	614	3.6.3.5-5	Action W	Revise and expand Appendix 3B to include all lines to address water hammer and erosion/corrosion
25	615	3.6.3.6-1	Resolved	

26	616	3.6.3.6-2	Resolved	
27	617	3.6.3.6-3	Action W	Remove reference to 1.4 factor
28	618	3.6.3.6-4	Action N	Review two WCAPs on South Texas Project
29	619	3.6.3.6-5	Resolved	
30	620	3.6.3.6-6	Action W	Review OSU test results for water hammer and thermal stratification
31	780	3.9.2.1-1	Action W	Revise Section 14.2.8
32	781	3.9.2.1-2	Resolved	
33	785	3.9.2.4-1	Action W	Demonstrate CRDMs remain functional following .3g SSE
34	786	3.9.3.1-1	Action W	Update SSAR to include load combinations with SRV ADS
35	787	3.9.3.1-2	Resolved	
36	788	3.9.3.1-3	Action W	Revise COL item in 3.9.8.3 such that design specification and design reports 'be available for NRC audit'
			Action N	Review steam generator design specification
37	789	3.9.3.1-4	Resolved	Resolved based on 788
38	790	3.9.3.1-5	Resolved	
39	791	3.9.3.1-6	Action N	Review Appendices 3H and 3G
40	792	3.9.3.3-1	Resolved	
41	793	3.9.3.3-2	Action W	Westinghouse addressing this issue through Section 3.8
42	794	3.9.5-1	Resolved	
43	812	3.9.7-1	Action W	Provide clarification
	2422		Action W	Revise Appendix 3B
	2423		Action W	Revise Appendix 3B
	2424		Action W	Provide response
	2425		Action W	Provide response
	2426		Action W	Provide response
	2427		Action W	Provide response
	2428		Action W	Provide response
	2429		Action W	Verify information in SSAR or revise SSAR
	2430		Action W	Provide response
	2431		Action W	Provide response
	2432		Action W	Provide response
	624		Action W	Provide justification for 20% damping
	785		Action W	Demonstrate CRDMs remain functional following .3g SSE
17	new item:		Action W:	Commit to augmented-ISI for 4 inch, Class 2 pipes in break exclusion zone.
			Action W:	Update 3.1.1.2.1 to read "main and startup feedwater" (for guard pipes).
	new item:		Action W:	Make available in the Rockville satellite office: "Steam Generator System Material Testing - Test Report", Material properties for feedwater and main steam lines of AP600, date 5/95, by C.C. Kim (NTD) and F.J. Witts (consultant)

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