December 15, 2003

MEMORANDUM TO: Laura A. Dudes, Section Chief
New Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs, NRR

FROM: Joseph Colaccino, Senior Project Manager ***/RA/***
New Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs, NRR

SUBJECT: SEPTEMBER 4 AND 9, 2003, AP1000 TELEPHONE CONFERENCE CALL SUMMARY REGARDING THE AP1000 PROBABILISTIC RISK ASSESSMENT

On Thursday, September 4, 2003, a telephone conference call was held with Westinghouse Electric Company (Westinghouse) representatives and Nuclear Regulatory Commission staff and contractors to discuss specific AP1000 draft safety evaluation report open items in Chapters 19 related to the AP1000 probabilistic risk assessment. The call participants are listed in Attachment 1. A summary of the status of each open item discussed during the conference call is included in Attachment 2.

On Tuesday, September 9, 2003, a follow-up conference call was held with Westinghouse to discuss PRA open items 19.1.3.2-2 and 19.2.3.3-1. A summary of that discussion is also included in Attachment 2.

Docket No. 52-006

Attachments: As stated

cc w/atts: See next page

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SEPTEMBER 4 AND 9, 2003
AP1000 PROBABILISTIC RISK ASSESSMENT
TELEPHONE CONFERENCE CALL SUMMARY
LIST OF PARTICIPANTS

Nuclear Regulatory Commission	Westinghouse
R. Palla*	M. Corletti*
N. Saltos	J. Scobel*
J. Colaccino*	S. Sancaktar
M. Pohida	E. Cummins

*participated in September 9, 2003 conference call

Attachment 1

SUMMARY OF SPECIFIC PROBABILISTIC RISK ASSESSMENT OPEN ITEMS
AP1000 TELEPHONE CONFERENCE CALL
SEPTEMBER 4, 2003

Open Item (OI) 19.1.3.2-1

The NRC staff commented that Westinghouse should consider adding the effect of pre-existing containment opening on large release frequency (LRF) to the probabilistic risk assessment (PRA). Westinghouse noted that they had provided additional information on the risk impact of pre-existing openings and that this will be incorporated in Chapter 43D of the PRA. Because the NRC staff confirmed that the risk impacts are small, this open item is considered resolved.

OI 19.1.3.2-2

The NRC staff stated that the failure mode in which the drains in the annulus are plugged and subsequently the water flow plugs air baffle was not included in the AP1000 PRA. The staff noted that this was included in the AP600 PRA. This failure mode is important to other failure modes including late containment failure (LCF). Although it is not big in absolute terms, a conclusion should be provided.

Westinghouse stated that in AP600 air cooling was sufficient to cool the containment. For the AP1000, air coolant alone may not be sufficient. Westinghouse stated that they don't believe we need to include because the AP1000 does not take credit for air cooling alone.

The NRC staff stated that this issue is related to OI 19.1.10-4 and that they will evaluate this open item further.

The NRC staff had a follow-up conference call with Westinghouse on September 9, 2003, to request that Westinghouse provide a rationale for not including the plugging of drains in their PRA. Westinghouse stated that they will revise their response to this open item.

OI 19.1.10.1-1

The NRC staff noted that this open item is related to OI 19.1.10.1-2 and is considered resolved. The NRC staff also requested that Table 19.59-19 be updated to include the common Q key features.

OI 19.1.10.1-2

The NRC staff stated that the design features which prevent fire-induced spurious actuation of the ADS-4 squib valves need to be included in Table 19.59-19. The NRC staff stated that Westinghouse in general should include in Table 19.59-19 any insights gained in the closure of open items. The NRC staff also stated that this open item would be closed after the other issue-specific open items are closed and may ask Westinghouse to provide an explanation of the differences in insights between the AP1000 and AP600. Westinghouse agreed to update the table.

OI 19.1.10.1-3

To address this open item, the NRC staff asked Westinghouse to link the PRA to regulatory controls to show that the RTNSS (regulatory treatment of non safety systems) probabilistic criteria are met. The open item response does not mention uncertainties for the focused PRA. Westinghouse believes this was addressed in the AP600 addition of availability controls on non safety systems. The NRC staff stated that the AP600 included cutsets for a focused PRA and Westinghouse should show that 90 percent of availability controls is acceptable. Westinghouse stated that they understand the comment and will further evaluate this issue.

OI 19.1.10.1-4

Regarding the impact on PRA insights for RTNSS, the NRC staff requested that Westinghouse provide justification that the AP1000 meets the RTNSS probabilistic criteria without safety systems which are subject to regulatory oversight. Westinghouse agreed to address LCF to show that it does not impact RTNSS. In addition, Westinghouse agreed to reconcile conflicting statements between the AP1000 Level 1 and Level 2 PRA.

OI 19.1.10.1-5

The NRC staff previously discussed this open item with Westinghouse in a conference call on August 25, 2003. Westinghouse stated that they believe what was included in the AP1000 draft safety evaluation report was not consistent with the approach taken in the AP600 design certification. The NRC staff will continue to evaluate the open item response.

OI 19.1.10.1-6

The NRC staff stated that this open item was related to OI 19.1.10.1-2 and also stated that the COL item should be listed in 19.59-18. This open item is considered resolved.

OI 19.1.10.2-1

The NRC staff stated that Westinghouse needs to provide investment protection controls when performing reactor cooling system vacuum refill condition during midloop operations. The NRC staff also stated that the open item response was inconsistent with WCAP-15985. Westinghouse stated that the availability controls cover vacuum refill conditions. Westinghouse stated that they will evaluate the issue further to determine whether vacuum refill was considered.

OI 19.1.10.2-2

The NRC staff stated that this open item is considered confirmatory subject to Westinghouse updating the PRA.

OI 19.1.10.2-3

The NRC staff stated that this open item is considered confirmatory subject to Westinghouse updating the PRA.

OI 19.1.10.2-4

The NRC staff stated that this open item is considered confirmatory subject to Westinghouse updating the PRA.

OI 19.1.10.2-5

The NRC staff stated that this open item is considered confirmatory subject to Westinghouse updating the PRA..

OI 19.1.10.2-6

The NRC staff identified two issues that have not been addressed. The first issue involves the revision to the fire assessment. The NRC staff stated that if Westinghouse was relying on fire watcher to monitor breached areas, this is considered a key insight and should be added to Chapter 19.59 and in the fire assessment in DCD Tier 2 Chapter 9. Westinghouse stated that they would make the changes to the PRA and DCD as described.

With regard to the second issue, the NRC staff compared the dominant fire scenarios on the AP600 verses AP1000. It was determined that the shutdown fires were higher risk than full power fires in the AP1000 with the bulk of risk from the spurious actuation of ADS valve RNS 024 due to hot shorts. The NRC staff stated that this key insight should be documented in Chapter 19.59. Westinghouse stated that they will address this issue in Chapter 19.59.

OI 19.1.10.3-1

The NRC staff stated that this open item is considered confirmatory subject to Westinghouse updating the PRA.

OI 19.1.10.3-2

The NRC staff requested that Westinghouse clarify the differences in cavity flooding for the AP600 verses AP1000. Westinghouse stated they will consider the question and respond.

OI 19.2.3.3-1

Although Westinghouse provided a copy of the report, the NRC staff was seeking a more specific response in areas of insulation design, geometry, and pressure loads. Westinghouse stated that they intended to defer the design to the COL holder. The NRC staff stated that they do not know what design was tested in Configuration V and noted that the standoff distances were not included. Westinghouse stated that the report included only functional requirements and did not include the final design. The NRC staff stated that they would review DCD Tier 2 Chapter 5 and report again and may request another call on this issue.

On September 9, 2003, a follow up conference call on this open item was held with Westinghouse. The NRC staff stated that they require additional information from Westinghouse regarding the insulation design parameters and how the COL will use the test information to develop the detailed insulation design. Westinghouse stated that they would provide this information.

OI 19.3.3-1

The NRC staff stated that this open item is considered confirmatory.

OI 19.3.7-1

The NRC staff stated that this open item is considered confirmatory.

OI 19.3.10-1

The NRC staff stated that this open item is considered confirmatory.

OI 19.4-1

The NRC staff requested that Westinghouse provide a rationale that improvements to the AP1000 success criteria were not effective. Westinghouse stated that they will revise their open item response to provide a discussion on specific features.

cc:

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