December 24, 1997

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: REVISED SCHEDULE FOR THE STAFF'S REVIEW OF THE AP600 DESIGN CERTIFICATION APPLICATION

PURPOSE:

To provide the Commission with a revised schedule for the staff's review of the AP600 design certification application.

SUMMARY:

As a result of delays in the review of the AP600 design certification application, the staff has developed a revised review schedule. While developing this revised schedule, the staff considered Westinghouse's updated submittal dates and the NRC staff's availability. The staff now estimates that it can issue an Advanced Final Safety Evaluation Report (FSER) to the Commission and Advisory Committee on Reactor Safeguards (ACRS) in May 1998, and can issue the Final Design Approval (FDA) in September 1998.

BACKGROUND:

In various staff requirements memoranda (SRMs), the Commission directed the staff to inform it of changes to the schedules for the review of advanced reactor designs. In SECY-97-051, "Schedule for the Staff's Review of the AP600 Design Certification Application," dated February 26, 1997, the staff submitted its estimated schedule for completing the AP600 review. This schedule was based on a November 1996 meeting with Westinghouse that established a detailed schedule for completing the review. The Commission paper indicated that the staff would issue an Advanced FSER to the Commission and ACRS in November 1997, and would issue the FDA in March 1998. However, because delays have occurred, the staff has revised its review schedule for the AP600 design certification on the basis of the current status of the review.

DISCUSSION AND KEY ASSUMPTIONS:

The staff made a number of key assumptions while developing the schedule presented in SECY-97-051. In determining the review schedule for the design certification of the AP600, the staff considered Westinghouse's proposed submittal schedules, staff reviewer availability, contractor funding and availability, impact of other higher priority reviews, number and complexity of remaining open items, number of intermediate milestones (submittals, number of expected future meetings, additional requests for information, etc.), and the staff's experience gained through the reviews of the evolutionary and advanced reactors. A discussion of the status of these key assumptions follows.

Information Requirements and Staff Availability

In the previous review schedule, the staff assumed that Westinghouse would submit timely, high-quality information in (1) the standard safety analysis report (SSAR), (2) the inspections, tests, analyses, and acceptance criteria (ITAAC) documents, and (3) other supporting documentation in accordance with the dates Westinghouse proposed during the November 1996 scheduling meetings with the staff. In its March 6, 1997 letter, the staff noted that certain key information concerning the NOTRUMP and the WGOTHIC codes had not been submitted in accordance with the November 1996 proposal, and reemphasized the need to provide timely, high-quality submittals to support that review schedule. In its April 17, 1997, letter, the staff asked Westinghouse to provide submittal dates for key information. Westinghouse sent a revised submittal schedule in its May 2, 1997, letter, and provided updates to that schedule on July 8, 1997 (informally) and October 23, 1997. In addition, in its April 30 and July 11, 1997, letters, Westinghouse renewed its commitment to provide the NRC with the timely, quality submittals that are required to support the issuance of an FDA in 1998. Similarly, another key assumption in SECY-97-051 was that the experienced staff's availability to work on the review of the AP600 design did not change. Since the November 1996 meeting, the staff has also missed milestone dates because of the need to assign key AP600 review personnel to higher priority work. For example, key reviewers were reassigned to work on the Shutdown Rule, the Steam Generator Rule, and other operating reactor issues, which affected various staff milestones for the AP600 review. When such situations arise, senior NRR managers have made efforts to minimize the impact on the AP600 schedule, such as reassigning review tasks to other experienced reviewers.

Key Issues

The review of the AP600 involves a number of first-of-a-kind issues that are unique to the design of the passive plants. In its December 6, 1996, letter to Westinghouse, the staff identified 27 licensing issues which it believes are potential critical path issues in the review of the AP600. These issues include, among others, ITAACs, the initial test program, the regulatory treatment of non-safety-related systems, code documentation and qualification, systems reliability of hydrogen mitigation systems, the need for a containment spray system, the basemat design, the fire protection program, the spent fuel pool cooling system, and adverse systems interaction. Final resolution of these design issues could significantly affect the design of the plant and, therefore, delay the review schedule. In order to expedite the reviews in these areas, the staff, where appropriate, established positions on many of these issues. In addition, the staff is in the process of clarifying its positions on issues concerning fire protection and the spent fuel pool design. The staff is developing a Commission paper concerning these matters, which will be forwarded to the Commission following the completion of the FSER input for these areas.

In previous Commission papers on the AP600 review schedule, the staff stated that significant deviation from resolutions reached on applicable issues

during the evolutionary reviews could also affect the schedule. Westinghouse's initial approach to ITAAC was a significant departure from that approved for the evolutionary plants. The November 1996 schedule estimates for the ITAAC review were based on the assumption that Westinghouse would submit ITAACs consistent with evolutionary plant ITAACs, so that the staff could use the experience it gained during its reviews of the evolutionary plants. In certain technical areas of the ITAAC, such as piping design and piping ITAAC, Westinghouse continues to propose departures from the evolutionary approach, thus requiring additional staff review. In addition, the Tier 1/ITAAC and the SSAR information must be sufficiently consistent so that an Independent Review Group (as used during the review of the ITAACs for the evolutionary designs) will not be required. The staff has established multi-discipline review teams to ensure an integrated review of the ITAAC consistent with the review schedule. The members of these teams are performing their review of ITAAC after their review of the remainder of the application on a time table that will support the overall review schedule.

In addition, during the early stages of the review of the AP600, Westinghouse, with staff encouragement, departed from a standard technical specifications (STS) approach by attempting to use risk-informed justification to support revised outage and surveillance times. Unfortunately, as these risk-informed technical specifications were developed by Westinghouse, the staff determined that the applicant was not providing sufficient justification for the proposed technical specification values. At that point, the staff realized that, even if additional justification were provided for these values, the staff could not complete the review of the AP600 technical specifications in a time frame to support the SECY-97-051 schedule because of the complexity of the review. Therefore, the staff asked Westinghouse to use the STS outage and surveillance times. This effort involved an expenditure of time and resources that delayed the review of the technical specifications. Westinghouse is now primarily relying on the STS as the basis for the AP600 technical specifications, where appropriate.

Other Open Issues

The staff has issued approximately 4600 requests for additional information (RAIs) on the AP600 design; Westinghouse has responded to approximately 4350. In addition, the staff's November 1994 Draft SER contained more than 1100 open items, and the staff's May 1996 Supplement to the Draft SER contained 120 open items. A key assumption in the SECY-97-051 review schedule required Westinghouse to provide most of the responses to the staff's concerns in the February - March 1997 timeframe, with all final documentation to be submitted by May 30, 1997. In its May 2, 1997, letter, Westinghouse provided a revised schedule for submittal dates for revisions to the AP600 SSAR, PRA, ITAACs, and other key information. In that letter, Westinghouse committed to submit much of the key information in the May - June 1997 time frame. However, a significant amount of information was submitted in July through October 1997, and at least one more revision to the SSAR is expected to be made in January 1998 to support the review.

Other Factors

In its experience with the reviews of the evolutionary light-water reactors (LWRs), the staff found that issues remaining near the end of the review are more difficult to close, and take more time to reach an acceptable resolution. The schedule does not allow extra time for reviewing the ITAACs, initial test program, or technical specifications, which are expected to be difficult areas of review because of the novel design aspects of the AP600. In addition, the staff assumed that Westinghouse will develop the final design documentation (e.g., SSAR, Tier 1/ITAAC, and design control document) for the AP600 consistent with the resolutions of issues addressed on the evolutionary LWRs, such as treatment of the PRA information and secondary references.

The staff also assumes that issues that are resolved late in the schedule (ITAACs, Technical Specifications, codes, certain key technical issues) will not have any cascading effect on the areas that the staff has previously closed out. In addition, future deviation from resolutions reached on applicable issues during the evolutionary reviews could also affect the schedule.

ACTIONS TAKEN TO SUPPORT THE REVISED SCHEDULE:

The staff and Westinghouse have taken steps to ensure that the revised schedule is achievable. In its April 30 and July 11, 1997, letters, Westinghouse renewed its commitment to provide the NRC with the timely, quality submittals that are required to support the issuance of an FDA in early 1998. Both Westinghouse and NRR senior managers have committed to focus the efforts of their staffs on completing the review, and are meeting frequently to discuss key issues in order to help bring them to closure.

When experienced reviewers are called away to review other, higher priority work, senior NRR managers will make every effort to minimize the impact on the AP600 schedule. If experienced personnel are not available within a reasonable time to support the review, staff members less acquainted with the design may be assigned to the review. Use of this solution will be minimized, however, because such reviewers may have to be trained on the unique aspects of the AP600 design, thus requiring additional review time.

Where practical, the review staff has developed a number of FSER inputs with open items to identify remaining key information necessary to resolve any remaining open issues in that technical area. As these inputs are finalized, the information needs have been, and will continue to be, extracted from these inputs and transmitted to Westinghouse to expedite closure of the issue. Because the staff intends to close all of the open items before it issues the Advanced FSER and because the FSER inputs now being compiled contain a number of open items, two months (December 1997 and January 1998) are in the schedule to give the staff and Westinghouse time to close these items before the staff prepares the FSER for the Commission and ACRS. Issuance of the Advanced FSER with open items could jeopardize the review schedule depending on the number and complexity of the resolution of the issues.

The staff is reviewing docketed draft information, where appropriate, to expedite the review. The staff will meet the schedule proposed in this paper provided that Westinghouse resolves the remaining open issues by submitting docketed draft information no later than January 5, 1998. The changes made in the January 1998 revision to the SSAR must be kept to a minimum, and contain only information that has been previously reviewed and approved by the staff. These provisions must be met by Westinghouse to effect a complete and orderly closeout of the remaining issues on the AP600. Failure to do so will jeopardize completion of the review in accordance with the schedule proposed in this paper.

CONCLUSIONS:

While developing this revised schedule, the staff considered Westinghouse's proposed submittal dates and the NRC staff's availability. The staff now estimates that it can issue an Advanced FSER to the Commission and ACRS in May 1998, and can issue the FDA in September 1998. The attachment to this paper gives the estimated dates for the key milestones that must be completed in order to finish the AP600 design certification review. However, given the current status of the review, the staff believes the September 1998 goal for the FDA is based on a challenging schedule. Consistent with previous Commission guidance, the staff will inform the Commission if significant changes to the schedule occur.

WESTINGHOUSE'S RESPONSE TO THE PROPOSED SCHEDULE:

During a September 10, 1997, meeting, the staff gave Westinghouse a proposed review schedule, on which Westinghouse commented in its letter dated September 26, 1997. As a result of Westinghouse's comments and additional interaction between Westinghouse and the staff, adjustments were made to

improve the schedule while accounting for staff resource allocations and planned interactions with the ACRS. Overall, the schedule was improved by approximately 2 months.

RESOURCES:

The FY 1999 Blue Book includes 11 direct FTE in FY 1998 to continue the AP600 review consistent with the revised schedule. The adequacy of these resources will be analyzed as part of the standard operating plan quarterly update process and during the February-March 1998 timeframe after the FSER inputs are complete. If necessary, any significant resource adjustment will be addressed during the FY 2000 internal program/budget review.

COORDINATION:

While developing the schedule for the AP600 review, the staff considered the schedular templates requested by the Office of the General Counsel (OGC) and the ACRS. The staff's revised schedule assumes that the ACRS will be able to meet in accordance with the proposed dates, and that it will be satisfied with the resolution of issues that significantly affect the design review of the AP600. The ACRS expects to be able to complete its review in accordance with the schedule proposed in this paper, if the staff provides the advanced FSER to the ACRS by May 1, 1998. In addition, the Office of the Chief Financial Officer has reviewed this Commission paper for resource implications and had no objections.

DOCUMENT AVAILABILITY

The staff intends to make this paper publicly available within 5 work days from the date of this paper.

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Attachment: Revised Schedule for the AP600 Review

ATTACHMENT

REVISED SCHEDULE FOR THE AP600

MILESTONE	SECY-97-051	Revised Dates
DSER to Commission/ACRS	11/94C	11/94C
DSER Supplement to Commission/ACRS	3/96C	3/96C
Applicant Submits Final SSAR Revisions & Documentation	5/97*	1/98**
FSER Input to PM	8/97*	1/98**
Advanced FSER to Commission/ACRS	11/97	5/98
FSER Issued for Publication	2/98	8/98
FDA/Federal Register Notice Issued	3/98	9/98

*Date of last input.

**These dates are based on the assumption that Westinghouse resolves the remaining open issues by submitting docketed draft information no later than January 5, 1998. The changes made in the January 1998 revision to the SSAR must be kept to a minimum, and contain only information that has been previously reviewed and approved by the staff.