

December 1, 1987

Docket No. 50-601

APPLICANT: Westinghouse Electric Corporation

FACILITY: RESAR SP-90

SUBJECT: SUMMARY OF MEETING TO DISCUSS WESTINGHOUSE'S
DESIGN CERTIFICATION PROGRAM

On November 12, 1987, representatives of the NRC and Westinghouse Electric Corporation met to discuss the applicant's design certification program for the RESAR SP/90 design and the AP-600 design. Enclosure 1 is a list of attendees. Enclosure 2 is a copy of the slides used during the presentation.

Westinghouse began their presentation with a discussion of their overall licensing strategy for the RESAR SP/90 and AP-600. The applicant stated they expected completion of the PDA review for the RESAR SP/90 design in 1988, after which they planned to submit the FDA and design certification application. The applicant estimated completion of the design certification review by the end of 1992. The staff indicated that design certification could take longer than Westinghouse estimated if the project was highly contested.

Westinghouse then discussed the history of the review of RESAR SP/90, the scope of the design, and the unique safety features of the plant. The meeting concluded with a discussion of the current review status, the applicant's approach to completing the ACRS review, and the applicant's intent to develop a Licensing Review Basis document.

During the meeting, Westinghouse also indicated its intent to submit an FDA and design certification application for its AP-600 reactor design. The applicant intends to submit preliminary conceptual design information in mid-1988, and the FDA and design certification application in early 1990. The staff acknowledged Westinghouse's intentions and indicated that there would be a need to allocate resources in its project resource schedules. Westinghouse indicated it would present a briefing on the AP-600 at a later time.

original signed by
Thomas J. Kenyon, Project Manager
Standardization and Non-Power
Reactor Project Directorate
Division of Reactor Projects III, IV,
V and Special Projects

Enclosure:
As stated

DISTRIBUTION:

Central File
Local PDR
PDSNP Reading
LRubenstein
TKenyon
EHylton
TKing

OGC-BETH
EJordan
JPartlow
NRC Participants
ACRS (10)
HBClayton, RI

PDSNP
TKenyon:pj
11/1/87

PDSNP
LRubenstein
12/1/87

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PDR ADDCK 05000601
A PDR

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HBClayton, RI

PDSNP
TKenyon:pj
11/10/87
20

PDSNP
LRubenstein
12/7/87



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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A handwritten signature in cursive script, appearing to read "T. J. Kenyon".

Thomas J. Kenyon, Project Manager
Standardization and Non-Power
Reactor Project Directorate
Division of Reactor Projects III, IV,
V and Special Projects

Enclosure:
As stated

Enclosure 1

Meeting Attendees

November 12, 1987

| <u>Name</u> | <u>Organization</u> |
|-----------------|--|
| W. Johnson | Westinghouse, Manager, Nuclear Safety Department |
| B. McIntire | Westinghouse, Manager, Product Licensing |
| M. Shannon | Westinghouse, Licensing |
| T. van de Venne | Westinghouse, Engineering Manager, Advanced PWR Development |
| M. Beaumont | Westinghouse, Bethesda Office |
| T. Murley | NRC, NRR |
| J. Sniezek | NRC, NRR |
| R. Starostecki | NRC, NRR |
| L. Shao | NRC, NRR, DEST |
| F. Miraglia | NRC, NRR, ADP |
| A. Thadani | NRC, NRR, SAD |
| D. Crutchfield | NRC, NRR, DRSP |
| L. Rubenstein | NRC, NRR, PDSNP |
| T. Kenyon | NRC, NRR, PDSNP |

WESTINGHOUSE ELECTRIC CORP.
DESIGN CERTIFICATION PROGRAM

STAFF BRIEFING

NOVEMBER 12, 1987

W. J. JOHNSON, MANAGER
NUCLEAR SAFETY

W NTSD

W DESIGN CERTIFICATION PROGRAM

- SCOPE AND STRATEGY OF W DESIGN CERTIFICATION PROGRAM
- DESIGN AND SAFETY FEATURES
- CURRENT LICENSING REVIEW STATUS
- FUTURE ACTIVITIES/COMMITMENTS

W DESIGN CERTIFICATION PROGRAM

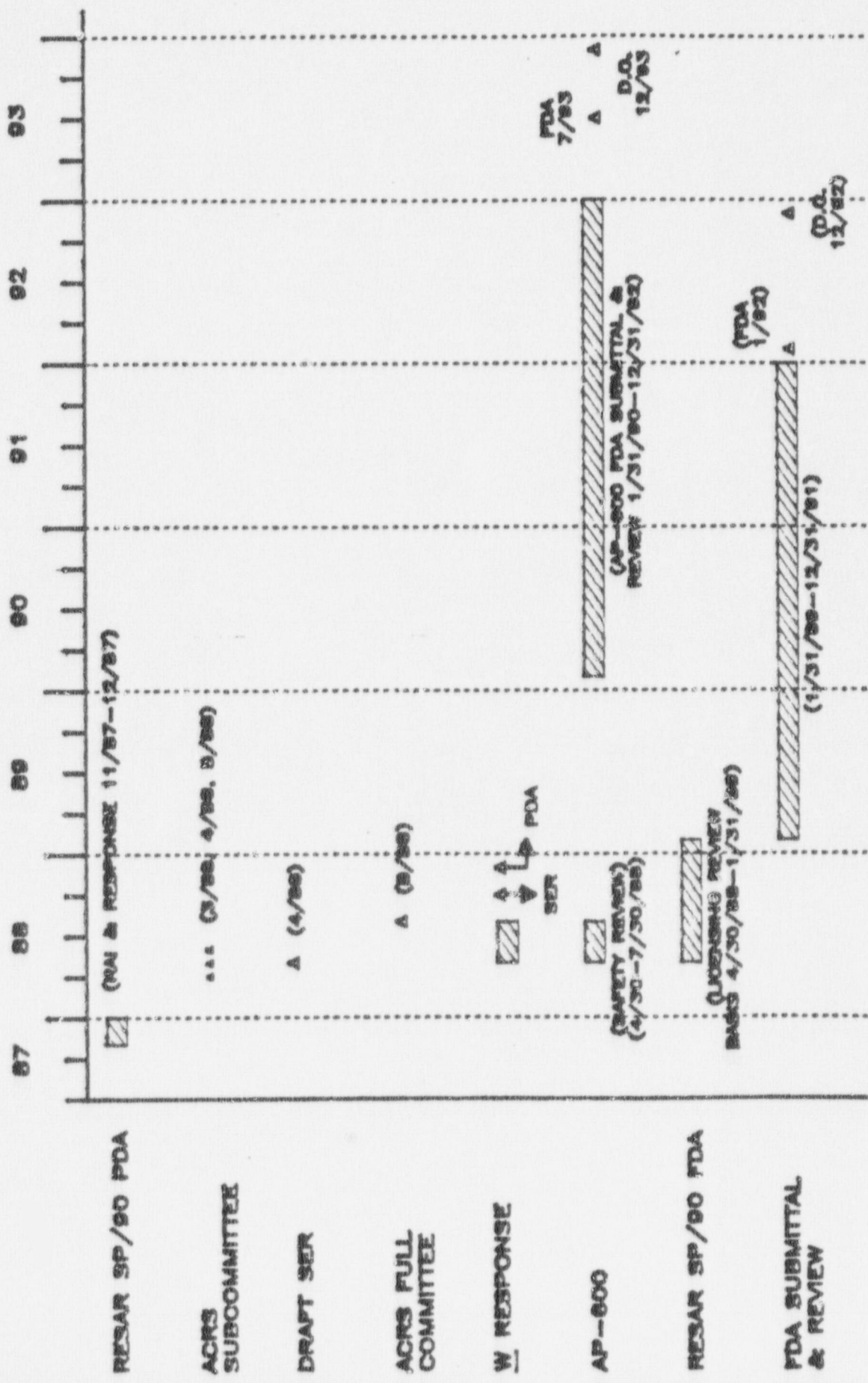
W STRATEGY

- COMPLETE PDA IN 1988
 - * CONFIRM LICENSABILITY PRIOR TO FINAL DESIGN
 - * IDENTIFY REGULATORY HARD SPOTS
 - * PROVIDE CERTAINTY FOR FINAL DESIGN ACTIVITY
 - * NUCLEAR POWER BLOCK SCOPE

- PDA SUBMITTAL BASED ON W/MHI PROGRAM
 - * INCLUDES UP TO PRELIMINARY DESIGN
 - * \$150 M TOTAL COST
 - * INCLUDES W/U.S. UTILITY INTERACTIONS
 - * ADDITIONAL FEATURES TO MEET/EXCEED U.S. NRC REQUIREMENTS

- FDA PROGRAM BASED ON JAPANESE PROJECT
 - * W/MHI INITIATED FINAL DESIGN ACTIVITIES
MARCH 1987 TO BE COMPLETED ~1990
 - * NUCLEAR POWER BLOCK SCOPE

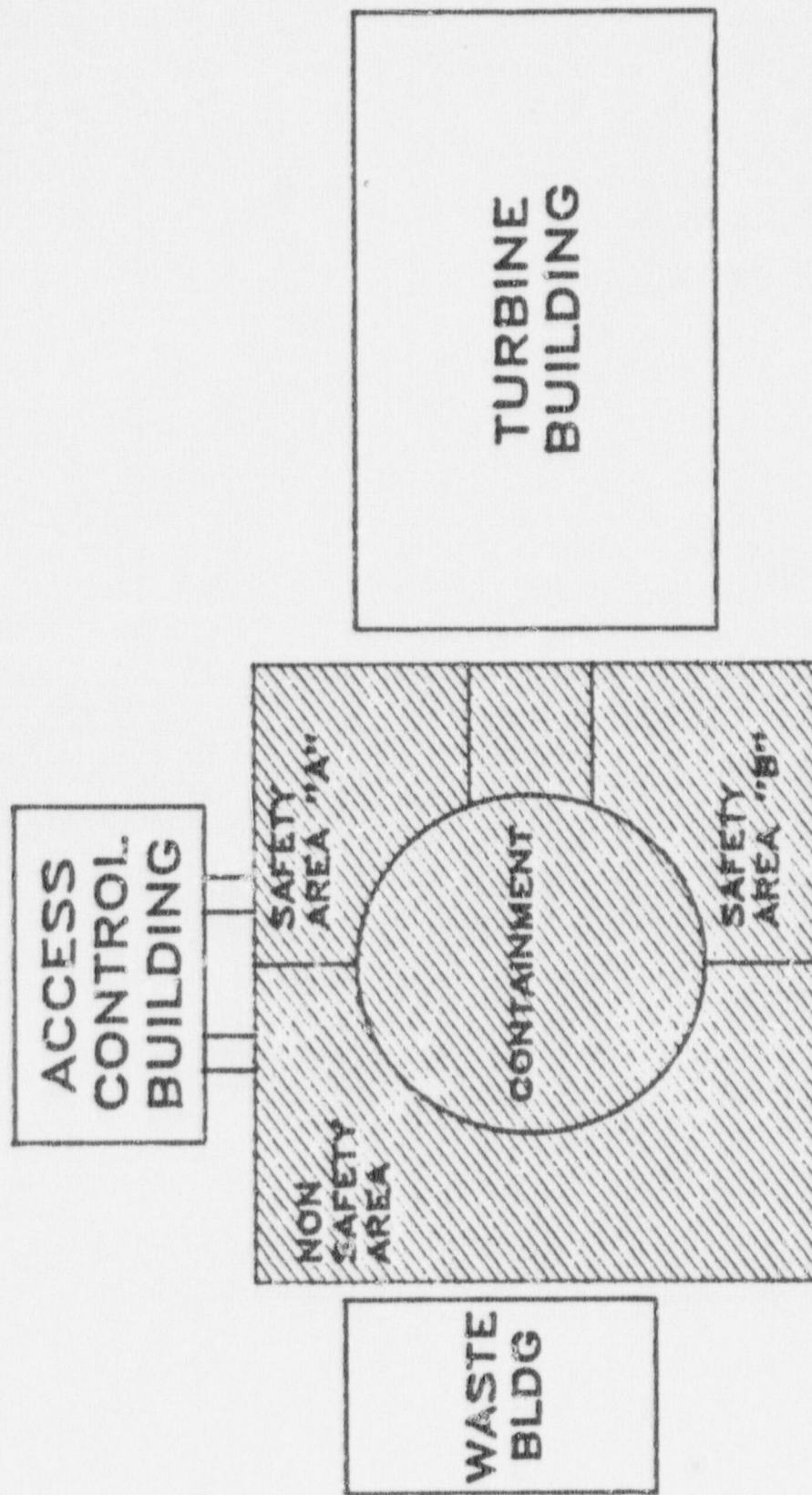
W DESIGN CERTIFICATION PROGRAM W SCHEDULE



W DESIGN CERTIFICATION PROGRAM
RESAR SP/90 FDA SCOPE

- NUCLEAR POWER BLOCK INCLUDES ALL EQUIPMENT AND SYSTEMS IN SEISMIC CATEGORY 1 STRUCTURES
- "FINAL DESIGN" DEFINITION OF NUCLEAR POWER BLOCK SCOPE WILL PROVIDE COMPLETE SET OF INFORMATION NEEDED TO SUPPORT STAFF SAFETY REVIEW FOR DESIGN CERTIFICATION
- SPECIFIC SCOPE OF SUPPLY PROVIDES INPUTS AND ASSUMPTIONS NEEDED FOR PRA EXCEPT FOR SITE SPECIFIC EXTERNAL EVENTS
- WILL PROVIDE ALL SAFETY RELATED BALANCE OF PLANT DESIGN INFORMATION (SITE-SPECIFIC ULTIMATE HEAT SINK)

APWR LAYOUT NUCLEAR POWER BLOCK



SIGNIFIES NUCLEAR POWER BLOCK

W DESIGN CERTIFICATION PROGRAM
EPRI REQUIREMENTS

- EARLY IN THE APWR DEVELOPMENT PROGRAM,
W OBTAINED SIGNIFICANT FEEDBACK FROM
US UTILITIES
- AT THE TOP LEVEL THERE IS EXCELLENT
AGREEMENT BETWEEN APWR MAJOR DESIGN
OBJECTIVES AND EPRI REQUIREMENTS
- AT THE MORE DETAILED LEVEL, THE EPRI
REQUIREMENTS DOCUMENT HAS ADOPTED MOST
OF THE APWR SAFETY FEATURES;
DISCREPANCIES WHICH WOULD HAVE
SIGNIFICANT IMPACT ON PLANTS HAVE
NOT YET BEEN IDENTIFIED

W DESIGN CERTIFICATION PROGRAM
SP/90 DESIGN & SAFETY FEATURES

OBJECTIVES OF DESIGN

- ENHANCED PLANT SAFETY
 - SB LOCA - NO CORE UNCOVERY
 - LOWER PCT: -BLOWDOWN ~1850° F
 -REFLOOD ~1600° F
- IMPROVED PLANT PERFORMANCE
 - EASE OF OPERABILITY
 - LESS OPERATOR ACTION
 - NO ECCS SWITCHOVER
 - OCCUPATIONAL RADIATION EXPOSURE
- LESSONS LEARNED FROM EXISTING DESIGNS
 - FRESH APPROACH TO PLANT LAYOUT TO MINIMIZE EFFECT OF COMMON MODE FAILURE DUE TO FLOOD, FIRE, SABOTAGE
 - NO SHARING OF SAFETY & NORMAL OPERATING SYSTEMS
 - DHR DIVERSITY - BLEED & FEED
- RESPONSIVE TO CURRENT & EXPECTED FUTURE REGULATORY REQUIREMENTS
- LOWER GENERATING COST
 - PLANT CAPITAL COST
 - FUEL CYCLE COST

W DESIGN CERTIFICATION PROGRAM
SP-90 DESIGN & SAFETY FEATURES

SEVERE ACCIDENT CONSIDERATIONS

- CORE MELT FREQUENCY $\sim 1 \times 10^{-6}$
FOR INTERNAL EVENTS
- CONTAINMENT DESIGN SUCH THAT COOLABLE
GEOMETRY IS MAINTAINED
- KEY DESIGN FEATURES TO SIGNIFICANTLY
REDUCE CMF
 - * 4 EMERGENCY FEEDWATER PUMPS
 - * 4 HIGH HEAD SAFETY INJECTION PUMPS
 - * DEDICATED RCP SEAL INJECTION PUMP
- EXTERNAL EVENTS BOUNDING FOR MOST
U.S. SITES

W DESIGN CERTIFICATION PROGRAM
CURRENT LICENSING REVIEW STATUS

- ALL PDA MODULES SUBMITTED
- STAFF REVIEW EFFORT INCREASING
 - * FOCUSED PROJECT MANAGEMENT EFFORT SINCE
NRR REORGANIZATION
 - * REVIEW BRANCH ASSIGNMENTS MADE
- W ADDRESSING STAFF RAI's
 - * RAI's BY BRANCH, NOT MODULE
 - * W TURNAROUND < 60 DAYS
- ACRS INTERACTION NEEDED
- REVIEW SCHEDULE ESTABLISHED

W DESIGN CERTIFICATION PROGRAM
CURRENT PDA LICENSING REVIEW STATUS

ACRS REVIEW STRATEGY

- GOAL IS TO KEEP ACRS FULLY INVOLVED
- HAVE HAD 4 ACRS BRIEFINGS 1983→1986
- FULL COMMITTEE BRIEFING 11/6/87
- SEPARATE DESIGN INTO RELATED SYSTEMS
 - * PLANT SYSTEMS - MODULES 1, 2, 4, 5 & 10
 - * PLANT OPERATION & CONTROL - MODULES 6/8, 9, 13 & 15
 - * SITE & STRUCTURES - MODULES 3, 7, 11, 12 & 16
- PRESENT AT 3 MEETINGS
- ACRS REVIEW COMPLETE BY 8/88

W DESIGN CERTIFICATION PROGRAM
CURRENT PDA LICENSING REVIEW STATUS

● ESTABLISHED STAFF PDA REVIEW SCHEDULE
(PER LETTER CRUTCHFIELD TO JOHNSON 6/19/87)

| | |
|------------------------------------|-------|
| RAI's TO WESTINGHOUSE | 8/87 |
| WESTINGHOUSE RESPONSE TO ALL RAI's | 12/87 |
| DRAFT SER ISSUE | 4/88 |
| WESTINGHOUSE COMMENTS ON DRAFT SER | 7/88 |
| FINAL SER ISSUE | 10/88 |
| PDA DECISION DATE | 12/88 |

● PROPOSED ACRS SCHEDULE

| | |
|--|------|
| MODULES 1, 2, 4, 5 & 10 (PLANT SYSTEMS) | 3/88 |
| MODULES 6/8, 9, 13 & 15 (PLANT OPERATION & CONTROL) | 4/88 |
| MODULES 3, 7, 11, 12 & 16 (SITE & STRUCTURES) | 5/88 |
| FULL COMMITTEE | 8/88 |

W DESIGN CERTIFICATION PROGRAM
FUTURE ACTIVITIES/COMMITMENTS

- INITIATE RESAR SP/90 FDA IN 1988
 - * LICENSING REVIEW BASIS DOCUMENT
- CONSISTENT WITH STANDARDIZATION POLICY
- AP-600 SAFETY REVIEW

W DESIGN CERTIFICATION PROGRAM
FDA-LICENSING REVIEW BASIS DOCUMENT

- ESTABLISH/DOCUMENT LICENSING REVIEW PROCESS
 - ◆ METHOD/TIMING OF SEVERE ACCIDENT POLICY
RULES/GUIDELINES
 - ◆ METHOD/TIMING OF STANDARDIZATION POLICY
RULES/GUIDELINES
 - ◆ ACRS MEETINGS
 - ◆ PERIODIC TOP MANAGEMENT REVIEW

- ESTABLISH/DOCUMENT LICENSING REVIEW
REQUIREMENTS
 - ◆ SRP COMPLIANCE
 - ◆ USI's/HIGH & MEDIUM GSI's
 - ◆ OTHERS

- BRIDGE PDA OPEN ITEMS TO FDA
 - ◆ INCORPORATE MODULE 2

W DESIGN CERTIFICATION PROGRAM
SUMMARY

- RESAR SP/90 PDA REVIEW REVITALIZED
- BUILD MOMENTUM TO FINISH PDA
- ESTABLISH FRAMEWORK FOR FDA
- INITIATE AP-600 SAFETY REVIEW
- CONTINUE PERIODIC TOP LEVEL MEETINGS