

Westinghouse Electric Corporation Water Reactor Divisions Box 355 Pittsburgh Pennsylvania 15230

Mr. Harold R. Denton, Director Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission Washington, D.C. 20555 NS-EPR-2945 August 2, 1984 Docket No. STN-50-601

SUBJECT:

WAPWR RESAR-SP/90: Consolidation of PDA Modules 6 and 8

ATTENTION:

K. T. Eccleston, Project Manager, SSPB

Dear Mr. Denton:

During the course of development of RESAR-SP/90 PDA Module 6, "Secondary Side Safeguards System (SSSS)" and PDA Module 8, "Steam and Power Conversion System" it has become apparent that in order to have a clear understanding of the interrelationships between these two areas of the plant, and to avoid extensive cross-referencing, it is advisable to consolidate these two modules into one integrated module. The resulting module entitled, "Integrated Modules 6 and 8: SSSS/Steam and Power Conversion System" will then contain a complete safety analysis report (SAR) Chapter 10 augmented by supporting information from other SAR chapters as appropriate. Enclosure 1 illustrates the approximate Table of Contents for the integrated module.

The Emergency Feedwater System will be located in SAR sub-section 10.4.9 (which is traditionally entitled "Auxiliary Feedwater"). A new sub-section, 10.4.10, will be added entitled "Startup Feedwater System". Interface criteria for those areas of the plant outside the scope of the WAPWR Nuclear Power Block (e.g., detailed design criteria for the Startup Feedwater System, etc.) will be provided in an appendix to Chapter 10.

E001

Mr. H. R. Denton Page Two

The current PDA licensing schedule targets Modules 6 and 8 for August and October 1984 submittals, respectively. Instead, we plan to submit the consolidated module in September 1984.

Please contact Mr. Douglas G. Bevard if you require any additional information relative to the Westinghouse planned module consolidation.

Very truly yours,

E. P. Rahe, Jr., Manager Nuclear Safety Department

MDB/kk Enclosure

cc: D. Eisenhut

R. Bernero

F. Miraglia, Jr.

C. Thomas

SECTION	DESCRIPTION	CATEGORY
1.1	INTRODUCTION	1
1,2,3,2	SECONDARY SAFEGUARDS SYSTEMS	11
1.2.3.5	STEAM AND POWER CONVERSION	11
1.3.1	COMPARISON WITH SIMILAR FACILITY DESIGNS	11
1.6	MATERIAL INCORPORATED BY REFERENCE	11
1.7.1	ELECTRICAL, INSTRUMENTATION, AND CONTROL DRAWINGS	11
1.7.2	PIPING AND INSTRUMENTATION DIAGRAMS	11
1.7.3	OTHER DETAILED INFORMATION	11
1.8	CONFORMANCE WITH THE STANDARD REVIEW	11
3.1	CONFORMANCE WITH NRC GENERAL DESIGN CRITERIA	11
3.2	CLASSIFICATION OF STRUCTURES,	, 11
3.2.3	SAFETY CLASSES	11
3.2.5	REFERENCES	11
5.4.9	MAIN STEAMLINE AND FEEDWATER PIPING	1
6.0	ENGINEERED SAFETY FEATURES	11
6.1	ENGINEERED SAFETY FEATURE MATERIALS	11
6.3.3.4	MAJOR SECONDARY SYSTEM PIPE FAILURE	11

SECTION	DESCRIPTION	CATEGORY
6.3.3.5	STEAM GENERATOR TUBE FAILURE	11
6.3.3.6	FEEDWATER SYSTEM PIPE BREAK	11
10.0	STEAM AND POWER CONVERSION SYSTEM	. 1
10.1	SUMMARY DESCRIPTION	1
10.2	TURBINE-GENERATOR	111
10.2.1	DESIGN BASES	1111
10.2.2	DESCRIPTION	111
10.2.3	TURBINE DISK INTEGRITY	111
10.2.3.1	MATERIALS SELECTION	111
10.2.3.2	FRACTURE TOUGHNESS	111
10.2.3.3	HIGH - TEMPERATURE PROPERTIES	
10.2.3.4	TURBINE DISK DESIGN	III
10.2.3.5	PRESERVICE INSPECTION	111
10.2.3.6	INSERVICE INSPECTION	111
10.2.4	EVALUATION	111
10.3	MAIN STEAM SUPPLY SYSTEM	1
10.3.1	DESIGN BASES	ı

SECTION	DESCRIPTION	CATEGORY
10.3.2	DESCRIPTION	ı
10.3.3	EVALUATION	1
10.3.4	INSPECTION AND TESTING REQUIREMENTS	. 1
10.3.5	WATER CHEMISTRY (PWR)	1
10.3.6	STEAM AND FEEDWATER SYSTEM MATERIALS	1
10.3.6.1	FRACTURE TOUGHNESS	I
10.3.6.2	MATERIALS SELECTION AND FABRICATION	1
10.4	OTHER FEATURES OF STEAM AND POWER CONVERSION SYSTEM	1
10.4.1	MAIN CONDENSERS	111
10.4.2	MAIN CONDENSER EVACUATION SYSTEM	111
10.4 3	TURBINE GLAND SEALING SYSTEM	111
10.4.4	TURBINE BYPASS SYSTEM	111
10.4.8	CIRCULATING WATER SYSTEM	111
10.4.6	CONDENSATE CLEANUP SYSTEM	111
10.4.7	CONDENSATE AND FEEDWATER SYSTEMS	III
10.4.8	STEAM GENERATOR BLOWDOWN SYSTEM (PWR)	1
10.4.8.1	DESIGN BASES	1

SECTION	DESCRIPTION	CATEGORY
10.4.8.2	SYSTEM DESCRIPTION AND OPERATION	1
10.4.8.3	SAFETY EVALUATION	1
10.4.8.4	TESTS AND INSPECTIONS	1
10.4.9	EMERGENCY FEEDWATER SYSTEM (PWR)	1
10.4.9.1	DESIGN BASES	1
10.4.9.2	SYSTEM DESCRIPTION	1.
10.4.9.3	SAFETY EVALUATION	1
10.4.9.4	INSPECTION AND TESTING REQUIREMENTS	1
10.4.9.5	INSTRUMENTATION REQUIREMENTS	1
10.4.10	STARTUP FEEDWATER SYSTEM	1 -00
15.0	ACCIDENT ANALYSIS	11
15.0.1	CLASSIFICATION OF PLANT CCONDITIONS	1
15.0.1.1	CONDITION I - NORMAL OPERATION AND OPERATIONAL TRANSIENTS	I de la constant de l
15.0.1.2	CONDITION II - FAULTS OF MODERATE FREQUENCY	1
15.0.1.3	CONDITION III - INFREQUENT FAULTS	ı
18.0.1.4	CONDITION IV - LIMITING FAULTS	1
15.0.2	OPTIMIZATION OF CONTROL SYSTEMS	1

SECTION	DESCRIPTION	CATEGORY
15.0.3	PLANT CHARACTERISTICS AND INITIAL COND- ITIONS ASSUMED IN THE ACCIDENT ANALYSES	1
15.0.3.1	DESIGN PLANT CONDITIONS	I
15.0.3.2	INITIAL CONDITIONS	1
15.0.3.3	POWER DISTRIBUTION	1
15.0.4	REACTIVITY COEFFICIENTS ASSUMED IN THE	1
15.0.5	ROD CLUSTER CONTROL ASSEMBLY INSERTION CHARACTERISTICS	1
15.0.6	TRIP POINTS AND TIME DELAYS TO TRIP	1
15.0.7	INSTRUMENTATION DRIFT AND CALORIMETRIC ERRORS - POWER RANGE NEUTRON FLUX	1
15.0.8	PLANT SYSTEMS AND COMPONENTS AVAILABLE FOR MITIGATION OF ACCIDENT EFFECTS	· 1
15.0.9	FISSION PRODUCT INVENTORIES	1
18.0.9.1	ACTIVITIES IN THE CORE	1
15.0.9.2	ACTIVITIES IN THE FUEL PELLET CLAD GAP	1
15.0.10	RESIDUAL DECAY HEAT	1
15.0.10.1	TOTAL RESIDUAL HEAT	1
15.0.10.2	DISTRIBUTION OF DECAY HEAT FOLLOWING LOSS-OF-COOLANT ACCIDENT	1
15.0.11	COMPUTER CODES UTILIZED	1
15.0.11.1	FACTRAN	1

10	15	5	15	15	15	15
		. 1	.0.	0	.0.	.0.
	1		14	13	12	11.6

SECTION	DESCRIPTION	CATEGORY
15.0.11.2	LOFTRAN	1
15.0.11.3	LEOPARD	1
15.0.11.4	TURTLE	1
15.0.11.5	TWINKLE	1
15.0.11.6	THINC	1
15.0.12	LIMITING SINGLE FAILURES	1
15.0.13	OPERATOR ACTIONS	1
15.0.14	REFERENCES	1
5.1	INCREASE IN HEAT REMOVAL BY THE SECONDARY SYSTEM	1
15.1.1	FEEDWATER SYSTEM MALFUNCTIONS THAT RESULT IN A DECREASE IN FEEDWATER TEMP.	1
15.1.1.1	IDENTIFICATION OF CAUSES AND ACCIDENT DESCRIPTION	1
15.1.1.2	ANALYSIS OF EFFECTS AND CONSEQUENCES	1
15.1.1.3	CONCLUSIONS	1
15.1.2	FEEDWATER SYSTEM MALFUNCTIONS THAT RESULT IN AN INCREASE IN FEEDWATER FLOW	1
15.1.2.1	IDENTIFICATION OF CAUSES AND ACCIDENT DESCRIPTION	1
15.1.2.2	ANALYSIS OF EFFECTS AND CONSEQUENCES	100
15.1.2.3	CONCLUSIONS	1

SECTION	DESCRIPTION	CATEGOR
15.1.3 EXCESS	IVE INCREASE IN SECONDARY STEAM	1,
15.1.3.1 IDENTIF	FICATION OF CAUSES AND ACCIDENT	1
15.1.3.2 ANALYSI	IS OF EFFECTS AND CONSEQUENCES	1
15.1.3,3 CONCLUS	SIONS	1
	RTENT OPENING OF A STEAM GENERATOR OR SAFETY VALVE	1
15.1.4.1 IDENTIF	FICATION OF CAUSES AND ACCIDENT	1
18.1.4.2 ANALYSI	IS OF EFFECTS AND CONSEQUENCES	1
15.1.4.3 CONCLUS	SIONS	1
15.1.4.4 RADIOLO	OGICAL CONSEQUENCES	1
15.1.5 STEAM S	SYSTEM PIPING FAILURE	1
15.1.5.1 IDENTIF	FICATION OF CAUSES AND ACCIDENT	1
15.1.5.2 ANALYSI	IS OF EFFECTS AND CONSEQUENCES	1
15.1.5.3 RADIOLO	OGICAL CONSEQUENCES.	1
15.1.5.4 CONCLUS	SIONS	1
15.1.5.4.1 ANALYTI	ICAL ASSUMPTIONS	. 1
15.1.5.4.1.1 SOURCE	TERM CALCULATIONS	1
18.1.5.4.1.2 MATHEMA	ATTICAL MODELS USED IN THE ANALYSIS	1

SECTION	DESCRIPTION	CATEGORY
15.1.5.4.1.3	IDENTIFICATION OF LEAKAGE PATHWAYS AND RESULTANT LEAKAGE ACTIVITY	i
15.1.5.4.2	INDENTIFICATION OF UNCERTANTIES AND CONSERVATISMS IN THE ANALYSIS	1
15.1.5.4.3	CONCLUSIONS	1
15.1.5.4.3.1	FILTER LOADINGS	1
15.1.5.4.3.2	DOSE TO RECEPTOR AT THE EXCLUSION AREA BOUNDRY AND LOW-POP OUTER BOUNDRY	1
15.2	DECREASE IN HEAT REMOVAL BY THE SECONDARY SYSTEM	1
15.2.1	STEAM PRESSURE REGULATOR MALFUNCTION OR FAILURE THAT RESULTS IN DECR. STEAM FLOW	1
15.2.2	LOSS OF EXTERMAL ELECTRICAL LOAD	1
15,2.2.1	IDENTIFICATION OF CAUSES AND ACCIDENT DESCRIPTION	1
15.2.2.2	ANALYSIS OF EFFECTS AND CONSEQUENCES	1
15.2.2.3	CONCLUSIONS	1
15.2.3	TURBINE TRIP	1
15.2.3.1	IDENTIFICATION OF CAUSES AND ACCIDENT DESCRIPTION	I
15.2.3.2	ANALYSIS OF EFFECTS AND CONSEQUENCES	1
15.2.3.3	CONCLUSIONS	1
15.2.4	INADVERTENT CLOSURE OF MAIN STEAM ISOLATION VALVES	1
15.2.5	LOSS OF CONDENSER VACUUM AND OTHER EVENTS RESULTING IN TURBINE TRIP	1

SECTION	DESCRIPTION	CATEGORY
15.2.6	LOSS OF NONEMERGENCY AC POWER TO THE STATION AUXILIARIES	ı
15.2.6.1	IDENTIFICATION OF CAUSES AND ACCIDENT DESCRIPTION	1
15.2.6.2	ANALYSIS OF EFFECTS AND CONSEQUENCES	1
15.2.6.3	RADIOLOGICAL CONSEQUENCES	1
15.2.6.4	CONCLUSIONS	1
15.2.7	LOSS OF NORMAL FEEDWATER FLOW	I
15.2.7.1	IDENTIFICATION OF CAUSES AND ACCIDENT DESCRIPTION	1
15.2.7.2	ANALYSIS OF EFFECTS AND CONSEQUENCES	1
15.2.7.3	CONCLUSIONS	1
15.2.8	FEEDWATER SYSTEM PIPE BREAK	1
15.2.8.1	IDENTIFICATION OF CAUSES AND ACCIDENT DESCRIPTION	1
15.2.8.2	ANALYSIS OF EFFECTS AND CONSEQUENCES	1
15.2.8.3	CONCLUSIONS	- 1