

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
CHAPTER 1	INTRODUCTION AND GENERAL DESCRIPTION OF THE PLANT	1.1-1
1.1	Introduction	1.1-1
1.1.1	Plant Location	1.1-1
1.1.2	Containment Type	1.1-1
1.1.3	Reactor Type	1.1-1
1.1.4	Power Output	1.1-1
1.1.5	Schedule	1.1-1
1.1.6	Format and Content	1.1-2
1.1.6.1	Regulatory Guide 1.70	1.1-2
1.1.6.2	Standard Review Plan	1.1-2
1.1.6.3	Text, Tables and Figures	1.1-2
1.1.6.4	Numbering of Pages	1.1-2
1.1.6.5	Proprietary Information	1.1-2
1.1.6.6	DCD Acronyms	1.1-3
1.1.7	Combined License Information	1.1-3
1.2	General Plant Description	1.2-1
1.2.1	Design Criteria, Operating Characteristics, and Safety Considerations	1.2-1
1.2.1.1	Overall Plant	1.2-1
1.2.1.2	Reactor Coolant System Design	1.2-5
1.2.1.3	Steam and Power Conversion System Design	1.2-8
1.2.1.4	Auxiliary Fluid Systems Design	1.2-9
1.2.1.5	Electrical and Control Systems Designs	1.2-11
1.2.1.6	Plant Arrangement and Construction	1.2-13
1.2.2	Site Description	1.2-15
1.2.3	Plant Arrangement Description	1.2-16
1.2.4	Nuclear Island	1.2-16
1.2.4.1	Containment Building	1.2-16
1.2.4.2	Shield Building	1.2-20
1.2.4.3	Auxiliary Building	1.2-22
1.2.5	Annex Building	1.2-25
1.2.6	Diesel Generator Building	1.2-25
1.2.7	Radwaste Building	1.2-26
1.2.8	Turbine Building	1.2-27
1.2.9	Combined License Information	1.2-27
1.3	Comparisons with Similar Facility Designs	1.3-1
1.4	Identification of Agents and Contractors	1.4-1
1.4.1	Applicant - Program Manager	1.4-1
1.4.2	Other Contractors and Participants	1.4-1
1.4.2.1	Bechtel North American Power Corporation	1.4-1
1.4.2.2	Southern Electric International	1.4-2
1.4.2.3	Burns & Roe Company	1.4-2

TABLE OF CONTENTS (Cont.)

<u>Section</u>	<u>Title</u>	<u>Page</u>
	1.4.2.4 MK-Ferguson Company	1.4-2
	1.4.2.5 Avondale Industries, Inc.	1.4-2
	1.4.2.6 Chicago Bridge & Iron Services, Inc.	1.4-3
	1.4.2.7 Other Participants	1.4-3
	1.4.3 Combined License Information	1.4-3
1.5	Requirements for Further Technical Information	1.5-1
	1.5.1 AP600 Safety-Related Tests	1.5-1
	1.5.1.1 Large-Break LOCA	1.5-2
	1.5.1.2 Small-Break LOCA	1.5-3
	1.5.1.3 Containment Cooling	1.5-3
	1.5.1.4 Non-LOCA Transient Analysis	1.5-5
	1.5.1.5 Integral Systems Testing	1.5-6
	1.5.2 AP600 Component Design Tests	1.5-7
	1.5.3 Combined License Information	1.5-8
	1.5.4 References	1.5-8
1.6	Material Referenced	1.6-1
1.7	Drawings and Other Detailed Information	1.7-1
	1.7.1 Electrical and Instrumentation and Control Drawings	1.7-1
	1.7.2 Piping and Instrumentation Diagrams	1.7-1
	1.7.3 Combined License Information	1.7-1
1.8	Interfaces for Standard Design	1.8-1
1.9	Compliance with Regulatory Criteria	1.9-1
	1.9.1 Regulatory Guides	1.9-1
	1.9.1.1 Division 1 Regulatory Guides - Power Reactors	1.9-1
	1.9.1.2 Division 4 Regulatory Guides - Environmental and Siting	1.9-2
	1.9.1.3 Division 5 Regulatory Guides - Materials and Plant Protection	1.9-2
	1.9.1.4 Division 8 Regulatory Guides - Occupational Health	1.9-2
	1.9.2 Compliance With Standard Review Plan (NUREG-0800)	1.9-3
	1.9.3 Three Mile Island Issues	1.9-3
	1.9.4 Unresolved Safety Issues and Generic Safety Issues	1.9-28
	1.9.4.1 Review of NRC List of Unresolved Safety Issues and Generic Safety Issues	1.9-28
	1.9.4.2 AP600 Resolution of Unresolved Safety Issues and Generic Safety Issues	1.9-29
	1.9.5 Advanced Light Water Reactor Certification Issues	1.9-77
	1.9.5.1 SECY-90-016 Issues	1.9-77

TABLE OF CONTENTS (Cont.)

<u>Section</u>	<u>Title</u>	<u>Page</u>
	1.9.5.2 Other Evolutionary and Passive Design Issues	1.9-95
	1.9.5.3 Passive Design Issues	1.9-104
	1.9.5.4 Additional Licensing Issue	1.9-108
	1.9.5.5 Operational Experience	1.9-109
1.9.6	References	1.9-110
APPENDIX 1A	CONFORMANCE WITH REGULATORY GUIDES	1A-1
1A.1	References	1A-80
APPENDIX 1B	SEVERE ACCIDENT MITIGATION DESIGN ALTERNATIVES	1B-1

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
1.1-1	AP600 SSAR Acronyms (Sheets 1 - 4)	1.1-4
1.3-1	AP600 Plant Comparison with Similar Facilities (Sheets 1 - 6)	1.3-2
1.5-1	AP600 Design Tests	1.5-10
1.6-1	Material Referenced (Sheets 1 - 19)	1.6-2
1.7-1	I&C Functional and Electrical One-Line Diagrams	1.7-2
1.7-2	AP600 System Designators and System Diagrams (Sheets 1 - 3)	1.7-3
1.8-1	Summary of AP600 Plant Interfaces with Remainder of Plant (Sheets 1 - 7)	1.8-4
1.8-2	Summary of AP600 Standard Plant Combined License Information Items (Sheets 1 - 6)	1.8-11
1.9-1	Regulatory Guide/DCD Section Cross-References (Sheets 1 - 16)	1.9-115
1.9-2	Listing of Unresolved Safety Issues and Generic Safety Issues (Sheets 1 - 55)	1.9-131

LIST OF FIGURES

<u>Figure No.</u>	<u>Title</u>	<u>Page</u>
1.2-1	Reactor Coolant System	1.2-28
1.2-2	Site Plan	1.2-29
1.2-3	Functional Allocation of System Components of AP600 Power Generation Complex	1.2-31
1.2-4	Nuclear Island General Arrangement Plan at El. 66'-6"	1.2-33
1.2-5	Nuclear Island General Arrangement Plan at El. 82'-6" & 92'-6"	1.2-35
1.2-6	Nuclear Island General Arrangement Plan at El. 96'-6"	1.2-37
1.2-7	Nuclear Island General Arrangement Plan at El. 100'-0" & 107'-2"	1.2-39
1.2-8	Nuclear Island General Arrangement Plan at El. 117'-6"	1.2-41
1.2-9	Nuclear Island General Arrangement Plan at El. 117'-6" with Equipment	1.2-43
1.2-10	Nuclear Island General Arrangement Plan at El. 135'-3" & 145'-9"	1.2-45
1.2-11	Nuclear Island General Arrangement Plan at El. 153'-0" & 160'-6"	1.2-47
1.2-12	Nuclear Island General Arrangement Plan at El. 160'-6" & 180'-0"	1.2-49
1.2-13	Nuclear Island General Arrangement Section A-A	1.2-51
1.2-14	Nuclear Island General Arrangement Section A-A with Equipment	1.2-53
1.2-15	Nuclear Island General Arrangement Section B-B	1.2-55
1.2-16	Nuclear Island General Arrangement Section B-B with Equipment	1.2-57
1.2-17	Annex Building General Arrangement Section A-A	1.2-59
1.2-18	Annex Building General Arrangement Plan at El. 100'-0" & 107'-2"	1.2-61
1.2-19	Annex Building General Arrangement Plan at El. 117'-6" & 126'-3"	1.2-63
1.2-20	Annex Building General Arrangement Plan at El. 135'-3", 156'-0", & 158'-0"	1.2-65
1.2-21	Diesel Generator Building General Arrangement Plan at El. 100'-0" & Section A-A	1.2-67
1.2-22	Radwaste Building General Arrangement Plan at El. 100'-0"	1.2-69
1.2-23	Turbine Building General Arrangement Plan at El. 89'-0" & 100'-0"	1.2-71
1.2-24	Turbine Building General Arrangement Plan at El. 117'-6"	1.2-73
1.2-25	Turbine Building General Arrangement Plan at El. 135'-3"	1.2-75
1.2-26	Turbine Building General Arrangement Plan at El. 161'-0"	1.2-77
1.2-27	Turbine Building General Arrangement Plan at El. 161'-0" with Equipment	1.2-79
1.2-28	Turbine Building General Arrangement Plan at El. 194'-0" & 224'-0"	1.2-81
1.2-29	Turbine Building General Arrangement Section A-A	1.2-83
1.2-30	Turbine Building General Arrangement Section B-B	1.2-85
1.7-1	Legend for Electrical Power, Lighting and Communication Drawings (Sheets 1 - 3)	1.7-7
1.7-2	Piping and Instrumentation Diagram Legend (Sheets 1 - 3)	1.7-13