

1.0	INTRODUCTION AND SUMMARY	
	Project Identification	1.1
	Definitions	1.2
	Methods of Technical Presentation	1.3
	Classification of BWR Systems, Criteria, and Requirements for Safety Evaluation	1.4
	Principal Design Criteria	1.5
	Plant Description	1.6
	Comparison of Principal Design Characteristics	1.7
	Summary of Radiation Effects	1.8
	Plant Management	1.9
	Quality Assurance Program	1.10
	Identification-Resolution of Construction Permit Concern-Summary	1.11
	General Conclusions	1.12
2.0	SITE	
	Summary Description	2.1
	Site Description	2.2
	Meteorology	2.3
	Hydrology, Water Quality, and Aquatic Biology	2.4
	Geology and Seismology	2.5
	Environmental Radiological Monitoring Program	2.6
3.0	REACTOR	
	Summary Description	3.1
	Fuel Mechanical Design	3.2
	Reactor Vessel Internals Mechanical Design	3.3
	Reactivity Control Mechanical Design	3.4
	Control Rod Drive Housing Supports	3.5
	Nuclear Design	3.6
	Thermal and Hydraulic Design	3.7
	Standby Liquid Control System	3.8
4.0	REACTOR COOLANT SYSTEM	
	Summary Description	4.1
	Reactor Vessel and Appurtenances Mechanical Design	4.2
	Reactor Recirculation System	4.3
	Nuclear System Pressure Relief System	4.4
	Main Steam Line Flow Restrictor	4.5
	Main Steam Isolation Valves	4.6

## BFN-27

	Reactor Core Isolation Cooling System	4.7
	Residual Heat Removal System (RHRS)	4.8
	Reactor Water Cleanup System	4.9
	Nuclear System Leakage Rate Limits	4.10
	Main Steam Lines, Feedwater Piping, and Drains	4.11
	Inservice Inspection and Testing	4.12
5.0	CONTAINMENT	
	Summary Description	5.1
	Primary Containment System	5.2
	Secondary Containment System	5.3
6.0	EMERGENCY CORE COOLING SYSTEMS	
	Safety Objective	6.1
	Safety Design Basis	6.2
	Summary Description-Emergency Core Cooling Systems	6.3
	Description	6.4
	Safety Evaluation	6.5
	Inspection and Testing	6.6
7.0	CONTROL AND INSTRUMENTATION	
	Summary Description	7.1
	Reactor Protection System	7.2
	Primary Containment Isolation System	7.3
	Emergency Core Cooling Control and Instrumentation	7.4
	Neutron Monitoring System	7.5
	Refueling Interlocks	7.6
	Reactor Manual Control System	7.7
	Reactor Vessel Instrumentation	7.8
	Recirculation Flow Control System	7.9
	Feedwater Control System	7.10
	Pressure Regulator and Turbine-Generator Control	7.11
	Process Radiation Monitoring	7.12
	Area Radiation Monitoring System	7.13
	Drywell Leak Detection Radiation Monitoring System	7.14
	Health Physics Laboratory Radiation Monitoring Equipment	7.15
	Process Computer System	7.16
	Deleted	7.17
	Backup Control System	7.18
	Anticipated Transient Without Scram	7.19
	Instrument Setpoint Methodology	7.20

## BFN-27

### 8.0 ELECTRICAL POWER SYSTEMS

Summary Description	8.1
Generators	8.2
Transmission System	8.3
Normal Auxiliary Power System	8.4
Standby AC Power Supply and Distribution	8.5
250-V DC Power Supply and Distribution	8.6
120-V AC Power Supply and Distribution	8.7
Auxiliary DC Power Supply and Distribution	8.8
Safety Systems Independence Criteria and Bases for Electrical Cable Installation	8.9
Station Blackout	8.10

### 9.0 RADIOACTIVE WASTE CONTROL SYSTEMS

Summary Description	9.1
Liquid Radwaste System	9.2
Solid Radwaste System	9.3
Deleted	9.4
Gaseous Radwaste System (Modified)	9.5

### 10.0 AUXILIARY SYSTEMS

Summary Description	10.1
New Fuel Storage	10.2
Spent Fuel Storage	10.3
Tools and Servicing Equipment	10.4
Fuel Pool Cooling and Cleanup System	10.5
Reactor Building Closed Cooling Water System	10.6
Raw Cooling Water System	10.7
Raw Service Water System	10.8
RHR Service Water System	10.9
Emergency Equipment Cooling Water System	10.10
Fire Protection Systems	10.11
Heating, Ventilating and Air-Conditioning Systems	10.12
Demineralized Water System	10.13
Control and Service Air Systems	10.14
Potable Water and Sanitary Systems	10.15
Equipment and Floor Drainage Systems	10.16
Process Sampling Systems	10.17
Plant Communications System	10.18
Lighting System	10.19
Auxiliary Boiler System	10.20
Postaccident Sampling System	10.21
Auxiliary Decay Heat Removal System	10.22
Hydrogen Water Chemistry System (HWC)	10.23

11.0	POWER CONVERSION SYSTEMS	
	Summary Description	11.1
	Turbine-Generator	11.2
	Main Condenser System	11.3
	Main Condenser Gas Removal and Turbine Sealing Systems	11.4
	Turbine Bypass System	11.5
	Condenser Circulating Water System	11.6
	Condensate Filter-Demineralizer System	11.7
	Condensate and Reactor Feedwater Systems	11.8
	Condensate Storage and Transfer Systems	11.9
12.0	STRUCTURES AND SHIELDING	
	Summary Description	12.1
	Principal Structures and Foundations	12.2
	Shielding and Radiation Protection	12.3
13.0	CONDUCT OF OPERATIONS	
	Organizational Structure for the Conduct of Operations	13.1
	Organization and Responsibility	13.2
	Training Programs	13.3
	Preoperational Test Program	13.4
	Startup and Power Test Program	13.5
	Normal Operations	13.6
	Deleted	13.7
	Operational Review and Audits	13.8
	Refueling Operations	13.9
	Refueling Test Program	13.10
14.0	PLANT SAFETY ANALYSIS	
	Analytical Objective	14.1
	Unacceptable Safety Results for Abnormal Operational Transients	14.2
	Unacceptable Safety Results for Accidents	14.3
	Approach to Safety Analysis	14.4
	Analyses of Abnormal Operational Transients - Updated	14.5
	Analysis of Design Basis Accidents - Updated	14.6
	Conclusions	14.7
	Analytical Methods	14.8
	Dose Sensitivity Evaluation Using Assumptions of the AEC/DRL (Incorporated with TID 14844)	14.9

## BFN-27

	Analyses of Abnormal Operational Transients - Pre-uprated	14.10
	Analysis of Design Basis Accidents - Pre-Updated	14.11
APPENDIX A.	CONFORMANCE TO AEC PROPOSED GENERAL DESIGN CRITERIA	
	Summary Description	A.1
	Criterion Conformance	A.2
APPENDIX B.	TECHNICAL SPECIFICATIONS AND TECHNICAL REQUIREMENTS MANUAL	
APPENDIX C.	STRUCTURAL QUALIFICATION OF SUBSYSTEMS AND COMPONENTS	
	Scope	C.1
	Loading Conditions, Definitions, and Overview	C.2
	Piping and Pipe Supports	C.3
	Major Components	C.4
	Primary Containment System and Penetrations	C.5
	Equipment	C.6
	Heating, Ventilation, and Air Conditioning (HVAC) Ductwork and Supports	C.7
	Control of Heavy Loads	C.8
	References	C.9
APPENDIX D.	QUALITY ASSURANCE PLAN FOR THE BROWNS FERRY NUCLEAR PLANT	
	Quality Assurance During Design and Construction	D.1
	General Electric Quality System for BWR Nuclear Steam Supply Projects	D.2
	Quality Assurance Program for Station Operation	D.3
APPENDIX E.	SITE GASEOUS RELEASE RATE LIMIT CALCULATION	
	Site Gaseous Release Rate Limits	E.1

APPENDIX F.	UNIT SHARING AND INTERACTIONS	
	Introduction	F.1
	Scope	F.2
	References	F.3
	Criteria	F.4
	List of Shared Features	F.5
	Description of Shared Conventional Systems	F.6
	Description of Shared Class I Seismic Features, Structures, Safeguards Systems and Supporting Auxiliary Systems	F.7
APPENDIX G.	PLANT NUCLEAR SAFETY OPERATIONAL ANALYSIS	
	Analytical Objective	G.1
	Basis for Selecting Operational Requirements	G.2
	Basis for Selection of Surveillance Test Frequencies for Nuclear Safety Systems and Engineered Safeguards	G.3
	Method of Analysis	G.4
	Analysis and Results	G.5
	Conclusion	G.6
APPENDIX H.	CORE THERMAL DESIGN Deleted	
APPENDIX I.	IDENTIFICATION-RESOLUTION OF CONSTRUCTION PERMIT CONCERNS	
	Summary Description	I.1
	Areas Specified in the Browns Ferry AEC-ACRS Construction Permit Reports	I.2
	Areas Specified in the AEC-Staff Construction Permit-Safety Evaluation Reports	I.3
	Areas Specified in Other Related AEC-ACRS Construction Permit and Operating License Reports	I.4
	Areas Specified in Other Related AEC-Staff Construction Permit or Operating License Safety Evaluation Reports	I.5
	Summary Conclusions	I.6
	References	I.7

## BFN-27

APPENDIX J.	REACTOR PRESSURE VESSEL DESIGN SUMMARY REPORT - UNIT 1	
	Introduction	J.1
	Design and Fabrication Requirements - Summary	J.2
APPENDIX K.	REACTOR PRESSURE VESSEL DESIGN SUMMARY REPORT - UNIT 2	
	Introduction	K.1
	Design and Fabrication Requirements - Summary	K.2
APPENDIX L.	REACTOR PRESSURE VESSEL DESIGN SUMMARY REPORT - UNIT 3	
	Introduction	L.1
	Design and Fabrication Requirements - Summary	L.2
APPENDIX M.	REPORT ON PIPE FAILURES OUTSIDE CONTAINMENT IN THE BROWNS FERRY NUCLEAR PLANT	
	Introduction	M.1
	Pressure and Analyses	M.2
	Piping Design Philosophy	M.3
	Breaks Postulated and Loading Effects Considered	M.4
	Pipe Rupture Loads	M.5
	Pipe Break Assumptions, Analysis, and Break Locations	M.6
	Structural Analysis	M.7
	Effects on Safety-Related Components and Structures	M.8
	Additional Work	M.9
	Summary and Conclusions	M.10
	References	M.11
APPENDIX N.	RELOAD LICENSING REPORT	
	Browns Ferry, Unit 1 Cycle 10 Reload Safety Report	N.1-1
	Browns Ferry Unit 2 Cycle 18 Reload Safety Analysis	N.2-1
	Browns Ferry Unit 3 Cycle 16 Reload Safety Analysis	N.3-1

APPENDIX O. AGING MANAGEMENT PROGRAMS

Aging Management Programs	O.1
Plant Specific Aging Management Programs	O.2
Time-Limited Aging Management Programs	O.3
10 CFR 54.37(b) New Identified Systems, Structures, and Components	O.4
References	O.5