

TABLE OF CONTENTS

1.0	INTRODUCTION AND INTERFACES	1-1
1.1	Summary of Application	1-1
1.2	Regulatory Basis	1-4
1.2.1	Applicable Regulations	1-4
1.2.2	Finality of Referenced NRC Approvals	1-5
1.2.3	Overview of the Design-Centered Review Approach	1-6
1.3	Principal Review Matters	1-7
1.3.1	Staff Review of Fermi COL FSAR Chapter 1	1-10
1.3.2	Introduction	1-10
1.3.3	Summary of Application	1-10
1.3.4	Regulatory Basis	1-17
1.3.5	Technical Evaluation	1-18
1.3.6	Post Combined License Activities	1-32
1.3.7	Conclusion	1-32
1.4	Additional Regulatory Requirements	1-33
1.4.1	Financial Qualifications	1-33
1.4.1.1	Introduction	1-33
1.4.1.2	Regulatory Evaluation	1-33
1.4.1.3	Construction Costs	1-33
1.4.1.4	Sources of Construction Funds	1-35
1.4.1.5	Decommissioning Funding Assurance	1-37
1.4.1.6	Antitrust Review	1-38
1.4.1.7	Foreign Ownership, Control, or Domination	1-38
1.4.1.8	Nuclear Insurance and Indemnity	1-38
1.4.1.9	Conclusion	1-38
1.4.2	Nuclear Waste Policy Act	1-38
1.4.3	Consultation with Department of Homeland Security and Notifications	1-39
1.4.4	Evaluation of Exemptions Associated with the Special Nuclear Material (SNM) Material Control and Accounting (MC&A) Program	1-39
1.4.5	Receipt, Possession, and Use of Source, Byproduct, and Special Nuclear Material Authorized by 10 CFR Part 52, Subpart C	1-41
1.4.5.1	Introduction	1-41
1.4.5.2	Parts 30, 40, and 70 License Requests	1-41
1.4.5.3	Parts 30, 40, 70 License Request Clarifications	1-42
1.4.5.4	Exemptions from Part 70 License Request	1-42
1.4.5.5	Parts 30, 40, and 70 Materials and Use Clarifications	1-42
1.4.5.6	Parts 30, 40, and 70 License Conditions	1-44
1.4.5.7	Operational Programs to Support 10 CFR Parts 30, 40, and 70	1-46
1.4.5.8	Part 70 License Staff Review	1-46
1.4.5.9	Parts 30 and 40 License Staff Review	1-60
1.4.5.10	Part 37 Staff Review	1-63
2.0	SITE CHARACTERISTICS	2-1
2.0.1	Introduction	2-1
2.0.2	Summary of Application	2-1
2.0.3	Regulatory Basis	2-2
2.0.4	Technical Evaluation	2-2

	2.0.5	Post Combined License Activities.....	2-4
	2.0.6	Conclusion.....	2-5
2.1		Geography and Demography.....	2-5
	2.1.1	Introduction.....	2-5
	2.1.2	Summary of Application.....	2-5
	2.1.3	Regulatory Basis.....	2-6
	2.1.4	Technical Evaluation.....	2-7
	2.1.5	Post Combined License Activities.....	2-10
	2.1.6	Conclusion.....	2-10
2.2		Nearby Industrial, Transportation, and Military Facilities.....	2-11
	2.2.1	Locations and Routes.....	2-11
	2.2.2	Descriptions.....	2-11
	2.2.2.1	Introduction.....	2-11
	2.2.2.2	Summary of Application.....	2-12
	2.2.2.3	Regulatory Basis.....	2-15
	2.2.2.4	Technical Evaluation.....	2-15
	2.2.2.5	Post Combined License Activities.....	2-16
	2.2.2.6	Conclusion.....	2-16
	2.2.3	Evaluation of Potential Accidents.....	2-17
	2.2.3.1	Introduction.....	2-17
	2.2.3.2	Summary of Application.....	2-17
	2.2.3.3	Regulatory Basis.....	2-17
	2.2.3.4	Technical Evaluation.....	2-18
	2.2.3.5	Post Combined License Activities.....	2-22
	2.2.3.6	Conclusion.....	2-23
2.3		Meteorology and Air Quality.....	2-23
	2.3.1	General Regional Climate.....	2-23
	2.3.1.1	Introduction.....	2-23
	2.3.1.2	Summary of Application.....	2-24
	2.3.1.3	Regulatory Basis.....	2-24
	2.3.1.4	Technical Evaluation.....	2-26
	2.3.1.5	Post Combined License Activities.....	2-53
	2.3.1.6	Conclusion.....	2-53
	2.3.2	Local Meteorology.....	2-54
	2.3.2.1	Introduction.....	2-54
	2.3.2.2	Summary of Application.....	2-54
	2.3.2.3	Regulatory Basis.....	2-54
	2.3.2.4	Technical Evaluation.....	2-55
	2.3.2.5	Post Combined License Activities.....	2-68
	2.3.2.6	Conclusion.....	2-68
	2.3.3	Meteorological Monitoring.....	2-68
	2.3.3.1	Introduction.....	2-68
	2.3.3.2	Summary of Application.....	2-69
	2.3.3.3	Regulatory Basis.....	2-69
	2.3.3.4	Technical Evaluation.....	2-71
	2.3.3.5	Post Combined License Activities.....	2-85
	2.3.3.6	Conclusion.....	2-86
	2.3.4	Short-Term (Accident) Diffusion Estimates.....	2-86
	2.3.4.1	Introduction.....	2-86
	2.3.4.2	Summary of Application.....	2-87
	2.3.4.3	Regulatory Basis.....	2-87

	2.3.4.4	Technical Evaluation	2-89
	2.3.4.5	Post Combined License Activities	2-98
	2.3.4.6	Conclusion.....	2-98
2.3.5		Long-Term (Routine) Diffusion Estimates.....	2-99
	2.3.5.1	Introduction.....	2-99
	2.3.5.2	Summary of Application.....	2-99
	2.3.5.3	Regulatory Basis	2-99
	2.3.5.4	Technical Evaluation	2-101
	2.3.5.5	Post Combined License Activities	2-107
	2.3.5.6	Conclusion.....	2-107
2.4		Hydrology	2-108
	2.4.1	Hydrologic Description.....	2-108
	2.4.1.1	Introduction.....	2-108
	2.4.1.2	Summary of Application.....	2-108
	2.4.1.3	Regulatory Basis	2-109
	2.4.1.4	Technical Evaluation	2-110
	2.4.1.5	Post Combined License Activities	2-117
	2.4.1.6	Conclusion.....	2-117
	2.4.2	Floods.....	2-117
	2.4.2.1	Introduction.....	2-117
	2.4.2.2	Summary of Application.....	2-118
	2.4.2.3	Regulatory Basis	2-118
	2.4.2.4	Technical Evaluation	2-119
	2.4.2.5	Post Combined License Activities	2-128
	2.4.2.6	Conclusion.....	2-129
	2.4.3	Probable Maximum Flood on Streams and Rivers	2-129
	2.4.3.1	Introduction.....	2-129
	2.4.3.2	Summary of Application.....	2-130
	2.4.3.3	Regulatory Basis	2-130
	2.4.3.4	Technical Evaluation	2-132
	2.4.3.5	Post Combined License Activities	2-148
	2.4.3.6	Conclusion.....	2-148
	2.4.4	Potential Dam Failures	2-148
	2.4.4.1	Introduction.....	2-148
	2.4.4.2	Summary of Application.....	2-149
	2.4.4.3	Regulatory Basis	2-149
	2.4.4.4	Technical Evaluation	2-150
	2.4.4.5	Post Combined License Activities	2-151
	2.4.4.6	Conclusion.....	2-151
	2.4.5	Probable Maximum Surge and Seiche Flooding	2-152
	2.4.5.1	Introduction.....	2-152
	2.4.5.2	Summary of Application.....	2-152
	2.4.5.3	Regulatory Basis	2-153
	2.4.5.4	Technical Evaluation	2-154
	2.4.5.5	Post Combined License Activities	2-165
	2.4.5.6	Conclusion.....	2-165
	2.4.6	Probable Maximum Tsunami Hazards.....	2-165
	2.4.6.1	Introduction.....	2-165
	2.4.6.2	Summary of Application.....	2-166
	2.4.6.3	Regulatory Basis	2-166
	2.4.6.4	Technical Evaluation	2-167

	2.4.6.5	Post Combined License Activities	2-168
	2.4.6.6	Conclusion.....	2-168
2.4.7		Ice Effects.....	2-169
	2.4.7.1	Introduction.....	2-169
	2.4.7.2	Summary of Application.....	2-169
	2.4.7.3	Regulatory Basis	2-169
	2.4.7.4	Technical Evaluation	2-170
	2.4.7.5	Post Combined License Activities	2-171
	2.4.7.6	Conclusion.....	2-171
2.4.8		Cooling Water Canals and Reservoirs.....	2-171
	2.4.8.1	Introduction.....	2-171
	2.4.8.2	Summary of Application.....	2-172
	2.4.8.3	Regulatory Basis	2-172
	2.4.8.4	Technical Evaluation	2-173
	2.4.8.5	Post Combined License Activities	2-173
	2.4.8.6	Conclusion.....	2-174
2.4.9		Channel Diversions.....	2-174
	2.4.9.1	Introduction.....	2-174
	2.4.9.2	Summary of Application.....	2-175
	2.4.9.3	Regulatory Basis	2-175
	2.4.9.4	Technical Evaluation	2-176
	2.4.9.5	Post Combined License Activities	2-177
	2.4.9.6	Conclusion.....	2-177
2.4.10		Flooding Protection Requirements	2-177
	2.4.10.1	Introduction.....	2-177
	2.4.10.2	Summary of Application.....	2-177
	2.4.10.3	Regulatory Basis	2-178
	2.4.10.4	Technical Evaluation	2-179
	2.4.10.5	Post Combined License Activities	2-179
	2.4.10.6	Conclusion.....	2-179
2.4.11		Low Water Considerations.....	2-180
	2.4.11.1	Introduction.....	2-180
	2.4.11.2	Summary of Application.....	2-180
	2.4.11.3	Regulatory Basis	2-180
	2.4.11.4	Technical Evaluation	2-181
	2.4.11.5	Post Combined License Activities	2-182
	2.4.11.6	Conclusion.....	2-182
2.4.12		Groundwater.....	2-183
	2.4.12.1	Introduction.....	2-183
	2.4.12.2	Summary of Application.....	2-183
	2.4.12.3	Regulatory Basis	2-183
	2.4.12.4	Technical Evaluation	2-185
	2.4.12.5	Post Combined License Activities	2-189
	2.4.12.6	Conclusion.....	2-189
2.4.13		Accidental Release of Radioactive Liquid Effluent in Groundwater and Surface Waters.....	2-190
	2.4.13.1	Introduction.....	2-190
	2.4.13.2	Summary of Application.....	2-190
	2.4.13.3	Regulatory Basis	2-191
	2.4.13.4	Technical Evaluation	2-192
	2.4.13.5	Post Combined License Activities	2-198

	2.4.13.6	Conclusion.....	2-198
2.4.14		Technical Specification and Emergency Operation Requirements.....	2-198
	2.4.14.1	Introduction.....	2-198
	2.4.14.2	Summary of Application.....	2-199
	2.4.14.3	Regulatory Basis	2-199
	2.4.14.4	Technical Evaluation	2-200
	2.4.14.5	Post Combined License Activities	2-201
	2.4.14.6	Conclusion.....	2-201
2.5		Geology, Seismology, and Geotechnical Engineering	2-201
2.5.1		Basic Geologic and Seismic Information	2-203
	2.5.1.1	Introduction.....	2-203
	2.5.1.2	Summary of Application.....	2-203
	2.5.1.3	Regulatory Basis	2-216
	2.5.1.4	Technical Evaluation	2-217
	2.5.1.5	Post Combined License Activities	2-235
	2.5.1.6	Conclusion.....	2-235
2.5.2		Vibratory Ground Motion.....	2-236
	2.5.2.1	Introduction.....	2-236
	2.5.2.2	Summary of Application.....	2-236
	2.5.2.3	Regulatory Basis	2-252
	2.5.2.4	Technical Evaluation	2-253
	2.5.2.5	Post Combined License Activities	2-270
	2.5.2.6	Conclusion.....	2-270
2.5.3		Surface Faulting.....	2-270
	2.5.3.1	Introduction.....	2-270
	2.5.3.2	Summary of Application.....	2-271
	2.5.3.3	Regulatory Basis	2-273
	2.5.3.4	Technical Evaluation	2-274
	2.5.3.5	Post Combined License Activities	2-282
	2.5.3.6	Conclusion.....	2-282
2.5.4		Stability of Subsurface Materials and Foundations.....	2-283
	2.5.4.1	Introduction.....	2-283
	2.5.4.2	Summary of Application.....	2-283
	2.5.4.3	Regulatory Basis	2-304
	2.5.4.4	Technical Evaluation	2-306
	2.5.4.5	Post Combined License Activities	2-338
	2.5.4.6	Conclusion.....	2-338
2.5.5		Stability of Slopes	2-339
	2.5.5.1	Introduction.....	2-339
	2.5.5.2	Summary of Application.....	2-339
	2.5.5.3	Regulatory Basis	2-340
	2.5.5.4	Technical Evaluation	2-341
	2.5.5.5	Post Combined License Activities	2-343
	2.5.5.6	Conclusion.....	2-343
3.0		DESIGN OF STRUCTURES, COMPONENTS, EQUIPMENT AND SYSTEMS	3-1
3.1		Conformance with NRC General Design Criteria	3-1
3.2		Classification of Structures, Components, and Systems.....	3-1
	3.2.1	Introduction	3-1
	3.2.2	Summary of Application.....	3-2
	3.2.3	Regulatory Basis.....	3-3
	3.2.4	Technical Evaluation.....	3-4

	3.2.5	Post Combined License Activities.....	3-15
	3.2.6	Conclusion	3-15
3.3		Wind and Tornado Loadings	3-15
3.4		Water Level (Flood) Design.....	3-16
3.5		Missile Protection	3-16
	3.5.1	Introduction.....	3-16
	3.5.2	Summary of Application.....	3-16
	3.5.3	Regulatory Basis.....	3-17
	3.5.4	Technical Evaluation.....	3-17
	3.5.5	Post Combined License Activities.....	3-19
	3.5.6	Conclusion	3-19
3.6		Protection against Dynamic Effects Associated with the Postulated Rupture of Piping	3-20
3.7		Seismic Design.....	3-20
	3.7.1	Seismic Design Parameters	3-20
	3.7.1.1	Introduction.....	3-21
	3.7.1.2	Summary of Application.....	3-21
	3.7.1.3	Regulatory Basis	3-21
	3.7.1.4	Technical Evaluation	3-22
	3.7.1.5	Post Combined License Activities	3-31
	3.7.1.6	Conclusion.....	3-31
	3.7.2	Seismic System Analysis.....	3-32
	3.7.2.1	Introduction.....	3-32
	3.7.2.2	Summary of Application.....	3-32
	3.7.2.3	Regulatory Basis	3-33
	3.7.2.4	Technical Evaluation	3-34
	3.7.2.5	Post Combined License Activities	3-51
	3.7.2.6	Conclusion.....	3-51
	3.7.3	Seismic Subsystem Analysis	3-51
	3.7.4	Seismic Instrumentation	3-51
	3.7.4.1	Introduction.....	3-51
	3.7.4.2	Summary of Application.....	3-52
	3.7.4.3	Regulatory Requirements.....	3-52
	3.7.4.4	Technical Evaluation	3-53
	3.7.4.5	Post Combined License Activities	3-53
	3.7.4.6	Conclusion.....	3-53
3.8		Seismic Category I Structures.....	3-54
	3.8.1	Concrete Containment.....	3-54
	3.8.2	Steel Components of the Reinforced Concrete Containment.....	3-54
	3.8.3	Concrete and Steel Internal Structures of the Concrete Containment..	3-54
	3.8.4	Other Seismic Category I Structures	3-54
	3.8.4.1	Introduction.....	3-54
	3.8.4.2	Summary of Application.....	3-55
	3.8.4.3	Regulatory Basis	3-55
	3.8.4.4	Technical Evaluation	3-56
	3.8.4.5	Post Combined License Activities	3-60
	3.8.4.6	Conclusion.....	3-60
	3.8.5	Foundations.....	3-60
	3.8.5.1	Introduction.....	3-60
	3.8.5.2	Summary of Application.....	3-60
	3.8.5.3	Regulatory Basis	3-61

	3.8.5.4	Technical Evaluation	3-62
	3.8.5.5	Post Combined License Activities	3-68
	3.8.5.6	Conclusion.....	3-68
	3.8.6	Special Topics	3-69
3.9		Mechanical Systems and Components	3-69
	3.9.1	Introduction.....	3-69
	3.9.2	Summary of Application.....	3-70
	3.9.3	Regulatory Basis.....	3-74
	3.9.4	Technical Evaluation.....	3-76
	3.9.5	Post Combined License Activities.....	3-89
	3.9.6	Conclusion	3-96
3.10		Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	3-96
	3.10.1	Introduction.....	3-96
	3.10.2	Summary of Application.....	3-97
	3.10.3	Regulatory Basis.....	3-97
	3.10.4	Technical Evaluation.....	3-98
	3.10.5	Post Combined License Activities.....	3-101
	3.10.6	Conclusion	3-101
3.11		Environmental Qualification of Mechanical and Electrical Equipment.....	3-102
	3.11.1	Introduction	3-102
	3.11.2	Summary of Application.....	3-102
	3.11.3	Regulatory Basis.....	3-102
	3.11.4	Technical Evaluation.....	3-104
	3.11.5	Post Combined License Activities.....	3-109
	3.11.6	Conclusion	3-110
3.12		Piping Design Review	3-110
	3.12.1	Introduction	3-110
	3.12.2	Summary of Application.....	3-111
	3.12.3	Regulatory Basis.....	3-111
	3.12.4	Technical Evaluation.....	3-111
	3.12.5	Post Combined License Activities.....	3-112
	3.12.6	Conclusion	3-112
3.13		Threaded Fasteners – ASME B&PV Code Class 1, 2 and 3.....	3-112
	3.13.1	Introduction.....	3-112
	3.13.2	Summary of Application.....	3-113
	3.13.3	Regulatory Basis.....	3-113
	3.13.4	Technical Evaluation.....	3-114
	3.13.5	Post Combined License Activities.....	3-115
	3.13.6	Conclusion	3-116
4.0		REACTOR.....	4-1
	4.1	Introduction.....	4-1
	4.2	Summary of Application	4-1
	4.3	Regulatory Basis	4-1
	4.4	Technical Evaluation	4-1
	4.5	Post Combined License Activities	4-2
	4.6	Conclusion.....	4-2
5.0		REACTOR COOLANT SYSTEM AND CONNECTED SYSTEMS.....	5-1
	5.1	Summary Description	5-1
	5.2	Integrity of Reactor Coolant Pressure Boundary.....	5-1
	5.2.1	Compliance with Codes and Code Cases	5-1
	5.2.1.1	Compliance with 10 CFR 50.55a.....	5-1

	5.2.1.2	Applicable Code Cases	5-4
	5.2.2	Overpressure Protection.....	5-7
	5.2.3	Reactor Coolant Pressure Boundary Materials	5-8
	5.2.4	Preservice and Inservice Inspection and Testing of Reactor Coolant Pressure Boundary	5-8
	5.2.4.1	Introduction.....	5-8
	5.2.4.2	Summary of Application.....	5-8
	5.2.4.3	Regulatory Basis	5-9
	5.2.4.4	Technical Evaluation	5-9
	5.2.4.5	Post Combined License Activities	5-12
	5.2.4.6	Conclusions.....	5-13
	5.2.5	Reactor Coolant Pressure Boundary Leakage Detection	5-13
	5.2.5.1	Introduction.....	5-13
	5.2.5.2	Summary of Application.....	5-13
	5.2.5.3	Regulatory Basis	5-14
	5.2.5.4	Technical Evaluation	5-14
	5.2.5.5	Post Combined License Activities	5-17
	5.2.5.6	Conclusion.....	5-17
5.3		Reactor Vessel	5-17
	5.3.1	Reactor Vessel Materials.....	5-17
	5.3.1.1	Introduction.....	5-17
	5.3.1.2	Summary of Application.....	5-17
	5.3.1.3	Regulatory Basis	5-18
	5.3.1.4	Technical Evaluation	5-18
	5.3.1.5	Post Combined License Activities	5-20
	5.3.1.6	Conclusion.....	5-20
	5.3.2	Pressure-Temperature Limits	5-20
	5.3.2.1	Introduction.....	5-20
	5.3.2.2	Summary of Application.....	5-20
	5.3.2.3	Regulatory Basis	5-21
	5.3.2.4	Technical Evaluation	5-21
	5.3.2.5	Post Combined License Activities	5-28
	5.3.2.6	Conclusion.....	5-28
	5.3.3	Reactor Vessel Integrity.....	5-29
	5.3.3.1	Introduction.....	5-29
	5.3.3.2	Summary of Application.....	5-29
	5.3.3.3	Regulatory Basis	5-29
	5.3.3.4	Technical Evaluation	5-29
	5.3.3.5	Post Combined License Activities	5-30
	5.3.3.6	Conclusion.....	5-30
5.4		Reactor Coolant System Component and Subsystem Design	5-30
	5.4.1	Introduction.....	5-30
	5.4.2	Summary of Application.....	5-31
	5.4.3	Regulatory Basis.....	5-31
	5.4.4	Technical Evaluation.....	5-31
	5.4.5	Post Combined License Activities.....	5-33
	5.4.6	Conclusion	5-33
6.0		ENGINEERED SAFETY FEATURES	6-1
6.1		Design Basis Accident Engineered Safety Feature Materials	6-1
6.2		Containment Systems	6-2
6.3		Emergency Core Cooling Systems	6-2

6.4	Control Room Habitability Systems.....	6-3
6.4.1	Introduction.....	6-3
6.4.2	Summary of Application.....	6-3
6.4.3	Regulatory Basis.....	6-3
6.4.4	Technical Evaluation.....	6-4
6.4.5	Post Combined License Activities.....	6-9
6.4.6	Conclusion.....	6-9
6.5	Atmospheric Cleanup Systems.....	6-10
6.6	Preservice and Inservice Inspection and Testing of Class 2 and 3 Components and Piping.....	6-10
6.6.1	Introduction.....	6-10
6.6.2	Summary of Application.....	6-10
6.6.3	Regulatory Basis.....	6-11
6.6.4	Technical Evaluation.....	6-12
6.6.5	Post Combined License Activities.....	6-16
6.6.6	Conclusion.....	6-17
7.0	INSTRUMENTATION AND CONTROL SYSTEMS.....	7-1
8.0	ELECTRIC POWER.....	8-1
8.1	Introduction.....	8-1
8.1.1	Introduction.....	8-1
8.1.2	Summary of Application.....	8-1
8.1.3	Regulatory Basis.....	8-1
8.1.4	Technical Evaluation.....	8-2
8.1.5	Post Combined License Activities.....	8-2
8.1.6	Conclusion.....	8-2
8.2	Offsite Power System.....	8-3
8.2.1	Introduction.....	8-3
8.2.2	Summary of Application.....	8-3
8.2.3	Regulatory Basis.....	8-5
8.2.4	Technical Evaluation.....	8-6
8.2.5	Post Combined License Activities.....	8-22
8.2.6	Conclusion.....	8-22
8.3	Onsite Power Systems.....	8-22
8.3.1	AC Power System.....	8-22
8.3.1.1	Introduction.....	8-22
8.3.1.2	Summary of Application.....	8-23
8.3.1.3	Regulatory Basis.....	8-23
8.3.1.4	Technical Evaluation.....	8-24
8.3.1.5	Post Combined License Activities.....	8-25
8.3.1.6	Conclusion.....	8-25
8.3.2	DC Power Systems.....	8-25
8.3.2.1	Introduction.....	8-25
8.3.2.2	Summary of Application.....	8-26
8.3.2.3	Regulatory Basis.....	8-26
8.3.2.4	Technical Evaluation.....	8-27
8.3.2.5	Post Combined License Activities.....	8-29
8.3.2.6	Conclusion.....	8-29
8.4	Station Blackout.....	8-29
9.0	AUXILIARY SYSTEMS.....	9-1
9.1	Fuel Storage and Handling.....	9-1
9.1.1	New Fuel Storage.....	9-1

9.1.2	Spent Fuel Storage.....	9-1
9.1.3	Spent Fuel Cooling and Cleanup System.....	9-1
9.1.4	Light Load Handling System (Related to Refueling).....	9-2
9.1.4.1	Introduction.....	9-2
9.1.4.2	Summary of Application.....	9-2
9.1.4.3	Regulatory Basis	9-2
9.1.4.4	Technical Evaluation	9-3
9.1.4.5	Post Combined License Activities	9-5
9.1.4.6	Conclusion.....	9-5
9.1.5	Overhead Heavy Load Handling System.....	9-5
9.1.5.1	Introduction.....	9-5
9.1.5.2	Summary of Application.....	9-5
9.1.5.3	Regulatory Basis	9-6
9.1.5.4	Technical Evaluation	9-6
9.1.5.5	Post Combined License Activities	9-9
9.1.5.6	Conclusion.....	9-9
9.2	Water Systems.....	9-10
9.2.1	Plant Service Water System.....	9-10
9.2.1.1	Introduction.....	9-10
9.2.1.2	Summary of Application.....	9-10
9.2.1.3	Regulatory Basis	9-11
9.2.1.4	Technical Evaluation	9-12
9.2.1.5	Post Combined License Activities	9-20
9.2.1.6	Conclusion.....	9-20
9.2.2	Reactor Component Cooling Water System.....	9-20
9.2.3	Makeup Water System	9-21
9.2.3.1	Introduction.....	9-21
9.2.3.2	Summary of Application.....	9-21
9.2.3.3	Regulatory Basis	9-21
9.2.3.4	Technical Evaluation	9-22
9.2.3.5	Post Combined License Activities	9-24
9.2.3.6	Conclusion.....	9-24
9.2.4	Potable and Sanitary Water Systems	9-24
9.2.4.1	Introduction.....	9-24
9.2.4.2	Summary of Application.....	9-24
9.2.4.3	Regulatory Basis	9-25
9.2.4.4	Technical Evaluation	9-26
9.2.4.5	Post Combined License Activities	9-29
9.2.4.6	Conclusion.....	9-29
9.2.5	Ultimate Heat Sink	9-29
9.2.5.1	Introduction.....	9-29
9.2.5.2	Summary of Application.....	9-30
9.2.5.3	Regulatory Basis	9-30
9.2.5.4	Technical Evaluation	9-31
9.2.5.5	Post Combined License Activities	9-33
9.2.5.6	Conclusion.....	9-33
9.2.6	Condensate Storage and Transfer System	9-33
9.2.6.1	Introduction.....	9-33
9.2.6.2	Summary of Application.....	9-34
9.2.6.3	Regulatory Basis	9-34
9.2.6.4	Technical Evaluation	9-34

	9.2.6.5	Post Combined License Activities	9-36
	9.2.6.6	Conclusion.....	9-36
9.2.7		Chilled Water System	9-36
9.2.8		Turbine Component Cooling Water System	9-36
9.2.9		Hot Water System.....	9-37
9.2.10		Station Water System.....	9-37
	9.2.10.1	Introduction.....	9-37
	9.2.10.2	Summary of Application.....	9-37
	9.2.10.3	Regulatory Basis	9-37
	9.2.10.4	Technical Evaluation	9-38
	9.2.10.5	Post Combined License Activities	9-39
	9.2.10.6	Conclusion.....	9-39
9.3		Process Auxiliaries	9-39
9.3.1		Compressed Air Systems	9-39
9.3.2		Process Sampling System.....	9-40
	9.3.2.1	Introduction.....	9-40
	9.3.2.2	Summary of Application.....	9-40
	9.3.2.3	Regulatory Basis	9-40
	9.3.2.4	Technical Evaluation	9-41
	9.3.2.5	Post Combined License Activities	9-43
	9.3.2.6	Conclusion.....	9-43
9.3.3		Equipment and Floor Drain System.....	9-44
9.3.4		Chemical and Volume Control System.....	9-44
9.3.5		Standby Liquid Control System	9-44
	9.3.5.1	Introduction.....	9-44
	9.3.5.2	Summary of Application.....	9-45
	9.3.5.3	Regulatory Basis	9-45
	9.3.5.4	Technical Evaluation	9-45
	9.3.5.5	Post Combined License Activities	9-47
	9.3.5.6	Conclusion.....	9-47
9.3.6		Instrument Air System	9-47
9.3.7		Service Air System	9-48
9.3.8		High Pressure Nitrogen Supply System	9-48
9.3.9		Hydrogen Water Chemistry System	9-48
	9.3.9.1	Introduction.....	9-48
	9.3.9.2	Summary of Application.....	9-48
	9.3.9.3	Regulatory Basis	9-50
	9.3.9.4	Technical Evaluation	9-50
	9.3.9.5	Post Combined License Activities	9-52
	9.3.9.6	Conclusion.....	9-52
9.3.10		Oxygen Injection System.....	9-52
	9.3.10.1	Introduction.....	9-52
	9.3.10.2	Summary of Application.....	9-53
	9.3.10.3	Regulatory Basis	9-53
	9.3.10.4	Technical Evaluation	9-53
	9.3.10.5	Post Combined License Activities	9-54
	9.3.10.6	Conclusion.....	9-54
9.3.11		Zinc Injection System.....	9-54
9.3.12		Auxiliary Boiler System.....	9-55
9.4		Heating, Ventilation, and Air Conditioning.....	9-55
9.5		Other Auxiliary Systems	9-56

9.5.1	Fire Protection System	9-56
9.5.1.1	Introduction.....	9-56
9.5.1.2	Summary of Application.....	9-56
9.5.1.3	Regulatory Basis	9-59
9.5.1.4	Technical Evaluation	9-60
9.5.1.5	Post Combined Licensing Activities.....	9-70
9.5.1.6	Conclusion.....	9-71
9.5.2	Communication Systems.....	9-72
9.5.2.1	Introduction.....	9-72
9.5.2.2	Summary of Application.....	9-72
9.5.2.3	Regulatory Basis	9-73
9.5.2.4	Technical Evaluation	9-73
9.5.2.5	Post Combined License Activities	9-81
9.5.2.6	Conclusion.....	9-81
9.5.3	Lighting System	9-81
9.5.4	Diesel Generator Fuel Oil Storage and Transfer System	9-82
9.5.4.1	Introduction.....	9-82
9.5.4.2	Summary of Application.....	9-82
9.5.4.3	Regulatory Basis	9-82
9.5.4.4	Technical Evaluation	9-83
9.5.4.5	Post Combined License Activities	9-86
9.5.4.6	Conclusion.....	9-86
9.5.5	Diesel Generator Jacket Cooling Water System	9-86
9.5.6	Diesel Generator Starting Air System.....	9-86
9.5.7	Diesel Generator Lubrication System.....	9-87
9.5.8	Diesel Generator Combustion Air Intake and Exhaust System	9-87
10.0	STEAM AND POWER CONVERSION SYSTEM.....	10-1
10.1	Summary Description	10-1
10.2	Turbine Generator	10-1
10.2.1	Introduction.....	10-1
10.2.2	Summary of Application.....	10-1
10.2.3	Regulatory Basis.....	10-2
10.2.4	Technical Evaluation.....	10-3
10.2.5	Post Combined License Activities.....	10-11
10.2.6	Conclusion	10-11
10.3	Turbine Main Steam Supply System	10-12
10.4	Other Features of Steam and Power Conversion System	10-12
10.4.1	Main Condenser	10-13
10.4.2	Main Condenser Evacuation System.....	10-13
10.4.3	Turbine Gland Seal System.....	10-13
10.4.4	Turbine Bypass System.....	10-13
10.4.5	Circulating Water System	10-14
10.4.5.1	Introduction.....	10-14
10.4.5.2	Summary of Application.....	10-14
10.4.5.3	Regulatory Basis	10-15
10.4.5.4	Technical Evaluation	10-15
10.4.5.5	Post Combined Operating License Activities.....	10-18
10.4.5.6	Conclusion.....	10-18
10.4.6	Condensate Purification System.....	10-19
10.4.6.1	Introduction.....	10-19
10.4.6.2	Summary of Application.....	10-19

	10.4.6.3	Regulatory Basis	10-19
	10.4.6.4	Technical Evaluation	10-20
	10.4.6.5	Post Combined License Activities	10-20
	10.4.6.6	Conclusion.....	10-21
10.4.7		Condensate and Feedwater System	10-21
	10.4.7.1	Introduction.....	10-21
	10.4.7.2	Summary of Application.....	10-21
	10.4.7.3	Regulatory Basis	10-21
	10.4.7.4	Technical Evaluation	10-21
	10.4.7.5	Post Combined License Activities	10-24
	10.4.7.6	Conclusion.....	10-24
10.4.8		Steam Generator Blowdown System (PWR).....	10-24
10.4.9		Auxiliary Feedwater System (PWR)	10-24
11.0		RADIOACTIVE WASTE MANAGEMENT	11-1
11.1		Source Terms.....	11-1
11.2		Liquid Waste Management System.....	11-1
	11.2.1	Introduction	11-1
	11.2.2	Summary of Application.....	11-2
	11.2.3	Regulatory Basis.....	11-3
	11.2.4	Technical Evaluation.....	11-4
	11.2.5	Post-Combined License Activities	11-7
	11.2.6	Conclusion	11-7
11.3		Gaseous Waste Management System.....	11-8
	11.3.1	Introduction.....	11-8
	11.3.2	Summary of Application.....	11-8
	11.3.3	Regulatory Basis.....	11-8
	11.3.4	Technical Evaluation.....	11-9
	11.3.5	Post Combined License Activities.....	11-10
	11.3.6	Conclusion	11-10
11.4		Solid Waste Management System	11-11
	11.4.1	Introduction	11-11
	11.4.2	Summary of Application.....	11-11
	11.4.3	Regulatory Basis.....	11-13
	11.4.4	Technical Evaluation.....	11-14
	11.4.5	Post Combined License Activities.....	11-20
	11.4.6	Conclusion	11-20
11.5		Process Radiation Monitoring System	11-21
	11.5.1	Introduction	11-21
	11.5.2	Summary of Application.....	11-21
	11.5.3	Regulatory Basis.....	11-22
	11.5.4	Technical Evaluation.....	11-24
	11.5.5	Post Combined License Activities.....	11-29
	11.5.6	Conclusion	11-29
12.0		RADIATION PROTECTION	12-1
12.1		Ensuring that Occupational Radiation Exposures Are as Low as Is Reasonably Achievable.....	12-1
	12.1.1	Introduction	12-1
	12.1.2	Summary of Application.....	12-1
	12.1.3	Regulatory Basis.....	12-2
	12.1.4	Technical Evaluation.....	12-3
	12.1.5	Post Combined License Activities.....	12-10

12.1.6	Conclusion	12-10
12.2	Plant Sources	12-10
12.2.1	Introduction	12-10
12.2.2	Summary of Application.....	12-11
12.2.3	Regulatory Basis.....	12-12
12.2.4	Technical Evaluation.....	12-13
12.2.5	Post Combined License Activities.....	12-31
12.2.6	Conclusion	12-31
12.3	Radiation Protection Design Features.....	12-32
12.3.1	Introduction	12-32
12.3.2	Summary of Application.....	12-32
12.3.3	Regulatory Basis.....	12-33
12.3.4	Technical Evaluation.....	12-33
12.3.5	Post Combined License Activities.....	12-44
12.3.6	Conclusion	12-44
12.4	Dose Assessment	12-45
12.4.1	Introduction	12-45
12.4.2	Summary of Application.....	12-45
12.4.3	Regulatory Basis.....	12-45
12.4.4	Technical Evaluation.....	12-45
12.4.5	Post Combined License Activities.....	12-50
12.4.6	Conclusion	12-50
12.5	Operational Radiation Protection Program.....	12-51
12.5.1	Introduction.....	12-51
12.5.2	Summary of Application.....	12-51
12.5.3	Regulatory Basis.....	12-52
12.5.4	Technical Evaluation.....	12-53
12.5.5	Post Combined License Activities.....	12-59
12.5.6	Conclusion	12-59
12.6	Appendices 12A and 12B – Calculations of Airborne Radionuclides and Airborne Releases	12-60
13.0	CONDUCT OF OPERATIONS.....	13-1
13.1	Organizational Structure of Applicant.....	13-1
13.1.1	Introduction	13-1
13.1.2	Summary of Application.....	13-1
13.1.3	Regulatory Basis.....	13-2
13.1.4	Technical Evaluation.....	13-2
13.1.5	Post Combined License Activities.....	13-6
13.1.6	Conclusion	13-6
13.2	Training	13-6
13.2.1	Introduction	13-6
13.2.2	Summary of Application.....	13-6
13.2.3	Regulatory Basis.....	13-7
13.2.4	Technical Evaluation.....	13-8
13.2.5	Post Combined License Activities.....	13-11
13.2.6	Conclusion	13-11
13.3	Emergency Planning	13-11
13.3.1	Introduction	13-11
13.3.2	Summary of Application.....	13-12
13.3.3	Regulatory Basis.....	13-13
13.3.4	Technical Evaluation.....	13-14

13.3.5	Post-Combined License Activities	13-18
13.3.6	Conclusion	13-18
Attachment 13.3A COL Information Items, Supplemental Information Items, and		
	Departures.....	13-19
13.3A.1	Regulatory Basis.....	13-19
13.3A.2	COL Information Items.....	13-20
13.3A.3	Supplemental Information Items	13-21
13.3A.4	Departures	13-21
13.3A.5	Conclusion	13-21
Attachment 13.3B Emergency Planning Information in the Application		
13.3B.1	Regulatory Basis.....	13-22
13.3B.2	FSAR and Onsite Emergency Plan	13-24
13.3B.3	Submission of State and Local Emergency Plans.....	13-24
13.3B.4	Description of the Emergency Planning Zones.....	13-25
13.3B.5	Certifications from State and Local Governments	13-25
13.3B.6	Evaluation Against the Standard Review Plan	13-26
13.3B.7	Reference to a Standard Design	13-26
13.3B.8	Impediments to the Development of Emergency Plans.....	13-26
13.3B.9	Emergency Planning for Byproduct, Source, and Special Nuclear Material Licenses.....	13-27
13.3B.10	Post Combined License Activities.....	13-29
13.3B.11	Conclusion	13-29
Attachment 13.3C Onsite Emergency Plan.....		
13.3C.1	Assignment of Responsibility (Organizational Control).....	13-30
13.3C.1.1	Regulatory Basis	13-30
13.3C.1.2	Overall Response Organization.....	13-30
13.3C.1.3	Concept of the Operations.....	13-31
13.3C.1.4	Organizational Interrelationships	13-32
13.3C.1.5	Individual in Charge of Emergency Response	13-32
13.3C.1.6	24-Hour Response Capability.....	13-32
13.3C.1.7	Written Agreements.....	13-33
13.3C.1.8	Operations for a Protracted Period	13-33
13.3C.1.9	Conclusion.....	13-33
13.3C.2	Onsite Emergency Organization.....	13-34
13.3C.2.1	Regulatory Basis	13-34
13.3C.2.2	Normal Plant Operations Organization.....	13-34
13.3C.2.3	Onsite Emergency Organization.....	13-35
13.3C.2.4	Designation of an Emergency Coordinator.....	13-35
13.3C.2.5	Line of Succession for the Emergency Coordinator	13-36
13.3C.2.6	Responsibilities of the Emergency Coordinator.....	13-36
13.3C.2.7	On-shift and Augmentation Emergency Response Staff	13-37
13.3C.2.8	Interfaces Between Functional Areas.....	13-40
13.3C.2.9	Corporate Support.....	13-41
13.3C.2.10	Contractor and Private Organizations Support.....	13-41
13.3C.2.11	Local Emergency Response Support	13-42
13.3C.2.12	Conclusion.....	13-43
13.3C.3	Emergency Response Support and Resources.....	13-43
13.3C.3.1	Regulatory Basis	13-43
13.3C.3.2	Person Authorized to Request Federal Support.....	13-43

13.3C.3.3	Expected Assistance from State, Local, and Federal Agencies.....	13-43
13.3C.3.4	Resources to Support the Federal Response	13-44
13.3C.3.5	Representatives to Offsite Governments.....	13-45
13.3C.3.6	Radiological Laboratory Support	13-45
13.3C.3.7	Other Sources of Assistance	13-45
13.3C.3.8	Conclusion.....	13-46
13.3C.4	Emergency Classification System	13-46
13.3C.4.1	Regulatory Basis	13-46
13.3C.4.2	Emergency Classification System	13-46
13.3C.4.3	Emergency Action Levels Review by State and Local Authorities.....	13-48
13.3C.4.4	Conclusion.....	13-48
13.3C.5	Notification Methods and Procedures.....	13-48
13.3C.5.1	Regulatory Basis	13-48
13.3C.5.2	Notification Procedures, Capabilities, and Agreements	13-48
13.3C.5.3	Notification and Activation of the Emergency Response Organization	13-49
13.3C.5.4	Initial Message Content to Offsite Response Organizations	13-50
13.3C.5.5	Follow-up Messages to Offsite Response Organizations	13-50
13.3C.5.6	Notification of the Public.....	13-50
13.3C.5.7	Written Messages to the Public.....	13-52
13.3C.5.8	Notification of the NRC	13-52
13.3C.5.9	Conclusion.....	13-53
13.3C.6	Emergency Communications.....	13-53
13.3C.6.1	Regulatory Basis	13-53
13.3C.6.2	Content of the Emergency Communications Plan.....	13-53
13.3C.6.3	Communications with Medical Facilities	13-57
13.3C.6.4	Periodic Testing of the Emergency Communications System.....	13-57
13.3C.6.5	Conclusion.....	13-58
13.3C.7	Public Education and Information	13-58
13.3C.7.1	Regulatory Basis	13-58
13.3C.7.2	Content of Public Information	13-58
13.3C.7.3	Distribution and Maintenance of Public Information	13-59
13.3C.7.4	Points of Contact for the News Media	13-59
13.3C.7.5	Space for News Media	13-60
13.3C.7.6	Designated Spokesperson	13-60
13.3C.7.7	Timely Exchange of Information	13-61
13.3C.7.8	Rumor Control	13-61
13.3C.7.9	Annual Media Orientation	13-61
13.3C.7.10	Conclusion.....	13-62
13.3C.8	Emergency Facilities and Equipment	13-62
13.3C.8.1	Regulatory Basis	13-62
13.3C.8.2	Technical Support Center Functions	13-62
13.3C.8.3	TSC Location.....	13-62
13.3C.8.4	TSC Staffing Requirements.....	13-63
13.3C.8.5	TSC Structure.....	13-64
13.3C.8.6	TSC Environmental Controls	13-64

13.3C.8.7	TSC Radiological Protection.....	13-64
13.3C.8.8	TSC Communications.....	13-65
13.3C.8.9	TSC Data Collection, Storage, and Analysis	13-66
13.3C.8.10	TSC Human Factors Engineering.....	13-66
13.3C.8.11	TSC Plant Records.....	13-66
13.3C.8.12	TSC Activation.....	13-67
13.3C.8.13	Operations Support Center Functions	13-67
13.3C.8.14	OSC Location	13-67
13.3C.8.15	OSC Coordination Activities	13-68
13.3C.8.16	OSC Communications	13-68
13.3C.8.17	OSC Activation and Staffing	13-68
13.3C.8.18	OSC Capacity and Supplies	13-68
13.3C.8.19	Emergency Operations Facility Functions	13-69
13.3C.8.20	EOF Location.....	13-70
13.3C.8.21	EOF Size	13-70
13.3C.8.22	EOF Structural Capabilities	13-71
13.3C.8.23	EOF Environmental Requirements.....	13-71
13.3C.8.24	EOF Voice and Data Communications and Information Collection.....	13-71
13.3C.8.25	EOF Information Storage and Analysis	13-72
13.3C.8.26	EOF Plant Records.....	13-72
13.3C.8.27	EOF Industrial Security.....	13-73
13.3C.8.28	EOF Human Factors.....	13-73
13.3C.8.29	EOF Activation and Staffing	13-73
13.3C.8.30	Onsite Monitoring System	13-74
13.3C.8.31	Provisions to Acquire Data from Offsite Sources	13-75
13.3C.8.32	Offsite Radiological Monitoring Equipment.....	13-75
13.3C.8.33	Meteorological Instrumentation	13-75
13.3C.8.34	Inspection/Inventory of Emergency Equipment.....	13-76
13.3C.8.35	Emergency Kits	13-76
13.3C.8.36	Location to Coordinate Field Monitoring Data	13-77
13.3C.8.37	Facilities and Supplies for Emergency Medical Treatment	13-77
13.3C.8.38	Maintenance of Emergency Equipment and Supplies...	13-77
13.3C.8.39	ERDS Description, Testing, and Activation	13-78
13.3C.8.40	ERO Augmentation at Alternative Facility	13-79
13.3C.8.41	Conclusion.....	13-79
13.3C.9	Accident Assessment	13-79
13.3C.9.1	Regulatory Basis	13-79
13.3C.9.2	Initiating Conditions for Emergency Classes	13-80
13.3C.9.3	Capability to Continuously Assess an Accident.....	13-80
13.3C.9.4	Capability to Determine Source Term	13-81
13.3C.9.5	Capability to Determine the Magnitude of a Radiological Release.....	13-82
13.3C.9.6	Relationship Between Effluent Monitors and Exposure.	13-82
13.3C.9.7	Meteorological Information	13-83
13.3C.9.8	Projecting Dose When Instrumentation is Inoperable ...	13-83
13.3C.9.9	Field Monitoring Capability	13-83
13.3C.9.10	Capability to Rapidly Assess Radiological Hazards	13-84
13.3C.9.11	Capability to Measure Radioiodine Concentrations in Air	13-84

13.3C.9.12	Means to Relate Various Parameters to Dose Rates.....	13-85
13.3C.9.13	Conclusion.....	13-85
13.3C.10	Protective Response.....	13-85
13.3C.10.1	Regulatory Basis	13-85
13.3C.10.2	Warning Onsite Personnel.....	13-85
13.3C.10.3	Evacuation Routes for Onsite Personnel.....	13-86
13.3C.10.4	Radiological Monitoring of Onsite Personnel.....	13-87
13.3C.10.5	Evacuation of Non-Essential Onsite Personnel.....	13-88
13.3C.10.6	Onsite Personnel Accountability	13-88
13.3C.10.7	Protection for Personnel Remaining or Arriving Onsite ..	13-88
13.3C.10.8	Recommending of Protective Actions.....	13-89
13.3C.10.9	Evacuation Time Estimates	13-90
13.3C.10.10	Plans to Implement Protective Measures	13-91
13.3C.10.11	Conclusion	13-93
13.3C.11	Radiological Exposure Control	13-93
13.3C.11.1	Regulatory Basis	13-93
13.3C.11.2	Onsite Exposure Guidelines	13-93
13.3C.11.3	Onsite Radiation Protection Program	13-94
13.3C.11.4	Capability to Determine the Dose Received by Emergency Personnel	13-94
13.3C.11.5	Dose Records for Emergency Personnel	13-94
13.3C.11.6	Decontamination Action Levels	13-95
13.3C.11.7	Decontamination Facilities and Supplies	13-95
13.3C.11.8	Onsite Contamination Control	13-95
13.3C.11.9	Capability to Decontaminate Relocated Onsite Personnel	13-96
13.3C.11.10	Conclusion	13-96
13.3C.12	Medical and Public Health Support.....	13-96
13.3C.12.1	Regulatory Basis	13-96
13.3C.12.2	Onsite Medical Services	13-97
13.3C.12.3	Offsite Medical Services	13-97
13.3C.12.4	Conclusion.....	13-98
13.3C.13	Recovery and Reentry Planning and Post-Accident Operations	13-98
13.3C.13.1	Regulatory Basis	13-98
13.3C.13.2	Plans and Procedures for Reentry and Recovery	13-98
13.3C.13.3	Recovery Organization	13-99
13.3C.13.4	Recovery Operations Initiation	13-100
13.3C.13.5	Methods to Estimate Total Population Exposure.....	13-100
13.3C.13.6	Conclusion.....	13-101
13.3C.14	Exercises and Drills	13-101
13.3C.14.1	Regulatory Basis	13-101
13.3C.14.2	Emergency Preparedness Exercise Purpose and Content.....	13-101
13.3C.14.3	Emergency Preparedness Exercises	13-102
13.3C.14.4	Full Participation Exercise Before Fuel Load.....	13-102
13.3C.14.5	Onsite Biennial Exercise.....	13-103
13.3C.14.6	Offsite Biennial Exercise.....	13-103
13.3C.14.7	Ingestion Pathway Exercise with the State.....	13-104
13.3C.14.8	Enabling Local and State Participation in Drills	13-104
13.3C.14.9	Remedial Exercises.....	13-104
13.3C.14.10	Drills.....	13-105

13.3C.14.11	Communications Drills.....	13-105
13.3C.14.12	Fire Drills	13-106
13.3C.14.13	Medical Emergency Drills.....	13-107
13.3C.14.14	Radiological Monitoring Drills	13-107
13.3C.14.15	Health Physics Drills.....	13-107
13.3C.14.16	Conduct of Drills and Exercises.....	13-108
13.3C.14.17	Observing, Evaluating, and Critiquing Drills and Exercises	13-108
13.3C.14.18	Means to Correct Areas Needing Improvement	13-109
13.3C.14.19	Conclusion.....	13-109
13.3C.15	Radiological Emergency Training	13-109
13.3C.15.1	Regulatory Basis	13-109
13.3C.15.2	Training for Offsite Emergency Organizations.....	13-109
13.3C.15.3	Onsite Emergency Response Organization Training ..	13-110
13.3C.15.4	First Aid and Rescue Team Training	13-110
13.3C.15.5	Training Program to Implement the Emergency Plan..	13-111
13.3C.15.6	Training for Emergency Response Organization Directors	13-112
13.3C.15.7	Training for Accident Assessment Personnel.....	13-112
13.3C.15.8	Training for Radiological Monitoring and Analysis Personnel	13-113
13.3C.15.9	Training for Fire Fighting Teams	13-113
13.3C.15.10	Training for Repair and Damage Control Teams.....	13-114
13.3C.15.11	Training for Local Emergency Management Personnel	13-114
13.3C.15.12	Training for Medical Support Personnel	13-114
13.3C.15.13	Training for Headquarters Support Personnel.....	13-115
13.3C.15.14	Training Related to the Transmitting Emergency Information.....	13-115
13.3C.15.15	Training for Security Personnel	13-116
13.3C.15.16	Retraining of Emergency Response Personnel.....	13-116
13.3C.15.17	Conclusion.....	13-116
13.3C.16	Responsibility for the Planning Effort.....	13-117
13.3C.16.1	Regulatory Basis	13-117
13.3C.16.2	Training for Personnel Responsible for Planning Effort.....	13-117
13.3C.16.3	Person Responsible for Emergency Planning	13-117
13.3C.16.4	Designation of an Emergency Response Coordinator	13-117
13.3C.16.5	Update and Maintenance of the Emergency Plan	13-118
13.3C.16.6	Distribution of Emergency Plans	13-118
13.3C.16.7	Supporting Plans	13-118
13.3C.16.8	Emergency Plan Implementing Procedures	13-119
13.3C.16.9	Table of Contents and Cross-Reference Table	13-119
13.3C.16.10	Annual Independent Review of the Emergency Plan ..	13-119
13.3C.16.11	Quarterly Update of Emergency Telephone Numbers	13-120
13.3C.16.12	Conclusion.....	13-120
13.3C.17	Security-Based Event Considerations	13-120
13.3C.17.1	Regulatory Basis	13-120
13.3C.17.2	Security-Based Emergency Classification and Emergency Action Levels	13-121
13.3C.17.3	NRC Notification	13-121

	13.3C.17.4	Onsite Protective Measures	13-122
	13.3C.17.5	Emergency Response Organization Augmentation.....	13-122
	13.3C.17.6	Potential Vulnerabilities from Nearby Hazardous Facilities, Dams, and Other Sites	13-123
	13.3C.17.7	Security-Based Drills and Exercises.....	13-123
	13.3C.17.8	Emergency Preparedness and Response to a Security-Based Event.....	13-123
	13.3C.17.9	Conclusion.....	13-124
	13.3C.18	Evacuation Time Estimate (ETE) Analysis	13-124
	13.3C.18.1	Regulatory Basis for the ETE Analysis.....	13-124
	13.3C.18.2	Introductory Materials Related to the ETE Report.....	13-124
	13.3C.18.3	Demand Estimation	13-127
	13.3C.18.4	Traffic Capacity.....	13-130
	13.3C.18.5	Analysis of Evacuation Times.....	13-134
	13.3C.18.6	Other Requirements	13-139
	13.3C.18.7	Conclusion.....	13-141
	13.3C.19	Emergency Planning - Inspections, Tests, Analyses, and Acceptance Criteria (EP-ITAAC)	13-141
	13.3C.19.1	Regulatory Basis	13-141
	13.3C.19.2	EP-ITAAC.....	13-141
	13.3C.19.3	Conclusion.....	13-143
13.4		Operational Program Implementation	13-143
	13.4.1	Introduction.....	13-143
	13.4.2	Summary of Application.....	13-144
	13.4.3	Regulatory Basis.....	13-144
	13.4.4	Technical Evaluation.....	13-145
	13.4.5	Post Combined License Activities.....	13-145
	13.4.6	Conclusion	13-145
13.5		Plant Procedures.....	13-146
	13.5.1	Administrative Procedures.....	13-146
	13.5.1.1	Introduction.....	13-146
	13.5.1.2	Summary of Application.....	13-146
	13.5.1.3	Regulatory Basis	13-149
	13.5.1.4	Technical Evaluation	13-150
	13.5.1.5	Post Combined License Activities	13-157
	13.5.1.6	Conclusion.....	13-157
	13.5.2	Operating and Maintenance Procedures.....	13-158
	13.5.2.1	Introduction.....	13-158
	13.5.2.2	Summary of Application.....	13-158
	13.5.2.3	Regulatory Basis	13-159
	13.5.2.4	Technical Evaluation	13-159
	13.5.2.5	Post Combined License Activities	13-170
	13.5.2.6	Conclusion.....	13-170
13.6		Physical Security.....	13-171
	13.6.1	Introduction.....	13-171
	13.6.2	Summary of Application.....	13-171
	13.6.3	Regulatory Basis.....	13-174
	13.6.4	Technical Evaluation.....	13-176
	13.6.4.1	Physical Security Plan.....	13-184
	13.6.4.2	Appendix B Training and Qualification Plan	13-210
	13.6.4.3	Appendix C Safeguards Contingency Plan	13-222

13.6.5	Post Combined License Activities.....	13-231
13.6.6	Conclusions	13-231
13.6A	Site-Specific Inspection, Test, Analysis, and Acceptance Criteria for Physical Security	13-232
13.6A.1	Introduction.....	13-232
13.6A.2	Summary of Application.....	13-233
13.6A.3	Regulatory Basis.....	13-233
13.6A.4	Technical Evaluation.....	13-235
13.6A.4.1	Detection and Assessment Hardware	13-236
13.6A.4.2	Delay or Barrier Design	13-238
13.6A.4.3	Systems, Hardware, or Features Facilitating Security Response and Neutralization	13-238
13.6A.5	Post Combined License Activities.....	13-241
13.6A.6	Conclusions	13-241
13.7	Fitness for Duty	13-249
13.7.1	Introduction.....	13-249
13.7.2	Summary of Application.....	13-249
13.7.3	Regulatory Basis.....	13-250
13.7.4	Technical Evaluation.....	13-250
13.7.5	Post Combined License Activities.....	13-253
13.7.6	Conclusion.....	13-253
13.8	Cyber Security.....	13-254
13.8.1	Introduction.....	13-254
13.8.2	Summary of Application.....	13-254
13.8.3	Regulatory Basis.....	13-254
13.8.4	Technical Evaluation.....	13-255
13.8.4.1	Scope and Purpose	13-255
13.8.4.2	Analyzing Digital Computer Systems and Networks and Applying Cyber Security Controls.....	13-255
13.8.4.3	Cyber Security Assessment and Authorization	13-256
13.8.4.4	Cyber Security Assessment Team	13-256
13.8.4.5	Identification of Critical Digital Assets.....	13-256
13.8.4.6	Examination of Cyber Security Practices	13-257
13.8.4.7	Reviews and Validation Testing	13-257
13.8.4.8	Mitigation of Vulnerabilities and Application of Cyber Security Controls	13-257
13.8.4.9	Incorporating the Cyber Security Program into the Physical Protection Program	13-257
13.8.4.10	Cyber Security Controls.....	13-258
13.8.4.11	Defense-in-Depth Protective Strategies	13-258
13.8.4.12	Ongoing Monitoring and Assessment.....	13-258
13.8.4.13	Modification of Digital Assets.....	13-258
13.8.4.14	Attack Mitigation and Incident Response	13-259
13.8.4.15	Cyber Security Contingency Plan.....	13-259
13.8.4.16	Cyber Security Training.....	13-259
13.8.4.17	Evaluate and Manage Cyber Risk.....	13-260
13.8.4.18	Policies and Procedures.....	13-260
13.8.4.19	Roles and Responsibilities	13-260
13.8.4.20	Security Program Review	13-260
13.8.4.21	Document Control and Records Retention and Handling	13-261

	13.8.4.22	Implementation Milestone.....	13-261
	13.8.5	Post Combined License Activities.....	13-261
	13.8.6	Conclusion.....	13-261
14.0		INITIAL TEST PROGRAM.....	14-1
14.1		Initial Test Program for Preliminary Safety Analysis Reports.....	14-1
14.2		Initial Plant Test Program for Final Safety Analysis Reports.....	14-2
	14.2.1	Introduction.....	14-2
	14.2.2	Summary of Application.....	14-2
	14.2.3	Regulatory Basis.....	14-3
	14.2.4	Technical Evaluation.....	14-4
	14.2.4.1	Organization and Staffing.....	14-5
	14.2.4.2	Startup Administrative Manual.....	14-5
	14.2.4.3	Test Procedures.....	14-6
	14.2.4.4	Test Records.....	14-7
	14.2.4.5	Test Program Schedule and Sequence.....	14-7
	14.2.4.6	AC Power Distribution System Preoperational Test General Test Methods and Acceptance Criteria.....	14-8
	14.2.4.7	Plant Service Water System Preoperational Test and Purpose.....	14-8
	14.2.4.8	Site Specific Preoperational and Startup Tests.....	14-9
	14.2.5	Post Combined License Activities.....	14-14
	14.2.6	Conclusions.....	14-15
14.3		Inspections, Tests, Analyses, and Acceptance Criteria.....	14-16
	14.3.1	Introduction.....	14-16
	14.3.2	Summary of Application.....	14-16
	14.3.3	Regulatory Basis.....	14-17
	14.3.4	Technical Evaluation.....	14-18
	14.3.5	Post Combined License Activities.....	14-23
	14.3.6	Conclusion.....	14-24
15.0		SAFETY ANALYSES.....	15-1
15.1		Introduction.....	15-1
15.2		Summary of Application.....	15-1
15.3		Regulatory Basis.....	15-1
15.4		Technical Evaluation.....	15-2
15.5		Post Combined License Activities.....	15-4
15.6		Conclusion.....	15-4
16.0		TECHNICAL SPECIFICATIONS.....	16-1
16.1		Introduction.....	16-1
16.2		Summary of Application.....	16-1
16.3		Regulatory Basis.....	16-7
16.4		Technical Evaluation.....	16-9
16.5		Post Combined License Activities.....	16-19
16.6		Conclusion.....	16-20
17.0		QUALITY ASSURANCE.....	17-1
	17.0.1	Introduction.....	17-1
	17.0.2	Summary of Application.....	17-1
	17.0.3	Regulatory Basis.....	17-1
	17.0.4	Technical Evaluation.....	17-1
	17.0.5	Post Combined License Activities.....	17-2
	17.0.6	Conclusion.....	17-2
17.1		Quality Assurance During Design.....	17-3

17.1.1	Introduction	17-3
17.1.2	Summary of Application	17-3
17.1.3	Regulatory Basis	17-3
17.1.4	Technical Evaluation	17-3
17.1.5	Post Combined License Activities	17-4
17.1.6	Conclusion	17-4
17.2	Quality Assurance During Construction and Operations	17-4
17.2.1	Introduction	17-4
17.2.2	Summary of Application	17-4
17.2.3	Regulatory Basis	17-5
17.2.4	Technical Evaluation	17-5
17.2.5	Post Combined License Activities	17-6
17.2.6	Conclusion	17-6
17.3	Quality Assurance Program Description	17-6
17.3.1	Introduction	17-6
17.3.2	Summary of Application	17-6
17.3.3	Regulatory Basis	17-6
17.3.4	Technical Evaluation	17-6
17.3.5	Post Combined License Activities	17-7
17.3.6	Conclusion	17-7
17.4	Reliability Assurance Program During Design Phase	17-8
17.4.1	Introduction	17-8
17.4.2	Summary of Application	17-8
17.4.3	Regulatory Basis	17-10
17.4.4	Technical Evaluation	17-10
17.4.5	Post Combined License Activities	17-13
17.4.6	Conclusion	17-13
17.5	Quality Assurance Program Description – Design Certification, Early Site Permits, and New License Applicants	17-14
17.5.1	Introduction	17-14
17.5.2	Summary of Application	17-14
17.5.3	Regulatory Basis	17-14
17.5.4	Technical Evaluation	17-15
17.5.4.1	Organization	17-16
17.5.4.2	Quality Assurance Program	17-17
17.5.4.3	Design Control	17-19
17.5.4.4	Procurement Document Control	17-20
17.5.4.5	Instructions, Procedures, and Drawings	17-21
17.5.4.6	Document Control	17-21
17.5.4.7	Control of Purchased Material, Equipment, and Services	17-21
17.5.4.8	Identification and Control of Materials, Parts, and Components	17-24
17.5.4.9	Control of Special Processes	17-24
17.5.4.10	Inspection	17-24
17.5.4.11	Test Control	17-25
17.5.4.12	Control of Measuring and Test Equipment	17-26
17.5.4.13	Handling, Storage, and Shipping	17-26
17.5.4.14	Inspection, Test, and Operating Status	17-28
17.5.4.15	Nonconforming Materials, Parts, or Components	17-28
17.5.4.16	Corrective Action	17-28

	17.5.4.17	Quality Assurance Records	17-29
	17.5.4.18	Quality Assurance Audits	17-29
	17.5.4.19	Nonsafety-Related SSC Quality Assurance Control.....	17-30
	17.5.4.20	Regulatory Commitments	17-31
	17.5.4.21	Additional Quality Assurance and Administrative Controls for the Plant Operational Phase	17-32
	17.5.4.22	Staff Review of Quality Assurance Program	17-32
	17.5.5	Post Combined License Activities.....	17-37
	17.5.6	Conclusion	17-37
17.6		Maintenance Rule Program.....	17-38
	17.6.1	Introduction	17-38
	17.6.2	Summary of Application.....	17-38
	17.6.3	Regulatory Basis.....	17-39
	17.6.4	Technical Evaluation.....	17-40
	17.6.5	Post Combined License Activities.....	17-41
	17.6.6	Conclusion	17-41
18.0		HUMAN FACTORS ENGINEERING.....	18-1
	18.1	Introduction.....	18-1
	18.2	Summary of Application	18-1
	18.3	Regulatory Basis	18-1
	18.4	Technical Evaluation	18-1
	18.5	Post Combined License Activities	18-2
	18.6	Conclusion.....	18-2
19.0		PROBABILISTIC RISK ASSESSMENT AND SEVERE ACCIDENTS	19-1
	19.1	Introduction.....	19-1
	19.2	PRA Results and Insights.....	19-2
	19.2.1	Introduction	19-2
	19.2.2	Summary of Application.....	19-2
	19.2.3	Regulatory Basis.....	19-2
	19.2.4	Technical Evaluation.....	19-2
	19.2.5	Post-Combined License Activities	19-3
	19.2.6	Conclusion	19-3
	19.3	Severe Accident Evaluations.....	19-4
	19.4	PRA Maintenance	19-4
	19.5	Conclusions.....	19-4
	19.5.1	Introduction	19-4
	19.5.2	Summary of Application.....	19-5
	19.5.3	Regulatory Basis.....	19-5
	19.5.4	Technical Evaluation.....	19-5
	19.5.5	Post Combined License Activities.....	19-6
	19.5.6	Conclusion	19-6
Appendix 19A		Regulatory Treatment of Non-Safety Systems (RTNSS).....	19-7
Appendix 19ACM		Availability Controls Manual.....	19-7
Appendix 19B		Deterministic Analysis for Containment Pressure Capability	19-7
Appendix 19C		Probabilistic Analysis for Containment Pressure Fragility	19-8
Appendix 19D		Assessment of Malevolent Aircraft Impact.....	19-8
Appendix 19AA		Summary of Plant-Specific PRA Review	19-8
	19.AA.1	Introduction	19-8
	19.AA.2	Summary of Application.....	19-8
	19.AA.3	Regulatory Basis.....	19-9
	19.AA.4	Technical Evaluation.....	19-9

19.AA.5	Post-Combined License Activities	19-12
19.AA.6	Conclusion	19-13
Attachment 19.A	Loss of Large Areas of the Plant Due to Explosions or Fires	19.A-1
19.A.1	Introduction	19.A-1
19.A.2	Summary of Application	19.A-1
19.A.3	Regulatory Basis	19.A-2
19.A.4	Technical Evaluation	19.A-2
19.A.5	Post-Combined License Activities	19.A-4
19.A.6	Conclusion	19.A-4
20.0	NEAR-TERM TASK FORCE RECOMMENDATIONS	20-1
20.1	Recommendation 2.1, Seismic Hazard Reevaluation	20-4
20.1.1	Introduction	20-4
20.1.2	Summary of Application	20-4
20.1.3	Regulatory Basis	20-5
20.1.4	Technical Evaluation	20-6
20.1.5	Post Combined License Activities	20-7
20.1.6	Conclusion	20-7
20.2	Recommendation 4.2, Mitigating Strategies for Beyond-Design-Basis External Events	20-7
20.2.1	Introduction	20-7
20.2.2	Summary of Application	20-8
20.2.3	Regulatory Basis	20-9
20.2.4	Technical Evaluation	20-9
20.2.5	Post Combined License Activities	20-13
20.2.6	Conclusion	20-15
20.3	Recommendation 7.1, Reliable Spent Fuel Pool Instrumentation	20-15
20.3.1	Introduction	20-15
20.3.2	Summary of Application	20-15
20.3.3	Regulatory Basis	20-16
20.3.4	Technical Evaluation	20-17
20.3.5	Post Combined License Activities	20-22
20.3.6	Conclusion	20-23
20.4	Recommendation 9.3, Emergency Preparedness	20-23
20.4.1	Introduction	20-23
20.4.2	Summary of Application	20-23
20.4.3	Regulatory Basis	20-24
20.4.4	Technical Evaluation	20-25
20.4.5	Post Combined License Activities	20-26
20.4.6	Conclusion	20-27

APPENDICES

APPENDIX A. POST COMBINED LICENSE ACTIVITIES -- LICENSE CONDITIONS, INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA, AND FINAL SAFETY ANALYSIS REPORT COMMITMENTS..... **A-Error!**

Bookmark not defined.1

APPENDIX B. CHRONOLOGY OF COMBINED LICENSE APPLICATION FOR FERMI UNIT 3 **B-Error! Bookmark not defined.1**

APPENDIX C. ELECTRONIC REQUEST FOR ADDITIONAL INFORMATION	
DATABASE	C-Error! Bookmark not defined.1
APPENDIX D. REFERENCES	D-Error! Bookmark not defined.1
APPENDIX E. PRINCIPAL CONTRIBUTORS	E-Error! Bookmark not defined.1
APPENDIX F. REPORT BY THE ADVISORY COMMITTEE ON REACTOR	
SAFEGUARDS	F-Error! Bookmark not defined.1

LIST OF TABLES

Table 1-1	Projected Project Cost of Fermi 3	1-33
Table 1-2	Non-Fuel Special Nuclear Material for Use.....	1-43
Table 2.3-1	Comparison of Detroit Metropolitan Airport and Fermi 3 Site Dry- Bulb Statistics for 2001–2007.....	2-42
Table 2.3-2	Comparison of Detroit Metropolitan Airport and Fermi 3 Site Dew- Point Statistics for 2001–2007.....	2-43
Table 2.3-3	Maximum DB with MCWB, Maximum Non-Coincident WB, and Minimum DB Temperatures.....	2-44
Table 2.4.1-1	Key Site Elevations According to Four Datum Systems	2-112
Table 2.4.3-1	Depth-area-duration Tables for the Fermi Site.....	2-134
Table 2.4.3-2	Rainfall Distribution of Probable Maximum Storm for the Swan Creek Watershed.....	2-135
Table 2.4.3-3	The applicant’s Inputs into the HEC-RAS and Resulting Flood Elevations at the Fermi Site.....	2-142
Table 2.4.3-4	The Staff’s Inputs into the HEC-RAS and Resulting Flood Elevations at the Fermi Site.....	2-144
Table 2.4.5-1	Summary of Elevations, Water Depths, and Breaking Wave/Run-up Across the Shore Profile	2-160
Table 2.5.2-1	Rock Hazard Reference and Deaggregation Earthquakes	2-245
Table 2.5.4-1	Summary of Engineering Properties of Soils and Bedrocks	2-284
Table 2.5.4-2	Approximate Elevation Ranges for Each Subsurface Material Encountered at Fermi 3.....	2-286
Table 2.5.4-3	Results of Bearing Capacity Analysis	2-300
Table 2.5.4-4	Settlement Results for Excavation Rebound and Total Foundation Settlements	2-301
Table 2.5.4-5	Average Elastic Modulus and Lower Bounds Elastic Modulus	2-334
Table 2.5.4-6	Summary of Modulus of Elasticity of Bedrock Units based Test Results, and Hoek-Brown Criterion.....	2-336
Table 3.7.2-1	Summary of the Applicant’s SSI Analyses for the RB/FB	3-49
Table 3.7.2-2	Summary of the Applicant’s SSI Analyses for the CB.....	3-50
Table 12-1	Comparisons of Annual Doses per unit to the Maximally Exposed Individual from Gaseous Effluents	12-20
Table 12-2	Annual Population Doses from Gaseous Effluents	12-21
Table 12-3	Comparisons of Annual Maximally Exposed Individual Doses in 10 CFR 20.1301(e) and 40 CFR Part 190.....	12-22
Table 12-4	Comparisons of Annual Maximally Exposed Individual Doses per unit from Liquid Effluents.....	12-26
Table 12-5	Comparison of Annual Population Doses from Liquid Effluents.....	12-27
Table 13.6-1	FSAR Table 2.2.1-1, “ITAAC for the Site-Specific Physical Security”.....	13-243
Table 16-1	Site-Specific Information To Resolve COL Item 16.0-1-A.....	16-3
Table 16-2	Battery Cell Parameters	16-13

LIST OF FIGURES

Figure 2.4.3-1	Hourly Distribution of the Probable Maximum Precipitation for the Swan Creek Watershed	2-136
Figure 2.4.3-2	Hourly Distribution of the Probable Maximum Storm with Snowmelt for the Swan Creek Watershed	2-137
Figure 2.4.3-3	Probable Maximum Flood Runoff using HEC-HMS 3.1.0 Rainfall-runoff Model	2-140
Figure 2.4.3-4	Probable Maximum Flood with Snowmelt Runoff using HEC-HMS 3.1.0 Rainfall-runoff Model	2-141
Figure 2.4.5-1	Wave Height and Bathymetry of the Western Lake Erie Derived by STWAVE	2-160
Figure 2.4.5-2	STWAVE Data Points Near Fermi 3	2-1602
Figure 2.4.5-3	Cross Section from the STWAVE Point to the Fermi 3 Safety-Related Structure.....	2-162
Figure 2.4.5-4	Characteristics of Breaking Waves at the Toes of the Seawall and Berm (Vertical Exaggeration, ~10:1; Elevation in Plant Datum)	2-163
Figure 2.5.1-1	Fermi 3 Site Regional Physiographic Map	2-205
Figure 2.5.1-2	Bouguer Gravity Map of the Fermi 3 Site Region	2-108
Figure 2.5.1-3	Fermi 3 Site Region Map of Tectonic Structures	2-210
Figure 2.5.1-4	Summary of Displacement History of Bowling Green Fault	2-211
Figure 2.5.1-5	Photographs of Strata in the Denniston Quarry, Monroe, Michigan.....	2-233
Figure 2.5.2-1	Seismicity of the Site Region of the Fermi 3 Site	2-238
Figure 2.5.2-2	Map Showing the CEUS-SSC Seismotectonic Zones where the Rough Creek Graben Is Not Part of the Reelfoot Rift (RR) and the Wide Paleozoic Extended Crust (PEZ-W).....	2-240
Figure 2.5.2-3	Map Showing the Repeated Large Magnitude Earthquake Sources in the CEUS-SSC Model.....	2-241
Figure 2.5.2-4	Mean Hard Rock UHRS for the Fermi 3 Site	2-244
Figure 2.5.2-5	S-Wave Velocity Profile.....	2-247
Figure 2.5.2-6	Mean Amplification Functions Corresponding to the Four Levels of Input Motion	2-250
Figure 2.5.2-7	Fermi 3 Horizontal and Vertical GMRS	2-252
Figure 2.5.2-8	Earthquakes with Magnitudes Equal to or Greater than 3.0 in the CEUS between 2009 and 2012.....	2-256
Figure 2.5.2-9	Plot Comparing the Staff's and the Applicant's 1-Hz Total Mean Hazard Curves for the Distributed Seismicity Source Zones.....	2-262
Figure 2.5.2-10	Plot Comparing the Staff's and the Applicant's 10-Hz Total Mean Hazard Curves for the Distributed Seismicity Source Zones.....	2-262
Figure 2.5.2-11	Plot Comparing the Staff's and the Applicant's 100-Hz Total Mean Hazard Curves for the Distributed Seismicity Source Zones	2-262
Figure 2.5.2-12	Comparisons of the Staff's Site Response Amplification Functions with the Amplification Functions Determined by the Applicant	2-268
Figure 2.5.2-13	Comparisons of the Staff's Site Response Amplification Function Using Damping Values Selected by the Applicant with the Staff's Site Response Amplification Functions Based on a Q_s of 40 and also Using a Correlation Model for USGS Category A.....	2-269
Figure 2.5.4-1	V_p and V_s measurements using P-S and Downhole Methods	2-291
Figure 2.5.4-2	Excavation Site Plan	2-293

Figure 2.5.4-3	Excavation Cross Section D-D'	2-294
Figure 2.5.4-4	Lateral Earth Pressures on Reactor Building Walls	2-302
Figure 2.5.4-5	Lateral Earth Pressures on Control Building Walls	2-303