

Table of Contents

1.1	Introduction	1.1-1
1.2	General Plant Description	1.2-1
1.3	Comparison Tables	1.3-1
1.4	Identification of Agents and Contractors	1.4-1
1.5	Requirements for Further Technical Information	1.5-1
1.6	GE Topical Reports and Other Documents	1.6-1
1.7	Drawings	1.7-1
1.8	Conformance with Standard Review Plan and Applicability of Codes and Standards	1.8-1
1.8S	Site Parameters, Interface Requirements, COL License Information Items, and Conceptual Design Information	1.8S-1
1.9	COL License Information	1.9-1
1.9S	Conformance with Regulatory Criteria	1.9S-1
1.10S	Impacts of Construction	1.10S-1
1A	Response to TMI Related Matters	1A-1
1AA	Plant Shielding to Provide Access to Vital Areas and Protective Safety Equipment for Post-Accident Operation [II.B.2]	1AA-1
1B	Not Used	1B-1
1C	ABWR Station Blackout Considerations	1C-1
1D	Negation Action Plan.....	1D-1
1D.1	Introduction	1D-1
2.0	Site Characteristics	2.0-1
2.1	Limits Imposed on SRP Section II Acceptance Criteria by ABWR Standard Plant	2.1-1
2.0S	Site Characteristics	2.1S-1
2.1S	Geography and Demography	2.1S-1
2.2	Requirements for Determination of ABWR Site Acceptability	2.2-1
2.2S	Nearby Industrial, Transportation, and Military Facilities	2.2S-1
2.3	COL License Information	2.3-1
2.3S	Meteorology	2.3S-1
2.4S.1	Hydroflogic Description	2.4S.1-1
2.4S.2	Floods	2.4S.2-1
2.4S.3	Probable Maximum Flood (PMF) on Streams and Rivers	2.4S.3-1
2.4S.4	Potential Dam Failures	2.4S.4-1
2.4S.5	Probable Maximum Surge and Seiche Flooding	2.4S.5-1
2.4S.6	Probable Maximum Tsunami Hazards	2.4S.6-1
2.4S.7	Ice Effects	2.4S.7-1
2.4S.8	Cooling Water Canals and Reservoirs	2.4S.8-1
2.4S.9	Channel Diversions	2.4S.9-1
2.4S.10	Flooding Protection Requirements	2.4S.10-1
2.4S.11	Low Water Considerations	2.4S.11-1
2.4S.12	Groundwater	2.4S.12-1
2.4S.13	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	2.4S.13-1
2.4S.14	Technical Specifications and Emergency Operation Requirements	2.4S.14-1
2.5S	Geology, Seismology, and Geotechnical Engineering	2.5S-1

2.5S.1	Basic Geologic and Seismic Information	2.5S.1-1
2.5S.2	Vibratory Ground Motion	2.5S.2-1
2.5S.3	Surface Faulting	2.5S.3-1
2.5S.4	Stability of Subsurface Materials and Foundations	2.5S.4-1
2.5S.5	Stability of Slopes	2.5S.5-1
2A	Input to CRAC 2 Computer Code for Determination of ABWR Site Acceptability	2A-1
3.1	Conformance with NRC General Design Criteria	3.1-1
3.2	Classification of Structures, Components, and Systems	3.2-1
3.3	Wind and Tornado Loadings	3.3-1
3.4	Water Level (Flood) Design	3.4-1
3.5	Missile Protection	3.5-1
3.6	Protection Against Dynamic Effects Associated with the Postulated Rupture of Piping	3.6-1
3.7	Seismic Design	3.7-1
3.8	Seismic Category I Structures	3.8-1
3.9	Mechanical Systems and Components	3.9-1
3.9S	Inservice Testing Program (OM-2004)	3.9S-1
3.10	Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	3.10-1
3.11	Environmental Qualification of Safety-Related Mechanical and Electrical Equipment	3.11-1
3.12	Tunnels	3.12-1
3.12S	Piping Design Review	3.12S-1
3.13	Secondary Containment and Divisional Separation Zones – Barrier Considerations	3.13-1
3.13S	Threaded Fasteners - ASME Code Class 1, 2, and 3	3.13S-1
3A	Seismic Soil Structure Interaction Analysis	3A-1
3B	Containment Hydrodynamic Loads	3B-1
3C	Computer Programs Used in the Design and Analysis of Seismic Category I Structures	3C-1
3D	Computer Programs Used in the Design of Components, Equipment and Structures	3D-1
3E	Guidelines for LBB Application	3E-1
3F	Not Used	3F-1
3G	Response of Structures to Containment Loads	3G-1
3H	Details and Evaluation Results of Seismic Category 1 Structures	3H-1
3I	Equipment Qualification Environmental Design Criteria	3I-1
3J	Not Used	3J-1
3K	Designated NEDE-24326-1-P Material Which May Not Change Without Prior NRC Staff Approval	3K-1
3L	Evaluation of Postulated Ruptures in High Energy Pipes	3L-1
3M	Resolution Of Intersystem Loss Of Coolant Accident For ABWR	3M-1
3MA	System Evaluation for ISLOCA	3MA-1
4.0	Reactor.....	4.1-1
4.1	Summary Description	4.1-1
4.2	Fuel System Design	4.2-1
4.3	Nuclear Design	4.3-1
4.4	Thermal–Hydraulic Design	4.4-1

4.5	Reactor Materials	4.5-1
4.6	Functional Design of Reactivity Control System	4.6-1
4A	Typical Control Rod Patterns and Associated Power Distribution for ABWR	4A-1
4B	Fuel Licensing Acceptance Criteria	4B-1
4C	Control Rod Licensing Acceptance Criteria	4C-1
4D	Reference Fuel Design Compliance with Acceptance Criteria	4D-1
5.0	Reactor Coolant System and Connection Connected Systems	5.1-1
5.1	Summary Description	5.1-1
5.2	Integrity of Reactor Coolant Pressure Boundary	5.2-1
5.3	Reactor Vessel	5.3-1
5.4	Components and Subsystem Design	5.4-1
5A	Method of Compliance For Regulatory Guide 1.150	5A-1
5B	RHR Injection Flow And Heat Capacity Analysis Outlines	5B-1
6	Engineered Safety Features	6.0-1
6.0	General	6.0-1
6.1	Engineered Safety Feature Materials	6.1-1
6.2	Containment Systems	6.2-1
6.3	Emergency Core Cooling Systems	6.3-1
6.4	Habitability Systems	6.4-1
6.5	Fission Products Removal and Control Systems	6.5-1
6.6	Preservice and Inservice Inspection, and Testing of Class 2 and 3 Components and Piping	6.6-1
6.7	High Pressure Nitrogen Gas Supply System	6.7-1
6A	Regulatory Guide 1.52, Section C, Compliance Assessment	6A-1
6B	SRP 6.5.1, Table 6.5.1-1 Compliance Assessment	6B-1
6C	Containment Debris Protection for ECCS Strainers	6C-1
6D	HPCF Analysis Outlines	6D-1
6E	Additional Bypass Leakage Considerations	6E-1
7.0	Instrumentation and Control Systems	7.1-1
7.1	Introduction	7.1-1
7.1S	Instrumentation and Control Systems and Platforms	7.1-1
7.2	Reactor Protection (Trip) System (RPS)—Instrumentation and Controls	7.2-1
7.3	Engineered Safety Feature Systems, Instrumentation and Control	7.3-1
7.4	Systems Required for Safe Shutdown	7.4-1
7.5	Information Systems Important to Safety	7.5-1
7.6	All Other Instrumentation Systems Required for Safety	7.6-1
7.6S	Interlock Systems Important to Safety	7.6S-1
7.7	Control Systems Not Required for Safety	7.7-1
7.8	COL License Information	7.8-1
7.8S	Diverse Instrumentation and Control Systems	7.8S-1
7.9S	Data Communication Systems	7.9S-1
7A	Design Response to Appendix B, ABWR LRB Instrumentation and Controls	7A-1
7B	Implementation Requirements for Hardware/Software Development	7B-1
7C	Defense Against Common-Mode Failure in Safety-Related, Software-Based I&C Systems	7C-1
7DS	Digital Instrumentation and Control Design Verification for Safety-Related Systems	7DS-1

8.0	Electric Power	8.1-1
8.1	Introduction	8.1-1
8.2	Offsite Power Systems	8.2-1
8.3	Onsite Power Systems	8.3-1
8.4S	Station Blackout	8.4S-1
8A	Miscellaneous Electrical Systems	8A-1
9.0	Auxiliary Systems	9.1-1
9.1	Fuel Storage and Handling	9.1-1
9.2	Water Systems	9.2-1
9.3	Process Auxiliaries	9.3-1
9.4	Air Conditioning, Heating, Cooling and Ventilating Systems	9.4-1
9.5	Other Auxiliary Systems	9.5-1
9A	Fire Hazards Analysis	9A-1
9B	Summary of Analysis Supporting Fire Protection Design Requirements	9B-1
9C	Regulatory Guide 1.52, Section C, Compliance Assessment	9C-1
9D	SRP 6.5.1, Table 6.5.1-1 Compliance Assessment	9D-1
9E	Fire Related Administrative Controls	9E-1
10.0	Steam and Power Conversion System	10.1-1
10.1	Summary Description	10.1-1
10.2	Turbine Generator	10.2-1
10.3	Main Steam Supply System	10.3-1
10.4	Other Features of Steam and Power Conversion	10.4-1
11.0	Radioactive Waste Management	11.1-1
11.1	Source Terms	11.1-1
11.2	Liquid Waste Management System	11.2-1
11.3	Gaseous Waste Management System	11.3-1
11.4	Solid Waste Management System	11.4-1
11.5	Process and Effluent Radiological Monitoring and Sampling Systems	11.5-1
11.6	Offsite Radiological Monitoring Program	11.6-1
11A	Radioactive Waste Management - Additional Information	11A-1
12.0	Radiation Protection	12.1-1
12.1	Ensuring that Occupational Radiation Exposures are ALARA	12.1-1
12.2	Radiation Sources	12.2-1
12.3	Radiation Protection Design Features	12.3-1
12.4	Dose Assessment	12.4-1
12.5	Health Physics Program	12.5-1
12.5S	Operational Radiation Protection Program	12.5S-1
12A	Appendix 12A Calculation of Airborne Radionuclides	12A-1
12B	Spent Fuel Pool Geometry and Dose Rate Calculation	12A-1
13.0	Conduct of Operations	13.1-1
13.1	Organizational Structure of Applicant	13.1-1
13.2	Training	13.2-1
13.3	Emergency Planning	13.3-1
13.4	Review and Audit	13.4-1
13.4S	Operational Program Implementation	13.4S-1
13.5	Plant Procedures	13.5-1
13.6	Physical Security	13.6-1

13.7	Fitness For Duty	13.7-1
14.0S	Verification Programs	14.0S-1
14.0	Initial Test Program	14.1-1
14.1	Specific Information to be Included in Preliminary Safety Analysis Reports	14.1-1
14.1S	Specific Information to be Addressed For the Initial Plant Test Program	14.1S-1
14.2	Specific Information to be Included in Final Safety Analysis Reports	14.2-1
14.2S	Initial Plant Test Program	14.2S-1
14.3	Tier 1 Selection Criteria and Processes	14.3-1
14.3S	Inspections, Tests, Analyses and Acceptance Criteria (ITAAC)	14.3S-1
15.0	Accident and Analysis	15.0-1
15.1	Decrease in Reactor Coolant Temperature	15.1-1
15.1S	Transient and Accident Classification	15.1S-1
15.2	Increase in Reactor Pressure	15.2-1
15.3	Decrease in Reactor Coolant System Flow Rate	15.3-1
15.4	Reactivity and Power Distribution Anomalies	15.4-1
15.5	Increase in Reactor Coolant Inventory	15.5-1
15.6	Decrease in Reactor Coolant Inventory	15.6-1
15.7	Radioactive Release from Subsystems and Components	15.7-1
15.8	Anticipated Transients Without Scram	15.8-1
15A	Plant Nuclear Safety Operational Analysis (NSOA)	15A-1
15B	Failure Modes and Effects Analysis (FMEA)	15B-1
15C	Not Used	15C-1
15D	Probability Analysis of Pressure Regulator Downscale Failure	15D-1
15E	ATWS Performance Evaluation	15E-1
15F	LOCA Inventory Curves	15F-1
16.0	Technical Specifications.....	16.0-1
16.1	Use and Application	16.1.1-1
16.2	Safety Limits (SLs)	16.2-1
16.3	Limiting Conditions for Operation and Surveillance Requirements.....	16.3-1
16.4	Design Features.....	16.4-1
16.5	Administrative Controls	16.5-1
17	Quality Assurance	17.0-1
17.0	Introduction	17.0-1
17.1	Quality Assurance During Design and Construction	17.1-1
17.2	Quality Assurance During the Operations Phase	17.2-1
17.3	Reliability Assurance Program During Design Phase	17.3-1
17.4S	Reliability Assurance Program	17.4S-1
17.5S	Quality Assurance Program Guidance	17.5S-1
17.6S	Maintenance Rule Program	17.6S-1
18.0	Human Factors Engineering	18.1-1
18.1	Introduction	18.1-1
18.2	Design Goals and Design Bases	18.2-1
18.3	Planning, Development, and Design	18.3-1
18.4	Control Room Standard Design Features	18.4-1
18.5	Remote Shutdown System	18.5-1
18.6	Systems Integration	18.6-1
18.7	Detailed Design of the Operator Interface System	18.7-1

18.8	COL License Information	18.8-1
18A	Emergency Procedure Guidelines	18A-1
18B	Differences Between BWROG EPG Revision 4 and ABWR EPG	18B-1
18C	Operator Interface Equipment Characterization	18C-1
18D	Emergency Procedures Guidelines—Input Data and Calculation Results	18D-1
18E	ABWR Human-System Interface Design Implementation Process	18E-1
18F	Emergency Operation Information and Controls	18F-1
18G	Design Development and Validation Testing	18G-1
18H	Supporting Analysis for Emergency Operation Information and Controls	18H-1
19.0	Response to Severe Accident Policy Statement.....	19.1-1
19.1	Purpose and Summary	19.1-1
19.1S	Additional Information to Support the COL Application	19.1S-1
19.2	Introduction	19.2-1
19.3	Internal Event Analysis	19.3-1
19.4	External Event Analysis and Shutdown Risk Analysis	19.4-1
19.4S	PRA Maintenance	19.4S-1
19.5	Source Term Sensitivity Studies	19.5-1
19.6	Measurement Against Goals	19.6-1
19.7	PRA as a Design Tool	19.7-1
19.8	Important Features Identified by the ABWR PRA	19.8-1
19.9	COL License Information	19.9-1
19.10	Assumptions and Insights Related to Systems Outside of ABWR Design Certification	19.10-1
19.11	Human Action Overview	19.11-1
19.12	Input to the Reliability Assurance Program	19.12-1
19.13	Summary of Insights Gained from the PRA	19.13-1
19A	Response to CP/ML Rule 10 CFR 50.34(f)	19A-1
19B	Resolution of Applicable Unresolved Safety Issues and Generic Safety Issues	19B-1
19C	Design Considerations Reducing Sabotage Risk	19C-1
19D	Probabilistic Evaluations	19D-1
19E	Deterministic Evaluations	19E-1
19EA	Direct Containment Heating	19EA-1
19EB	Fuel Coolant Interactions	19EB-1
19EC	Debris Coolability and Core Concrete Interaction	19EC-1
19ED	Corium Shield	19ED-1
19EE	Suppression Pool Bypass	19EE-1
19F	Containment Ultimate Strength	19F-1
19FA	Containment Ultimate Strength	19FA-1
19G	Not Used	19G-1
19H	Seismic Capacity Analysis	19H-1
19I	Seismic Margins Analysis	19I-1
19J	Not Used	19J-1
19K	PRA-Based Reliability and Maintenance	19K-1
19L	ABWR Shutdown Risk Evaluation	19L-1
19M	Fire Protection Probabilistic Risk Assessment	19M-1
19N	Analysis of Common-Cause Failure of Multiple <u>Essential Communications</u> Equipment	19N-1

19O	Not Used	19O-1
19P	Evaluation of Potential Modifications to the ABWR Design	19P-1
19Q	ABWR Shutdown Risk Assessment	19Q-1
19QA	Fault Trees	19QA-1
19QB	DHR Reliability Study	19QB-1
19QC	Review of Significant Shutdown Events: Electrical Power and Decay Heat Removal	19QC-1
19R	Probabilistic Flooding Analysis	19R-1
19S	Aircraft Impact Assessment	19S-1
20.0	Question and Response Guide	20-1
21.0	Large-Scale Drawings	21.0-1

