Agenda for Public Meeting
ESBWR Design-Centered Working Group (DCWG) Pre-COL Activities

October 24, 2006

2:00 p.m.	Introductions/Opening Remarks	All
2:15 p.m.	COL Application Topics	
	Project Status & Schedule	DCWG
	COL Items: Approach & Status	DCWG
	Previous Meeting Follow-up Items	DCWG/NRC
3:15 p.m.	Break	All
3:30 p.m.	Other DCWG Topics	DCWG
	DCD/FSAR Interface Focus Issues	
4:30 p.m.	Public Comment Opportunity	Public
4:45 p.m.	Wrap-Up	NRC
5:00 p.m.	Adjourn	

Enclosure

ESBWR FSAR Standardization Assessment		
Number of FSAR Sections	**Percent of FSAR Sections**	**Section Type**
60	33%	Match DCD
73	41%	Standard (identical)
30	17%	Standard with a limited amount of site-specific information
9	5%	Standard with a moderate amount of site-specific information
7	4%	Site-specific
179	**100%**	**Total**

ESBWR Standardization Matrix						
Part Chapter Section	**Title**	**Lead Organization Preparing Section**	**Standardization Assessment[1]**			
			Match DCD	**Standard**	**Standard With Site-Specific**	**Site-Specific**
Part 1	**General and Administrative Information**					
--	General Information	**Dominion NuStart Entergy**			**X (2)**	
--	Financial Information	**Dominion NuStart Entergy**			**X (2)**	
--	Other Information	**Dominion NuStart Entergy**			**X (2)**	
Part 2	**Final Safety Analysis Report**					
FSAR Chapter 1	Introduction and General Description					
1.1	Introduction	**Dominion NuStart Entergy**			**X (2)**	
1.2	General Plant Description	**GE**			**X (1)**	
1.3	Comparison Tables	**GE**			**X (1)**	
1.4	Identification of Agents and Contractors	**Dominion NuStart Entergy**			**X (2)**	
1.5	Requirements for Further Technical Information	**GE**	**X**			

[1] There are 4 types of ESBWR COLA sections:

- Match DCD. These sections are identical to the ESBWR DCD with no additional text, tables, or figures needed in the COLA.
- Standard sections are identical.
- Standard with site-specific. These sections are identical to the extent possible but also contain some site- and/or applicant-specific information. For the site/applicant-specific information, consistent wording and level-of-detail are used.
  (1) – Standard section that contains a limited amount of site/applicant-specific information.
  (2) – Standard section that contains a moderate amount of site/applicant-specific information.
- Site-specific sections are not standard and contain site/applicant-specific information.

Revision 2 Changes

ESBWR Standardization Matrix						
Part Chapter Section	Title	Lead Organization Preparing Section	Standardization Assessment[1]			
			Match DCD	Standard	Standard With Site-Specific	Site-Specific
1.6	Material Incorporated by Reference	**GE**		**X**		
1.7	Drawings and Other Detailed Information	**GE**			**X (1)**	
1.8	Interfaces for Standard Design	**GE**		**X**		
1.9	Conformance with SRP and Codes & Standards	**Dominion NuStart Entergy**			**X (2)**	
1.10	Summary of COL Items	**GE**			**X (1)**	
1.11	Technical Resolutions	**GE**			**X (1)**	
1A	Response to TMI Related Matters	**GE**	**X**			
1B	Plant Shielding to Provide Access to Vital Areas and Protective Safety Equipment for Post-Accident Operation	**GE**	**X**			
1C	Industry Operating Experience	**GE**			**X (1)**	
1D	Regulatory Treatment of Non-Safety Systems	**GE**			**X (1)**	
FSAR Chapter 2	Site Characteristics					
2.0	Site Characteristics	**Dominion NuStart Entergy**				**X**
2.1	Geography and Demography	**Dominion NuStart Entergy**				**X**
2.2	Nearby Industrial, Transportation, and Military Facilities	**Dominion NuStart Entergy**				**X**
2.3	Meteorology	**Dominion NuStart Entergy**				**X**
2.4	Hydrology	**Dominion NuStart Entergy**				**X**
2.5	Geology, Seismology, and Geotechnical Engineering	**Dominion NuStart Entergy**				**X**
FSAR Chapter 3	Design of Structures, Components, Equipment, Systems					

ESBWR Standardization Matrix						
Part Chapter Section	Title	Lead Organization Preparing Section	Standardization Assessment[1]			
			Match DCD	Standard	Standard With Site-Specific	Site-Specific
3.1	Conformance with NRC General Design Criteria	GE	X			
3.2	Classification of Structures, Systems, and Components	GE	X			
3.3	Wind and Tornado Loadings	GE	X			
3.4	Water Level (Flood) Design	GE	X			
3.5	Missile Protection	GE			X (1)	
3.6	Protection Against Dynamic Effects	GE		X		
3.7	Seismic Design	GE			X (1)	
3.8	Seismic Category I Structures	GE		X		
3.9	Mechanical Systems and Components	GE		X		
3.10	Seismic and Dynamic Qualification	GE		X		
3.11	Environmental Qualification	GE		X		
Appendices	---	GE		X		
FSAR Chapter 4	Reactor					
4.1	Summary Description	GE	X			
4.2	Fuel System Design	GE		X		
4.3	Nuclear Design	GE		X		
4.4	Thermal and Hydraulic Design	GE		X		
4.5	Reactor Materials	GE		X		
4A	Typical Control Rod Patterns and Associated Power Distribution for ESBWR	GE	X			
4B	Fuel Licensing Acceptance Criteria	GE	X			
4C	Control Rod License Acceptance Criteria	GE	X			
4D	Stability Evaluation	GE		X		
FSAR Chapter 5	Reactor Coolant System and Connected Systems					
5.1	Summary Description	GE		X		
5.2	Integrity of Reactor Coolant Pressure Boundary	GE		X		
5.3	Reactor Vessels	GE		X		
5.4	Component and Subsystem Design	GE	X			
FSAR	Engineered Safety Features					

ESBWR Standardization Matrix						
Part Chapter Section	**Title**	**Lead Organization Preparing Section**	**Standardization Assessment[1]**			
			Match DCD	**Standard**	**Standard With Site-Specific**	**Site-Specific**
Chapter 6						
6.1	Engineered Safety Feature Materials	**GE**		**X**		
6.2	Containment Systems	**GE**		**X**		
6.3	Emergency Core Cooling Systems	**GE**	**X**			
6.4	Control Room Habitability Systems	**GE**			**X (1)**	
6.5	Atmosphere Cleanup Systems	**GE**	**X**			
6.6	ISI of Class 2 and 3 Components	**GE**		**X**		
FSAR Chapter 7	Instrumentation and Controls					
7.1	Introduction	**GE**	**X**			
7.2	Reactor Trip System	**GE**	**X**			
7.3	Engineered Safety Features Systems	**GE**	**X**			
7.4	Safety-Related and Non-Safety Related Shutdown Systems	**GE**	**X**			
7.5	Safety-Related and Non-Safety Related Information Systems	**GE**	**X**			
7.6	Interlock Systems	**GE**	**X**			
7.7	Control Systems	**GE**	**X**			
7.8	Diverse Instrumentation and Control Systems	**GE**	**X**			
7.9	Data Communication Systems	**GE**	**X**			
7A	Fixed Incore Calibration System for the Neutron Monitoring System	**GE**	**X**			
7B	Software Quality Program for Hardware/Software Design and Development	**GE**	**X**			
FSAR Chapter 8	Electric Power					
8.1	Introduction	**GE**			**X (1)**	
8.2	Offsite Power System	**Dominion NuStart Entergy**			**X (2)**	
8.3	Onsite Power Systems	**GE**			**X (1)**	
8A	Miscellaneous Electrical Systems	**Dominion NuStart Entergy**			**X (2)**	
8B	Realistic Station Blackout Evaluation	**GE**	**X**			

ESBWR Standardization Matrix						
Part Chapter Section	Title	Lead Organization Preparing Section	Standardization Assessment[1]			
			Match DCD	Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 9	Auxiliary Systems					
9.1	Fuel Storage and Handling	**GE**		**X**		
9.2.1	Plant Service Water System	**Dominion NuStart Entergy**			**X (2)**	
9.2.2	Reactor Component Cooling Water System	**GE**			**X (1)**	
9.2.3	Makeup Water System	**Dominion NuStart Entergy**			**X (2)**	
9.2.4	Potable and Sanitary Water Systems	**Dominion NuStart Entergy**			**X (2)**	
9.2.5	Ultimate Heat Sink	**Dominion NuStart Entergy**			**X (1)**	
9.2.6	Condensate Storage and Transfer System	**GE**	**X**			
9.2.7	Chilled Water System	**GE**			**X (1)**	
9.2.8	Turbine Component Cooling Water System	**GE**			**X (1)**	
9.2.9	COL Information	**GE**		**X**		
9.2.10	References	**GE**		**X**		
9.3.1	Compressed Air Systems	**GE**	**X**			
9.3.2	Process Sampling System	**GE**		**X**		
9.3.3	Equipment and Floor Drain System	**GE**		**X**		
9.3.4	Chemical and Volume Control System	**GE**	**X**			
9.3.5	Standby Liquid Control System	**GE**	**X**			
9.3.6	Instrument Air System	**GE**	**X**			
9.3.7	Service Air System	**GE**	**X**			
9.3.8	High Pressure Nitrogen Supply System	**GE**	**X**			
9.3.9	Hydrogen Water Chemistry System	**GE**		**X**		
9.3.10	Oxygen Injection System	**GE**		**X**		
9.3.11	Zinc Injection System	**GE**		**X**		
9.3.12	Auxiliary Boiler System	**GE**			**X (1)**	
9.3.13	COL Information	**GE**		**X**		
9.3.14	References	**GE**		**X**		

ESBWR Standardization Matrix						
Part Chapter Section	Title	Lead Organization Preparing Section	Standardization Assessment[1]			
			Match DCD	Standard	Standard With Site-Specific	Site-Specific
9.4.1	Control Room Area Ventilation System	**GE**			**X (1)**	
9.4.2	Fuel Building HVAC System (FBHVS)	**GE**	**X**			
9.4.3	Radwaste Building Heating, Ventilation and Air Conditioning System	**GE**	**X**			
9.4.4	Turbine Building HVAC System	**GE**	**X**			
9.4.5	Engineered Safety Feature Ventilation System	**GE**	**X**			
9.4.6	Reactor Building HVAC System	**GE**	**X**			
9.4.7	Electrical Building HVAC System	**GE**	**X**			
9.4.8	Drywell Cooling System	**GE**	**X**			
9.4.9	Containment Inerting System	**GE**		**X**		
9.4.10	COL Information	**GE**		**X**		
9.4.11	References	**GE**		**X**		
9.5.1	Fire Protection System	**GE**			**X (1)**	
9.5.2	Communications Systems	**GE**			**X (1)**	
9.5.3	Lighting System	**GE**			**X (1)**	
9.5.4	Diesel Generator Fuel Oil Storage and Transfer System	**GE**			**X (1)**	
9.5.5	Diesel Generator Jacket Cooling Water System	**GE**		**X**		
9.5.6	Diesel Generator Starting Air System	**GE**		**X**		
9.5.7	Diesel Generator Lubrication System	**GE**		**X**		
9.5.8	Diesel Generator Combustion Air Intake and Exhaust System	**GE**		**X**		
9.5.9	COL Information	**GE**		**X**		
9.5.10	References	**GE**		**X**		
9A	Fire Hazards Analysis	**GE**			**X (1)**	
9B	Summary of Analysis Supporting Fire Protection Design Requirements	**GE**			**X (1)**	
FSAR Chapter 10	Steam and Power Conversion Systems					
10.1	Summary Description	**GE**			**X (1)**	
10.2	Turbine Generator	**GE**		**X**		
10.3	Turbine Main Steam System	**GE**		**X**		

ESBWR Standardization Matrix						
Part Chapter Section	Title	Lead Organization Preparing Section	Standardization Assessment[1]			
			Match DCD	Standard	Standard With Site-Specific	Site-Specific
10.4	Other Features of Steam and Power Conversion System	**GE**			**X (2)**	
10A	Alternative Design for Steam and Power Conversion System	**GE**		**X**		
FSAR Chapter 11	Radioactive Waste Management					
11.1	Source Terms	**GE**		**X**		
11.2	Liquid Waste Management System	**GE**	**X**			
11.3	Gaseous Waste Management System	**GE**		**X**		
11.4	Solid Waste Management System	**GE**	**X**			
11.5	Process Radiation Monitoring System	**GE**	**X**			
FSAR Chapter 12	Radiation Protection					
12.1	Ensuring That Occupational Radiation Exposures Are ALARA	**Dominion**		**X**		
12.2	Plant Sources	**GE**			**X (1)**	
12.3	Radiation Protection	**GE**		**X**		
12.4	Dose Assessment	**GE**	**X**			
12.5	Operational Radiation Protection Program	**Dominion**		**X**		
12A	Calculation of Airborne Radionuclides	**GE**		**X**		
FSAR Chapter 13	Conduct of Operations					
13.1	Organizational Structure of Applicant	**NuStart**			**X (1)**	
13.2	Training	**Dominion**		**X**		
13.3	Emergency Planning	**Dominion**		**X**		
13.4	Review and Audit	**NuStart**		**X**		
13.5	Plant Procedures	**NuStart**		**X**		
13.6	Physical Security	**Dominion**		**X**		
FSAR Chapter 14	Initial Test Program					
14.1	Initial Test Program For Preliminary Safety Analysis Reports	**GE**	**X**			

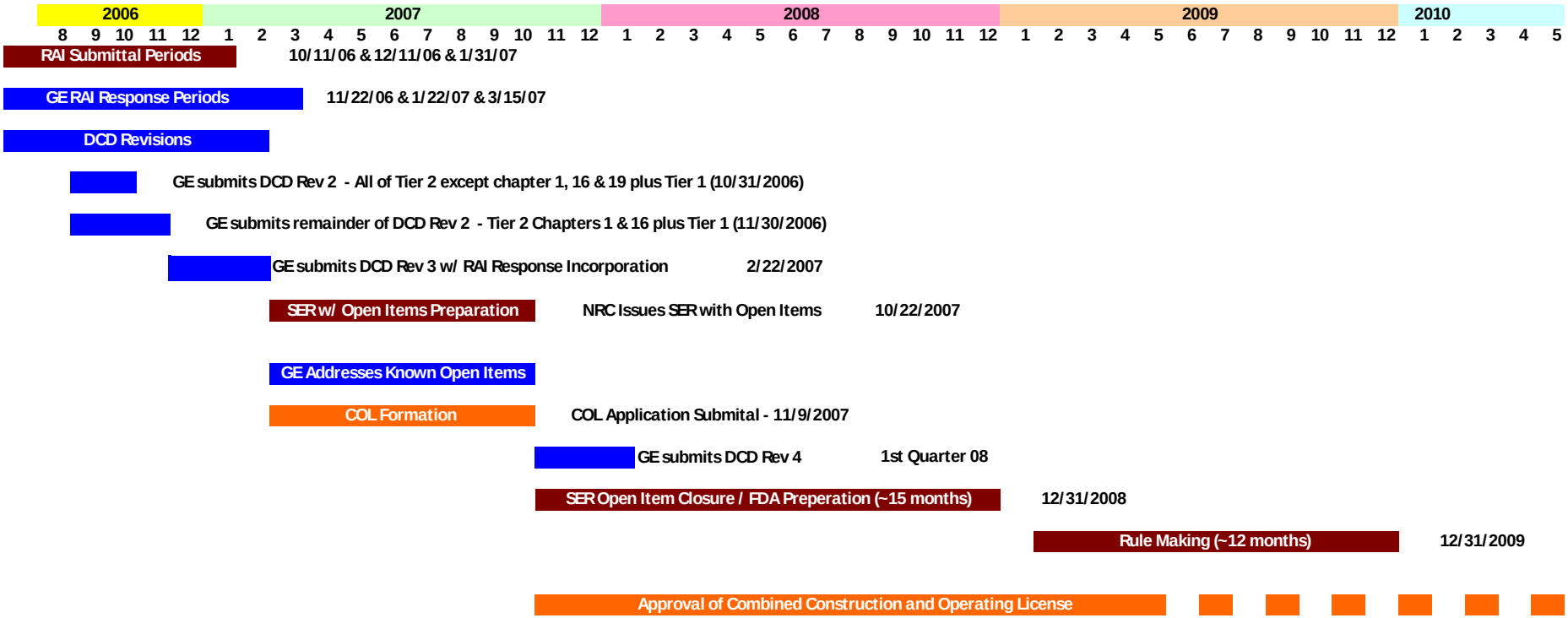
ESBWR Standardization Matrix						
Part Chapter Section	Title	Lead Organization Preparing Section	Standardization Assessment[1]			
			Match DCD	Standard	Standard With Site-Specific	Site-Specific
14.2	Initial Plant Test Program For Final Safety Analysis Reports	**GE**			**X (1)**	
14.3	Selection Of Tier 1 Criteria and Processes	**GE**		**X**		
FSAR Chapter 15	Safety Analyses					
15.0	Analytical Approach	**GE**		**X**		
15.1	Nuclear Safety Operational Analysis	**GE**	**X**			
15.2	Analysis of Anticipated Operational Occurrences	**GE**		**X**		
15.3	Analysis of Infrequent Events	**GE**		**X**		
15.4	Analysis of Accidents	**GE**			**X (1)**	
15.5	Special Event Evaluations	**GE**		**X**		
15A	Event Probability Analyses	**GE**		**X**		
15B	LOCA Inventory Curves	**GE**		**X**		
FSAR Chapter 16	Technical Specifications	**GE**		**X**		
FSAR Chapter 17	Quality Assurance					
17.0	Introduction	**GE**		**X**		
17.1	Quality Assurance During Design and Construction	**GE**		**X**		
17.2	Quality Assurance During the Operations Phase	**NuStart**		**X**		
17.3	Quality Assurance Program Document	**NuStart**		**X**		
17.4	Reliability Assurance Program During Design Phase	**NuStart**		**X**		
17.5	Quality Assurance Program Description	**NuStart**		**X**		
17.6	Maintenance Rule Program	**NuStart**		**X**		
FSAR Chapter 18	Human Factors Engineering					
18.1	Overview	**GE**	**X**			
18.2	HFE Program Management	**GE**	**X**			
18.3	Operating Experience Review	**GE**	**X**			

ESBWR Standardization Matrix						
Part Chapter Section	**Title**	**Lead Organization Preparing Section**	**Standardization Assessment[1]**			
			Match DCD	**Standard**	**Standard With Site-Specific**	**Site-Specific**
18.4	Functional Requirements Analyses and Function Allocation	**GE**	**X**			
18.5	Task Analysis	**GE**	**X**			
18.6	Staffing and Qualifications	**GE**	**X**			
18.7	Human Reliability Analysis	**GE**	**X**			
18.8	Human-System Interface Design	**GE**	**X**			
18.9	Procedure Development	**GE**	**X**			
18.10	Training Program Development	**GE**	**X**			
18.11	Human Factors V&V	**GE**	**X**			
18.12	Design Implementation	**GE**	**X**			
18.13	Human Performance Monitoring	**GE**	**X**			
18.14	Inventory of Controls and Instrumentation	**GE**	**X**			
Appendices	---	**GE**			**X (1)**	
FSAR Chapter 19	PRA and Severe Accidents					
19.1	Introduction	**GE**		**X**		
19.2	PRA Results and Insights	**GE**		**X**		
19.3	Severe Accidents Evaluations	**GE**		**X**		
19.4	PRA Maintenance	**GE**		**X**		
19.5	ITAACs, Action Items, & Other Commitments	**GE**		**X**		
19.6	Conclusions	**GE**		**X**		
FSAR Chapter 20	Construction Impacts on Existing Units	**Dominion NuStart Entergy**				**X**
Part 3	**Environmental Report**					
ER Chapter 1	Introduction	**Dominion NuStart Entergy**				**X**
ER Chapter 2	Environmental Description	**Dominion NuStart Entergy**				**X**
ER	Plant Description	**Dominion**				**X**

ESBWR Standardization Matrix						
Part Chapter Section	**Title**	**Lead Organization Preparing Section**	**Standardization Assessment[1]**			
			Match DCD	**Standard**	**Standard With Site-Specific**	**Site-Specific**
Chapter 3		**NuStart Entergy**				
ER Chapter 4	Environmental Impacts of Construction (North Anna) Environmental Effects of Construction (Grand Gulf, River Bend)	**Dominion NuStart Entergy**				**X**
ER Chapter 5	Environmental Impacts of Station Operation (North Anna) Environmental Effects of Station Operations (Grand Gulf, River Bend)	**Dominion NuStart Entergy**				**X**
ER Chapter 6	Environmental Measurements and Monitoring Programs	**Dominion NuStart Entergy**				**X**
ER Chapter 7	Environmental Impacts of Postulated Accidents Involving Radioactive Materials	**Dominion NuStart Entergy**				**X**
ER Chapter 8	Need for Power	**Dominion NuStart Entergy**				**X**
ER Chapter 9	Alternatives to the Proposed Action	**Dominion NuStart Entergy**				**X**
ER Chapter 10	Environmental Consequences of the Proposed Action	**Dominion NuStart Entergy**				**X**
Part 4	**Technical Specifications**	**GE**			**X (1)**	
Part 5	**Emergency Plan**	**Dominion NuStart Entergy**				**X**
Part 6	**LWA/Site Redress Plan**	**Dominion NuStart Entergy**			**X (2)**	

ESBWR Standardization Matrix						
Part Chapter Section	Title	Lead Organization Preparing Section	Standardization Assessment[1]			
			Match DCD	Standard	Standard With Site-Specific	Site-Specific
Part 7	**Generic DCD Departures Report**	**Dominion NuStart Entergy**			**X (1)**	
Part 8	**Safeguards/Security Plans**					
--	Physical Security Plan	**Dominion NuStart Entergy**			**X (1)**	
--	Training and Qualification Plan	**Dominion NuStart Entergy**			**X (1)**	
--	Safeguards Contingency Plan	**Dominion NuStart Entergy**			**X (2)**	
Part 9	**Plant-Specific PRA**	**GE**			**X (1)**	
Part 10	**ITAAC**	**GE**			**X (1)**	

ESBWR Design Certification & COL Timeline



ESBWR Design Certification
COL Information Items

- COL Information Items
  - Identifies actions or information that must be addressed in COLA referencing ESBWR DCD
  - Identified in various DCD sections
  - Listed in Table 1.10-1 of DCD
  - GE currently working with ESBWR DCWG to finalize list and prioritize DCD changes to help eliminate need for COL information items
    - DCD Revision 3 will include an up-to-date table
    - GE and DCWG will continue to interact with NRC to include additional information in subsequent revisions to eliminate COL information items

ESBWR Design Certification
Finalizing COL Information Item Listing

The COL Information Item (COL II) Listing in ESBWR DCD revisions will be changing based on six processes:

1. Conversion of COL IIs to Inspection Test Analyses and Acceptance Criteria (ITAAC) (e.g., Chapter 18, Rev. 2)
2. Classification of a COL II as a "COL Holder Item" to be completed after issuance of COL
3. Elimination of a COL II by directly including the required information in the DCD (e.g., Chapter 8, Rev. 2)
4. Completing design work which closes a COL II to be reflected in either DCD or COL (e.g., Chapter 10, Rev. 3)
5. Closing a COL II by another mechanism such as an LTR (e.g., Initial Core Design)
6. Adding a COL II in response to an RAI

ESBWR DCD COL Information Item Status

Revision 0 DCD = 493

Revision 2 DCD Status:

DELETED = 102

CLOSED = 78

REDUNDANT = 23

BALANCE REMAINING = 290*

*48 COL “Holder” items identified to date

Note: ESP COL action items not included

ESBWR COL Information Item Resolutions

COL Item - 8.3.1.1.7

Load Shedding and Sequencing on Plant Investment Protection Buses

Additional information added to the DCD Rev 2 that provided the information required by the COL item

COL Item - 4.D3-C

Verify Startup Procedure Limiting Cases

Detailed design work to be completed in January 2007 to enable deletion of item in DCD Rev 3.

ESBWR DCWG Action Item List

REVISION DATE: 10/19/2006

Act	Item No.	Ref. No.	Action Item/Work Activity Description	Added	Source Doc.	Org	Resp Person	Orig. Fcst Complt Date	Forecast Complt Date	Remarks
D	**DCWG**									
C	1		NRC will address when the revision process for 10 CFR 52 will allow discussions of ESP finality.	9/20/2006	9/20/06 NRC Meeting	NRC	T. Kevern	10/12/2006	10/12/2006	Per discussion with Joe Colaccino at 10/12/06 GE/NRC meeting.
A	2		NRC to respond to ESBWR DCWG questions on what pre-application activities are expected for a site with an ESP and without an ESP relative to the 5-step environmental review process; and what is the critical path for the environmental review.	9/20/2006	9/20/06 NRC Meeting	NRC	J. Colaccino			This issue is proposed agenda item for the 10/24/06 joint DCWG/NRC meeting.
A	3		NRC will address when pre-COLA submittal meetings will be held in the vicinity of each plant.	9/20/2006	9/20/06 NRC Meeting	NRC	T. Kevern			
A	4		GE to provide the plan for addressing COL Items: scope, schedule, and venue (in the ESBWR DCD, or in the FSARs).	9/20/2006	9/20/06 NRC Meeting	GE	R. Reith	11/30/2006	11/30/2006	Issue discussed in 10/12/06 GE/NRC meeting. Will be discussed in next DCWG/NRC meeting.
A	5		ESBWR DCWG members to consider the timing of ESBWR DCD and COLA FSAR revisions during parallel review, i.e, will both revisions be submitted together?	9/20/2006	9/20/06 NRC Meeting	DCWG	J. Hegner	10/24/2006	10/24/2006	Issue discussed in 10/12/06 GE/NRC meeting
A	6		NRC to decide the type of meeting needed for discussing electronic submittals and conventions to ensure compatible submittals across DCWGs.	9/20/2006	9/20/06 NRC Meeting	NRC	J. Colaccino			10/25/06 meeting is scheduled
A	7		ESBWR DCWG to submit letter on communications protocol.	9/20/2006	9/20/06 NRC Meeting	DCWG	J. Hegner	10/24/2006	10/24/2006	
A	8		NRC will address the ESBWR DCWG request to bill NuStart and Dominion equally.	9/20/2006	9/20/06 NRC Meeting	NRC	T. Kevern			

ACT LEGEND: A : Added; C : Closed; R : Revised

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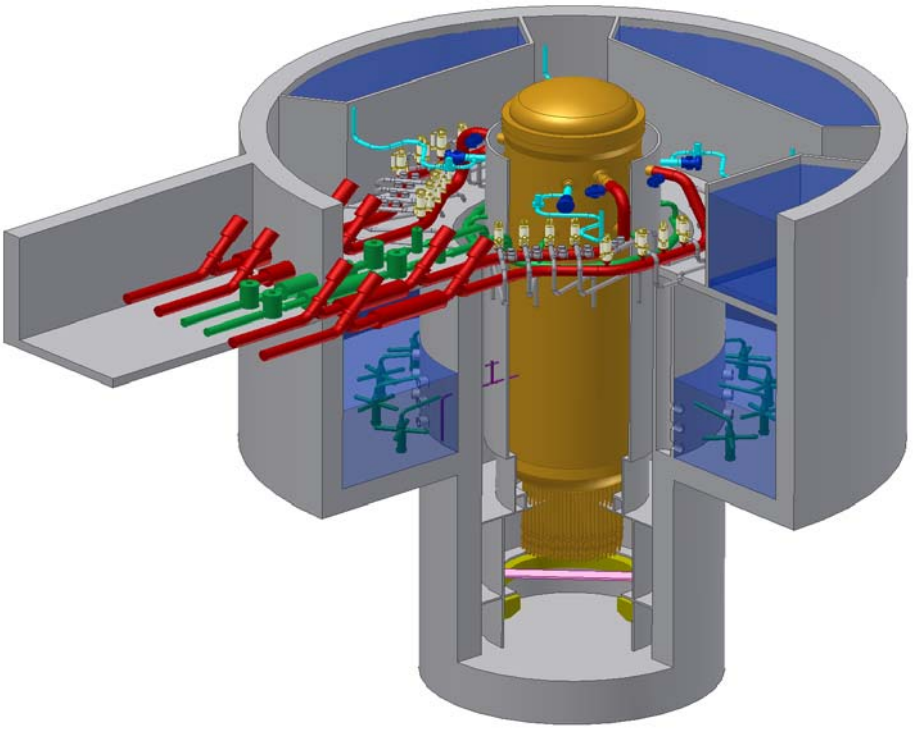
Act	Item No.	Ref. No.	Action Item/Work Activity Description	Added	Source Doc.	Org	Resp Person	Orig. Fcst Complt Date	Forecast Complt Date	Remarks
D	**DCWG**									
A	9		GE, with DCWG support, to schedule a meeting with NRC on proposed changes to Chapter 2 of the ESBWR DCD to improve preparation of Chapter 2 of the COLA FSAR.	9/20/2006	9/20/06 NRC Meeting	GE	R. Reith	10/24/2006	10/24/2006	FSAR Chapter 2 will be discussed in 10/24/06 DCWG/NRC meeting
A	10		DCWG to schedule a meeting with NRC for the end of October and provide information for discussions prior to the meeting.	9/20/2006	9/20/06 NRC Meeting	DCWG	J. Hegner	10/20/2006	10/20/2006	

GE Nuclear Energy

26A6642AH
Draft Revision 2
October 13, 2006



ESBWR Design Control Document

Tier 2

Chapter 2

Site Characteristics

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Table 2.0-2 Limits Imposed on SRP Section II Acceptance Criteria by ESBWR Design

List of Illustrations

Figure 2.0-1. ESBWR Horizontal SSE Design Ground Spectra at Foundation Level
Figure 2.0-2. ESBWR Vertical SSE Design Ground Response Spectra at Foundation Level

Abbreviations And Acronyms

Term	Definition
10 CFR	Title 10, Code of Federal Regulations
A/D	Analog-to-Digital
AASHTO	American Association of Highway and Transportation Officials
AB	Auxiliary Boiler
ABS	Auxiliary Boiler System
ABWR	Advanced Boiling Water Reactor
ac / AC	Alternating Current
AC	Air Conditioning
ACF	Automatic Control Function
ACI	American Concrete Institute
ACS	Atmospheric Control System
AD	Administration Building
ADS	Automatic Depressurization System
AEC	Atomic Energy Commission
AFIP	Automated Fixed In-Core Probe
AGMA	American Gear Manufacturer's Association
AHS	Auxiliary Heat Sink
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AL	Analytical Limit
ALARA	As Low As Reasonably Achievable
ALWR	Advanced Light Water Reactor
ANS	American Nuclear Society
ANSI	American National Standards Institute
AOO	Anticipated Operational Occurrence
AOV	Air Operated Valve
API	American Petroleum Institute
APLHGR	Average Planar Linear Head Generation Rate
APRM	Average Power Range Monitor
APR	Automatic Power Regulator
APRS	Automatic Power Regulator System
ARI	Alternate Rod Insertion
ARMS	Area Radiation Monitoring System
ASA	American Standards Association
ASD	Adjustable Speed Drive
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
AST	Alternate Source Term
ASTM	American Society of Testing Methods

Term	Definition
AT	Unit Auxiliary Transformer
ATLM	Automated Thermal Limit Monitor
ATWS	Anticipated Transients Without Scram
AV	Allowable Value
AWS	American Welding Society
AWWA	American Water Works Association
B&PV	Boiler and Pressure Vessel
BAF	Bottom of Active Fuel
BHP	Brake Horse Power
BOP	Balance of Plant
BPU	Bypass Unit
BPWS	Banked Position Withdrawal Sequence
BRE	Battery Room Exhaust
BRL	Background Radiation Level
BTP	NRC Branch Technical Position
BTU	British Thermal Unit
BWR	Boiling Water Reactor
BWROG	Boiling Water Reactor Owners Group
CAV	Cumulative absolute velocity
C&FS	Condensate and Feedwater System
C&I	Control and Instrumentation
C/C	Cooling and Cleanup
CB	Control Building
CBHVAC	Control Building HVAC
CCI	Core-Concrete Interaction
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CIRC	Circulating Water System
CIS	Containment Inerting System
CIV	Combined Intermediate Valve
CLAVS	Clean Area Ventilation Subsystem of Reactor Building HVAC
CM	Cold Machine Shop
CMS	Containment Monitoring System
CMU	Control Room Multiplexing Unit
COL	Combined Operating License
COLR	Core Operating Limits Report
CONAVS	Controlled Area Ventilation Subsystem of Reactor Building HVAC
CPR	Critical Power Ratio
CPS	Condensate Purification System
CPU	Central Processing Unit

Term	Definition
CR	Control Rod
CRD	Control Rod Drive
CRDA	Control Rod Drop Accident
CRDH	Control Rod Drive Housing
CRDHS	Control Rod Drive Hydraulic System
CRGT	Control Rod Guide Tube
CRHA	Control Room Habitability Area
CRT	Cathode Ray Tube
CS&TS	Condensate Storage and Transfer System
CSDM	Cold Shutdown Margin
CS / CST	Condensate Storage Tank
CT	Main Cooling Tower
CTVCF	Constant Voltage Constant Frequency
CUF	Cumulative usage factor
CWS	Chilled Water System
D-RAP	Design Reliability Assurance Program
DAC	Design Acceptance Criteria
DAW	Dry Active Waste
DBA	Design Basis Accident
dc / DC	Direct Current
DCS	Drywell Cooling System
DCIS	Distributed Control and Information System
DEPSS	Drywell Equipment and Pipe Support Structure
DF	Decontamination Factor
D/F	Diaphragm Floor
DG	Diesel-Generator
DHR	Decay Heat Removal
DM&C	Digital Measurement and Control
DOF	Degree of freedom
DOI	Dedicated Operators Interface
DOT	Department of Transportation
dPT	Differential Pressure Transmitter
DPS	Diverse Protection System
DPV	Depressurization Valve
DR&T	Design Review and Testing
DS	Independent Spent Fuel Storage Installation
DTM	Digital Trip Module
DW	Drywell
EB	Electrical Building
EBAS	Emergency Breathing Air System

Term	Definition
EBHV	Electrical Building HVAC
ECCS	Emergency Core Cooling System
E-DCIS	Essential DCIS (Distributed Control and Information System)
EDO	Environmental Qualification Document
EFDS	Equipment and Floor Drainage System
EFPY	Effective full power years
EHC	Electrohydraulic Control (Pressure Regulator)
ENS	Emergency Notification System
EOC	Emergency Operations Center
EOC	End of Cycle
EOF	Emergency Operations Facility
EOP	Emergency Operating Procedures
EPDS	Electric Power Distribution System
EPG	Emergency Procedure Guidelines
EPRI	Electric Power Research Institute
EQ	Environmental Qualification
ERICP	Emergency Rod Insertion Control Panel
ERIP	Emergency Rod Insertion Panel
ESF	Engineered Safety Feature
ETS	Emergency Trip System
FAC	Flow-Accelerated Corrosion
FAPCS	Fuel and Auxiliary Pools Cooling System
FATT	Fracture Appearance Transition Temperature
FB	Fuel Building
FBFPHV	Fuel Building Fuel Pool Area HVAC
FBGAHV	Fuel Building General Area HVAC
FBHV	Fuel Building HVAC
FCI	Fuel-Coolant Interaction
FCM	File Control Module
FCS	Flammability Control System
FCU	Fan Cooling Unit
FDDI	Fiber Distributed Data Interface
FFT	Fast Fourier Transform
FFWTR	Final Feedwater Temperature Reduction
FHA	Fire Hazards Analysis
FIV	Flow-Induced Vibration
FMCRD	Fine Motion Control Rod Drive
FMEA	Failure Modes and Effects Analysis
FPS	Fire Protection System
FO	Diesel Fuel Oil Storage Tank

Term	Definition
FOAKE	First-of-a-Kind Engineering
FPE	Fire Pump Enclosure
FTDC	Fault-Tolerant Digital Controller
FTS	Fuel Transfer System
FW	Feedwater
FWCS	Feedwater Control System
FWS	Fire Water Storage Tank
GCS	Generator Cooling System
GDC	General Design Criteria
GDCS	Gravity-Driven Cooling System
GE	General Electric Company
GE-NE	GE Nuclear Energy
GEN	Main Generator System
GETAB	General Electric Thermal Analysis Basis
GL	Generic Letter
GM	Geiger-Mueller Counter
GM-B	Beta-Sensitive GM Detector
GSIC	Gamma-Sensitive Ion Chamber
GSOS	Generator Sealing Oil System
GWSR	Ganged Withdrawal Sequence Restriction
HAZ	Heat-Affected Zone
HCU	Hydraulic Control Unit
HCW	High Conductivity Waste
HDVS	Heater Drain and Vent System
HEI	Heat Exchange Institute
HELB	High Energy Line Break
HEP	Human error probability
HEPA	High Efficiency Particulate Air/Absolute
HFE	Human Factors Engineering
HFF	Hollow Fiber Filter
HGCS	Hydrogen Gas Cooling System
HIC	High Integrity Container
HID	High Intensity Discharge
HIS	Hydraulic Institute Standards
HM	Hot Machine Shop & Storage
HP	High Pressure
HPNSS	High Pressure Nitrogen Supply System
HPT	High-pressure turbine
HRA	Human Reliability Assessment
HSI	Human-System Interface

Term	Definition
HSSS	Hardware/Software System Specification
HVAC	Heating, Ventilation and Air Conditioning
HVS	High Velocity Separator
HWCS	Hydrogen Water Chemistry System
HWS	Hot Water System
HX	Heat Exchanger
I&C	Instrumentation and Control
I/O	Input/Output
IAS	Instrument Air System
IASCC	Irradiation Assisted Stress Corrosion Cracking
IBC	International Building Code
IC	Ion Chamber
IC	Isolation Condenser
ICD	Interface Control Diagram
ICS	Isolation Condenser System
IE	Inspection and Enforcement
IEB	Inspection and Enforcement Bulletin
IED	Instrument and Electrical Diagram
IEEE	Institute of Electrical and Electronic Engineers
IGSCC	Intergranular Stress Corrosion Cracking
IIS	Iron Injection System
ILRT	Integrated Leak Rate Test
IOP	Integrated Operating Procedure
IMC	Induction Motor Controller
IMCC	Induction Motor Controller Cabinet
IRM	Intermediate Range Monitor
ISA	Instrument Society of America
ISI	In-Service Inspection
ISLT	In-Service Leak Test
ISM	Independent Support Motion
ISMA	Independent Support Motion Response Spectrum Analysis
ISO	International Standards Organization
ITA	Inspections, Tests or Analyses
ITAAC	Inspections, Tests, Analyses and Acceptance Criteria
ITA	Initial Test Program
LAPP	Loss of Alternate Preferred Power
LCO	Limiting Conditions for Operation
LCW	Low Conductivity Waste
LD	Logic Diagram
LDA	Lay down Area

Term	Definition
LD&IS	Leak Detection and Isolation System
LERF	Large early release frequency
LFCV	Low Flow Control Valve
LHGR	Linear Heat Generation Rate
LLRT	Local Leak Rate Test
LMU	Local Multiplexer Unit
LO	Dirty/Clean Lube Oil Storage Tank
LOCA	Loss-of-Coolant-Accident
LOFW	Loss-of-feedwater
LOOP	Loss of Offsite Power
LOPP	Loss of Preferred Power
LP	Low Pressure
LPCI	Low Pressure Coolant Injection
LPCRD	Locking Piston Control Rod Drive
LPMS	Loose Parts Monitoring System
LPRM	Local Power Range Monitor
LPSP	Low Power Setpoint
LWMS	Liquid Waste Management System
MAAP	Modular Accident Analysis Program
MAPLHGR	Maximum Average Planar Linear Head Generation Rate
MAPRAT	Maximum Average Planar Ratio
MBB	Motor Built-In Brake
MCC	Motor Control Center
MCES	Main Condenser Evacuation System
MCPR	Minimum Critical Power Ratio
MCR	Main Control Room
MCRP	Main Control Room Panel
MELB	Moderate Energy Line Break
MLHGR	Maximum Linear Heat Generation Rate
MMI	Man-Machine Interface
MMIS	Man-Machine Interface Systems
MOV	Motor-Operated Valve
MPC	Maximum Permissible Concentration
MPL	Master Parts List
MS	Main Steam
MSIV	Main Steam Isolation Valve
MSL	Main Steamline
MSLB	Main Steamline Break
MSLBA	Main Steamline Break Accident
MSR	Moisture Separator Reheater

Term	Definition
MSV	Mean Square Voltage
MT	Main Transformer
MTTR	Mean Time To Repair
MWS	Makeup Water System
NBR	Nuclear Boiler Rated
NBS	Nuclear Boiler System
NCIG	Nuclear Construction Issues Group
NDE	Nondestructive Examination
NE-DCIS	Non-Essential Distributed Control and Information System
NDRC	National Defense Research Committee
NDT	Nil Ductility Temperature
NFPA	National Fire Protection Association
NIST	National Institute of Standard Technology
NMS	Neutron Monitoring System
NOV	Nitrogen Operated Valve
NPHS	Normal Power Heat Sink
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
NRHX	Non-Regenerative Heat Exchanger
NS	Non-seismic
NSSS	Nuclear Steam Supply System
NT	Nitrogen Storage Tank
NTSP	Nominal Trip Setpoint
O&M	Operation and Maintenance
O-RAP	Operational Reliability Assurance Program
OBCV	Overboard Control Valve
OBE	Operating Basis Earthquake
OGS	Offgas System
OHLHS	Overhead Heavy Load Handling System
OIS	Oxygen Injection System
OLMCPR	Operating Limit Minimum Critical Power Ratio
OLU	Output Logic Unit
OOS	Out-of-service
ORNL	Oak Ridge National Laboratory
OSC	Operational Support Center
OSHA	Occupational Safety and Health Administration
OSI	Open Systems Interconnect
P&ID	Piping and Instrumentation Diagram
PA/PL	Page/Party-Line
PABX	Private Automatic Branch (Telephone) Exchange

Term	Definition
PAM	Post Accident Monitoring
PAR	Passive Autocatalytic Recombiner
PAS	Plant Automation System
PASS	Post Accident Sampling Subsystem of Containment Monitoring System
PCC	Passive Containment Cooling
PCCS	Passive Containment Cooling System
PCT	Peak cladding temperature
PCV	Primary Containment Vessel
PFD	Process Flow Diagram
PGA	Peak Ground Acceleration
PGCS	Power Generation and Control Subsystem of Plant Automation System
PH	Pump House
PL	Parking Lot
PM	Preventive Maintenance
PMCS	Performance Monitoring and Control Subsystem of NE-DCIS
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
PQCL	Product Quality Check List
PRA	Probabilistic Risk Assessment
PRMS	Process Radiation Monitoring System
PRNM	Power Range Neutron Monitoring
PS	Plant Stack
PSD	Power Spectra Density
PSS	Process Sampling System
PSWS	Plant Service Water System
PT	Pressure Transmitter
PWR	Pressurized Water Reactor
QA	Quality Assurance
RACS	Rod Action Control Subsystem
RAM	Reliability, Availability and Maintainability
RAPI	Rod Action and Position Information
RAT	Reserve Auxiliary Transformer
RB	Reactor Building
RBC	Rod Brake Controller
RBCC	Rod Brake Controller Cabinet
RBCWS	Reactor Building Chilled Water Subsystem
RBHV	Reactor Building HVAC
RBS	Rod Block Setpoint
RBV	Reactor Building Vibration
RC&IS	Rod Control and Information System

Term	Definition
RCC	Remote Communication Cabinet
RCCV	Reinforced Concrete Containment Vessel
RCCWS	Reactor Component Cooling Water System
RCPB	Reactor Coolant Pressure Boundary
RCS	Reactor Coolant System
RDA	Rod Drop Accident
RDC	Resolver-to-Digital Converter
REPAVS	Refueling and Pool Area Ventilation Subsystem of Fuel Building HVAC
RFP	Reactor Feed Pump
RG	Regulatory Guide
RHR	residual heat removal (function)
RHX	Regenerative Heat Exchanger
RMS	Root Mean Square
RMS	Radiation Monitoring Subsystem
RMU	Remote Multiplexer Unit
RO	Reverse Osmosis
ROM	Read-only Memory
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
RRPS	Reference Rod Pull Sequence
RSM	Rod Server Module
RSPC	Rod Server Processing Channel
RSS	Remote Shutdown System
RSSM	Reed Switch Sensor Module
RSW	Reactor Shield Wall
RTIF	Reactor Trip and Isolation Function(s)
RT_{NDT}	Reference Temperature of Nil-Ductility Transition
RTP	Reactor Thermal Power
RW	Radwaste Building
RWCU/SDC	Reactor Water Cleanup/Shutdown Cooling
RWE	Rod Withdrawal Error
RWM	Rod Worth Minimizer
SA	Severe Accident
SAR	Safety Analysis Report
SB	Service Building
S/C	Digital Gamma-Sensitive GM Detector
SC	Suppression Chamber
S/D	Scintillation Detector
S/DRSRO	Single/Dual Rod Sequence Restriction Override
S/N	Signal-to-Noise

Term	Definition
S/P	Suppression Pool
SAS	Service Air System
SB&PC	Steam Bypass and Pressure Control System
SBO	Station Blackout
SBWR	Simplified Boiling Water Reactor
SCEW	System Component Evaluation Work
SCRRI	Selected Control Rod Run-in
SDC	Shutdown Cooling
SDM	Shutdown Margin
SDS	System Design Specification
SEOA	Sealed Emergency Operating Area
SER	Safety Evaluation Report
SF	Service Water Building
SFP	Spent fuel pool
SIL	Service Information Letter
SIT	Structural Integrity Test
SIU	Signal Interface Unit
SJAE	Steam Jet Air Ejector
SLC	Standby Liquid Control
SLCS	Standby Liquid Control System
SLMCPR	Safety Limit Minimum Critical Power Ratio
SMU	SSLC Multiplexing Unit
SOV	Solenoid Operated Valve
SP	Setpoint
SPC	Suppression Pool Cooling
SPDS	Safety Parameter Display System
SPTMS	Suppression Pool Temperature Monitoring Subsystem of Containment Monitoring System
SR	Surveillance Requirement
SRM	Source Range Monitor
SRNM	Startup Range Neutron Monitor
SRO	Senior Reactor Operator
SRP	Standard Review Plan
SRS	Software Requirements Specification
SRSRO	Single Rod Sequence Restriction Override
SRSS	Sum of the squares
SRV	Safety Relief Valve
SRVDL	Safety relief valve discharge line
SSAR	Standard Safety Analysis Report
SSC(s)	Structure, System and Component(s)
SSE	Safe Shutdown Earthquake

Term	Definition
SSLC	Safety System Logic and Control
SSPC	Steel Structures Painting Council
ST	Spare Transformer
STP	Sewage Treatment Plant
STRAP	Scram Time Recording and Analysis Panel
STRP	Scram Time Recording Panel
SV	Safety Valve
SWH	Static water head
SWMS	Solid Waste Management System
SY	Switch Yard
TAF	Top of Active Fuel
TASS	Turbine Auxiliary Steam System
TB	Turbine Building
TBCE	Turbine Building Compartment Exhaust
TBE	Turbine Building Exhaust
TBLOE	Turbine Building Lube Oil Area Exhaust
TBS	Turbine Bypass System
TBHV	Turbine Building HVAC
TBV	Turbine Bypass Valve
TC	Training Center
TCCWS	Turbine Component Cooling Water System
TCS	Turbine Control System
TCV	Turbine Control Valve
TDH	Total Developed Head
TEMA	Tubular Exchanger Manufacturers' Association
TFSP	Turbine first stage pressure
TG	Turbine Generator
TGSS	Turbine Gland Seal System
THA	Time-history accelerograph
TLOS	Turbine Lubricating Oil System
TLU	Trip Logic Unit
TMI	Three Mile Island
TMSS	Turbine Main Steam System
TRM	Technical Requirements Manual
TS	Technical Specification(s)
TSC	Technical Support Center
TSI	Turbine Supervisory Instrument
TSV	Turbine Stop Valve
UBC	Uniform Building Code
UHS	ultimate heat sink

Term	Definition
UL	Underwriter's Laboratories Inc.
UPS	Uninterruptible Power Supply
URD	Utility Requirements Document, Volume III, for Advanced Light Water Reactor Passive Plant
USE	Upper Shelf Energy
USM	Uniform Support Motion
USMA	Uniform support motion response spectrum analysis
USNRC	United States Nuclear Regulatory Commission
USS	United States Standard
UV	Ultraviolet
V&V	Verification and Validation
Vac / VAC	Volts Alternating Current
Vdc / VDC	Volts Direct Current
VDU	Video Display Unit
VW	Vent Wall
VWO	Valves Wide Open
WD	Wash Down Bays
WH	Warehouse
WS	Water Storage
WT	Water Treatment
WW	Wetwell
XMFR	Transformer
ZPA	Zero period acceleration

2. SITE CHARACTERISTICS

2.0 INTRODUCTION

This chapter defines the envelope of site-related parameters that the ESBWR Reference Plant is designed to accommodate. These parameters envelope most potential sites in the U.S. A summary of the site envelope design parameters is given in Table 2.0-1. The design of the Radwaste Building uses a set of design parameters that are specified in Regulatory Guide 1.143, Table 2, Class RW-IIa instead of the corresponding values given in Table 2.0-1.

The particular site characteristics information will be provided in the Combined License (COL) applicant's safety analysis report (SAR) in accordance with 10 CFR 52.79. Table 2.0-2 references the guidance in NUREG-0800 Standard Review Plan (SRP) and defines the limits imposed on the SRP Section II acceptance criteria by (1) the envelope of site-related parameters that the ESBWR plant is designed to accommodate, and (2) the assumptions, both implicit and explicit, related to site characteristics employed in the evaluation of the ESBWR design.

The acceptance criteria for ITAAC are based on meeting 10 CFR 52.97(b)(1), which sets forth the comprehensive requirements for ITAAC. For design certification reviews, the scope of ITAAC is limited to the scope of the certified design as required by 10 CFR 52.47(b). The requirements for site parameters for the standard design are contained in 10 CFR 52.47(a)(1)(iii). The design certification applicant must provide postulated site parameters for the design, and an analysis and evaluation of the design in terms of such parameters. The following are addressed to demonstrate that the standard design meets the above criteria.

The site parameters used in the ESBWR Standard Plant design are specified in both Tier 1 and DCD Tier 2 Chapter 2. The site parameters specified in Tier 1 are the top-level bounding site parameters used in the selection of a suitable site for a facility referencing the certified design. Because they were used in bounding evaluations of the certified design, they define the requirements for the design that must be met by a site. This ensures that a facility built on the site remains in conformance with the design certification. Appropriate values for site parameters have been selected that make the design suitable for many sites. The site parameters specified in the DCD Tier 2 Chapter 2 are consistent with those in Tier 1.

The analyses and evaluations of the design, considering the site parameters of Table 2.0-1, are contained in the various sections of the DCD Tier 2. For example, the safe shutdown earthquake parameter is discussed in structural and piping analyses in Chapter 3, atmospheric dispersion parameters are discussed in radiological analyses in Chapter 15, and elevation parameters are discussed in the flooding analyses in Chapter 15. Supporting information for the ITAAC utilizes these site parameters, as discussed in SRP Sections 14.3.2 and 14.3.3.

Site parameters are specified for the following parameters:

- Maximum ground water level
- Maximum flood level
- Precipitation (rain and snowfall)
- Ambient Design Temperature
- Extreme Wind

- Tornado (maximum speed, pressure drop, missile spectra)
- Soil Properties (minimum bearing capacity, minimum shear wave velocity, liquefaction potential)
- Seismology (SSE response spectra, using figures)
- Meteorological Dispersion (Values at Exclusion Area Boundary [EAB] and Low Population Zone [LPZ] at appropriate time intervals for short and long term)

The site parameters include a requirement that liquefaction not occur underneath structures, systems, and components resulting from the site-specific SSE. In addition, although the design for the sites takes into consideration the 0.3g Regulatory Guide 1.60 spectra, the evaluation of the sites for liquefaction potential uses the site-specific SSE with acceptance criteria demonstrating adequate margin for no liquefaction.

The design basis for missiles is specified in the DCD Tier 2 Section 3.5, such that external missiles are adequately addressed in the design for buildings and structures, and verified by appropriate ITAAC.

2.0.1 Conformance of Site Characteristics with Site Parameters

2.0.1.1 COL Application Not Referencing an Early Site Permit

An applicant must demonstrate that the site parameters specified in Table 2.0-1 are met at a given site as part of an application under Subpart C of 10 CFR Part 52. If the COL application does not demonstrate that the site characteristics fall within these site parameters, the application shall include a request for an exemption or departure, as appropriate, that complies with the requirements of the change process in the rule certifying the design and 10 CFR Part 52.

2.0.1.2 COL Application Referencing an Early Site Permit

Except for Table 2.0-1, which provides the envelope of site-related parameters for which the ESBWR Standard Plant is designed, the COL Information in this chapter shall not apply to a COL application that references an Early Site Permit (ESP). With respect to a COL application referencing an ESP, site characteristic information is provided by the ESP Safety Analysis Report (SAR). A COL applicant referencing an ESP will demonstrate that the site characteristics in the ESP SAR fall within the ESBWR Reference Plant Site Design Parameters in Table 2.0-1. Should site characteristics established by the ESP SAR fall outside the envelope described in Table 2.0-1, the COL Applicant will demonstrate that the design satisfies the requirements imposed by the specific site characteristics and conforms to the design commitments and acceptance criteria described in the ESBWR Design Control Document.

2.0.2 COL Information

The COL applicant shall include a commitment in the site-specific portion of the SAR for a facility to: (1) notify the staff immediately if previously unknown geologic features, such as faults, liquefiable soils, etc, are encountered during excavations at the site; (2) geologically map all excavations for Seismic Category I and II structures, as a minimum; and (3) notify the staff when the excavations are open for examination and evaluation.

Table 2.0-1

Envelope of ESBWR Standard Plant Site Design Parameters

Maximum Ground Water Level:	0.61 m (2 ft) below plant grade
Extreme Wind:	**Seismic Category I and II Structures** - Basic Wind Speed (3-sec gust): (1) 62.6 m/s (140 mph) - Importance Factor: 1.15 - Exposure Category: D **Non-Seismic Structures** - Details to be determined by COL applicant
Maximum Flood (or Tsunami) Level: (2)	0.3 m (1 ft) below plant grade
Tornado:	- Maximum Tornado Wind Speed: (3) 147.5 m/s (330 mph) - Maximum Rotational Speed: 116.2 m/s (260 mph) - Translational Velocity: 31.3 m/s (70 mph) - Radius: 45.7 m (150 ft) - Maximum Pressure Differential: 16.6 kPa (2.4 psi) - Rate of Pressure Change: 11.7 kPa/s (1.7 psi/s) - Missile Spectra: Spectra I of SRP 3.5.1.4, Rev 2
Precipitation (for Roof Design):	- Maximum Rainfall Rate: (4) 49.3 cm/hr (19.4 in/hr) - Maximum Short Term Rate: 15.7 cm (6.2 in) in 5 minutes - Maximum Snow Load: (5) 2873 Pa (60 lbf/ft^2)
Ambient Design Temperature: (6)	**2% Exceedance Values** - Maximum: 35.6°C (96°F) dry bulb 26.1°C (79°F) wet bulb (coincident) 27.2°C (81°F) wet bulb (non-coincident) - Minimum: -23.3°C (-10°F) **1% Exceedance Values** - Maximum: 37.8°C (100°F) dry bulb 26.1°C (79°F) wet bulb (coincident) 27.8°C (82°F) wet bulb (non-coincident) - Minimum: -23.3°C (-10°F) **0% Exceedance Values (Historic limit)** - Maximum: 46.1°C (115°F) dry bulb 26.7°C (80°F) wet bulb (coincident) 29.4°C (85°F) wet bulb (non-coincident) - Minimum: -40°C (-40°F)
Soil Properties:	- Minimum Static Bearing Capacity: (7) ≥ 718 kPa (15000 lbf/ft^2) - Minimum Shear Wave Velocity: (8) 300 m/s (1000 ft/s) - Liquefaction Potential: None under footprint of Seismic Category I and II structures. COL applicant to specify for for other structures.
Seismology:	- SSE Horizontal Ground Response Spectra: (9) See Figure 2.0-1 - SSE Vertical Ground Response Spectra: (9) See Figure 2.0-2

Table 2.0-1

Envelope of ESBWR Standard Plant Site Design Parameters (continued)

Hazards in Site Vicinity:	- Site Proximity Missiles and Aircraft:	$\leq 10^{-7}$ per year
	- Toxic Gases:	None
	- Volcanic Activity:	None
Stability of Slopes	- Factor of safety for static (non-seismic) loading	1.5
	- Factor of safety for dynamic (seismic) loading	1.1
Exclusion Area Boundary (EAB):	- An area whose boundary has a Chi/Q less than or equal to 1.0×10^{-3} s/m^3	
Meteorological Dispersion (Chi/Q):	- Maximum 2-hour 95% EAB:	
	- Maximum 2-hour 95% LPZ:	
	- Maximum Annual Average (8760 hour) LPZ:	

Notes for Table 2.0-1:

(1) This speed is approximately in the middle of wind speeds seen in a Category 4 hurricane and has a recurrence interval of greater than 100-years.

(2) Probable maximum flood level (PMF), as defined in Table 1.2-6 of Volume III of the Utility Requirements Document (URD).

(3) Maximum speed selected is based on NRC Interim Position on Regulatory Guide 1.76.

(4) Based on probable maximum precipitation (PMP) for one hour over 2.6 km^2 (one square mile) with a ratio of 5 minutes to one hour PMP of 0.32 as found in National Weather Source Publication HMR No. 52. Roof scuppers are designed to handle the PMP. When used in combination with snow pack, the roof and drainage design is for 2873 Pa (60 lbf/ft^2) extreme load.

(5) As defined in Table 1.2-6 of Volume III of the URD. This loading includes normal load combination using guidance from ASCE 7-02 at ground level. Similarly for extreme load combination. For roof design, no reduction used from ground level loading.

(6) Zero percent exceedance values are based on historical high and low values. One and two percent exceedance values were selected in order to bound the values presented in the URD and available Early Site Permit applications.

(7) At foundation level of Seismic Category I and II structures. See Table 3G.1-58 for dynamic pressures.

(8) This is the minimum shear wave velocity at low strains after the soil property uncertainties have been applied. See Subsection 3.7.5.1 for further details.

(9) Safe Shutdown Earthquake (SSE) design ground response spectra are defined as free-field outcrop spectra at the foundation level (bottom of the base slab).

Table 2.0-2

Limits Imposed on SRP Section II Acceptance Criteria by ESBWR Design

Subsection	Subject	ESBWR DCD Parameters, Considerations and/or Limits	COL Information for COL Applications not Referencing an Early Site Permit
2.1.1	Site Location and Description	None.	COL applicant to supply site-specific information in accordance with SRP 2.1.1.
2.1.2	Exclusion Area Authority and Control	Per Table 2.0-1	COL applicant to supply site-specific information in accordance with SRP 2.1.2.
2.1.3	Population Distribution	None.	COL applicant to describe the population distribution in accordance with SRP 2.1.3.
2.2.1 – 2.2.2	Identification of Potential Hazards in Site Vicinity	No assumptions made regarding site-specific potential hazards.	COL applicant to identify and evaluate potential hazards in the site vicinity, in accordance with SRP 2.2.1 – 2.2.2. Potential hazards include manufacturing plants, chemical plants, refineries, storage facilities, mining and quarrying operations, military bases, missile sites, transportation routes (air, land and water), transportation facilities (docks, anchorages, airports), oil and gas pipelines, drilling operations and wells, and underground gas storage facilities.

Table 2.0-2

Limits Imposed on SRP Section II Acceptance Criteria by ESBWR Design

Subsection	Subject	ESBWR DCD Parameters, Considerations and/or Limits	COL Information for COL Applications not Referencing an Early Site Permit
2.2.3	Evaluation of Potential Accidents	None considered in vicinity of plant.	COL applicant to identify and evaluate potential accidents emanating from those potential hazards identified in SRP 2.2.1 – 2.2.2, above that have a probability of occurrence > 10^{-7} per year which involve: (1) missiles more energetic than the tornado missile spectra, or (2) pressure effects in excess of the design basis tornado, or (3) explosions, or (4) fires, or (5) aircraft impacts, or (6) release of flammable vapor clouds, or (7) release of toxic chemicals.
2.3.1	Regional Climatology	Per Table 2.0-1.	COL applicant to determine basic speed of extreme wind for use in design of nonsafety-related structures. COL applicant to confirm or reanalyze in accordance with SRP 2.3.1.
2.3.2	Local Meteorology	None.	COL applicant to supply site-specific information in accordance with SRP 2.3.2.
2.3.3	Onsite Meteorological Measurement Programs	None..	COL applicant to supply site-specific information in accordance with the SRP 2.3.3.

Table 2.0-2

Limits Imposed on SRP Section II Acceptance Criteria by ESBWR Design

Subsection	Subject	ESBWR DCD Parameters, Considerations and/or Limits	COL Information for COL Applications not Referencing an Early Site Permit
2.3.4	Short-Term Diffusion Estimates for Accidental Atmospheric Releases	See Chapter 15	COL applicant to supply site-specific information in accordance with the SRP 2.3.4 to show that the site meteorological dispersion values as calculated in accordance with Regulatory Guide 1.145, and compared to dose values given in Chapter 15, result in doses less than stipulated in 10 CFR 50.34(a) and the applicable portions of SRP Sections 11 and 15.
2.3.5	Long-Term Diffusion Estimates	See Chapter 12.	COL applicant to supply site-specific information in accordance with the SRP 2.3.5.
2.4.1	Hydraulic Description Maximum Ground Water Level	Per Table 2.0-1.	COL applicant to supply site-specific information in accordance with SRP 2.4.1.
2.4.2	Floods	Per Table 2.0-1.	COL applicant to supply site-specific information in accordance with SRP 2.4.2.
2.4.3	Probable Maximum Flood on Streams and Rivers	None.	COL applicant to supply site-specific information in accordance with SRP 2.4.3.

Table 2.0-2

Limits Imposed on SRP Section II Acceptance Criteria by ESBWR Design

Subsection	Subject	ESBWR DCD Parameters, Considerations and/or Limits	COL Information for COL Applications not Referencing an Early Site Permit
2.4.4	Potential Dam Failures Seismically Induced	Potential seismically induced dam failures do not cause flooding to exceed the maximum flood level defined in Table 2.0-1.	COL applicant to supply site-specific information in accordance with SRP 2.4.4. COL applicant to demonstrate that failure of existing and potential upstream or downstream water control structures will not cause flooding to exceed 0.3 m (1 ft) below plant grade.
2.4.5	Probable Maximum Surge and Seiche Flooding	Probable maximum surge and seiche flooding level does not exceed the maximum flood level defined in Table 2.0-1.	COL applicant to supply site-specific information in accordance with SRP 2.4.5.
2.4.6	Probable Maximum Tsunami Flooding	Probable maximum tsunami flooding level does not exceed the maximum flood level defined in Table 2.0-1.	COL applicant to supply site-specific information in accordance with SRP 2.4.6.
2.4.7	Ice Effects	None.	COL applicant to supply site-specific information in accordance with SRP 2.4.7.
2.4.8	Cooling Water Canals and Reservoirs	None.	COL applicant to supply site-specific information in accordance with SRP 2.4.8.
2.4.9	Channel Diversion	None.	COL applicant to supply site-specific information in accordance with SRP 2.4.9.
2.4.10	Flooding Protection Requirements	None.	COL applicant to supply site-specific information in accordance with SRP 2.4.10.

Table 2.0-2

Limits Imposed on SRP Section II Acceptance Criteria by ESBWR Design

Subsection	Subject	ESBWR DCD Parameters, Considerations and/or Limits	COL Information for COL Applications not Referencing an Early Site Permit
2.4.11	Cooling Water Supply	None.	COL applicant to supply site-specific information in accordance with SRP 2.4.11.
2.4.12	Groundwater	Per Table 2.0-1.	COL applicant to supply site-specific information in accordance with SRP 2.4.12.
2.4.13	Accidental Releases of Liquid Effluents in Ground and Surface Waters	None. DCD Tier-2 Subsection 15.3.16, "Liquid Containing Tank Failure," demonstrates that the ESBWR design precludes accidental releases of radioactive liquid effluent.	None. SRP 2.4.13 is not applicable to a site with an ESBWR.
2.4.14	Technical Specifications and Emergency Operation Requirement	None.	COL applicant to provide site-specific information in accordance with SRP 2.4.14.
2.5.1	Basic Geologic and Seismic Information	None.	COL applicant to provide site-specific information in accordance with SRP 2.5.1.
2.5.2	Vibratory Ground Motion:	Per Table 2.0-1.	COL applicant to provide site-specific information in accordance with SRP 2.5.2.
2.5.3	Surface Faulting	ESBWR design assumes no faulting at or near the ground surface.	COL applicant to provide site-specific information in accordance with SRP 2.5.3.

Table 2.0-2

Limits Imposed on SRP Section II Acceptance Criteria by ESBWR Design

Subsection	Subject	ESBWR DCD Parameters, Considerations and/or Limits	COL Information for COL Applications not Referencing an Early Site Permit
2.5.4	Stability of Subsurface Materials and Foundations	Per Table 2.0-1.	COL applicant to provide site-specific information in accordance with SRP 2.5.4.
2.5.5	Stability of Slopes	Per Table 2.0-1.	COL applicant to provide site-specific information in accordance with SRP 2.5.5.

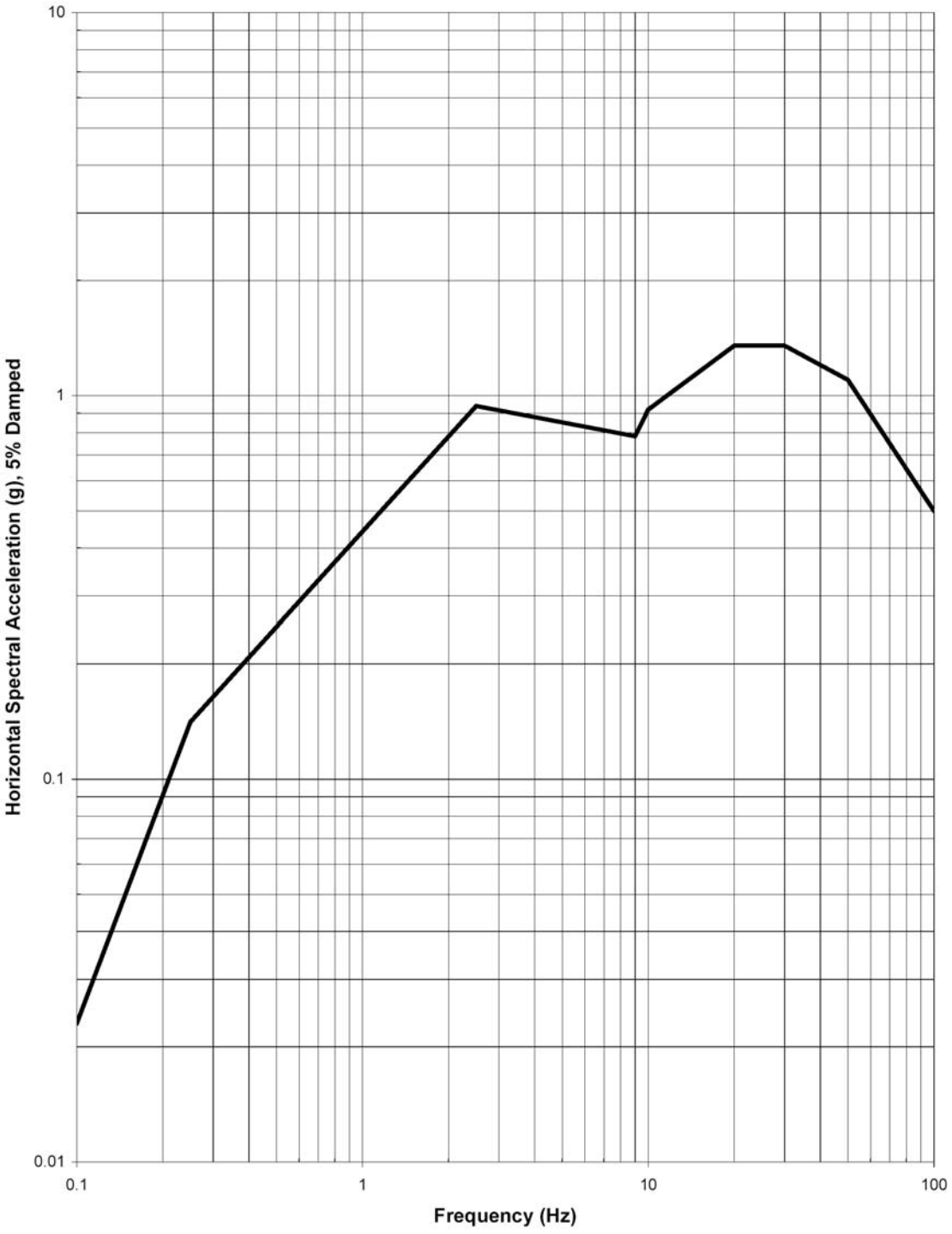


Figure 2.0-1. ESBWR Horizontal SSE Design Ground Spectra at Foundation Level

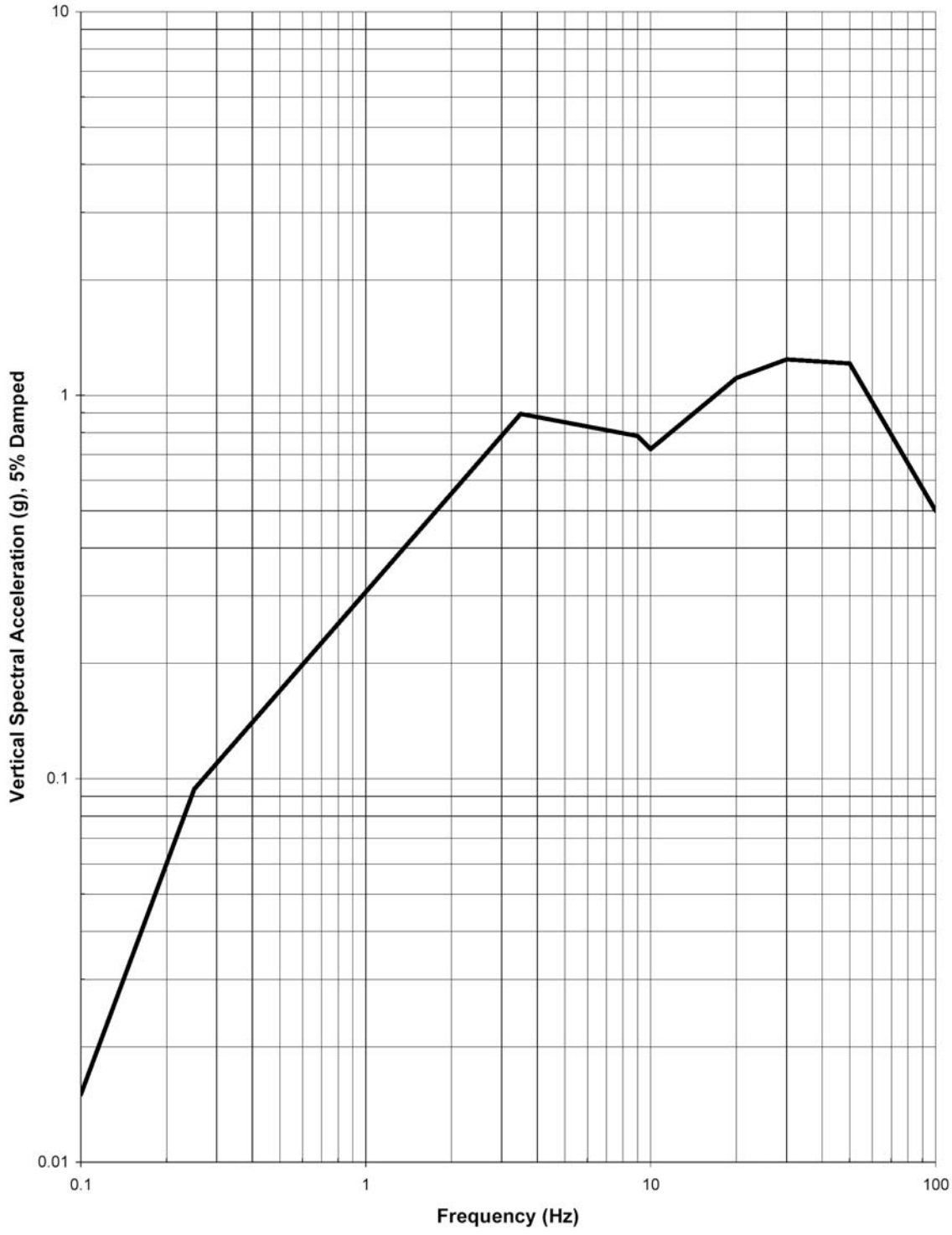


Figure 2.0-2. ESBWR Vertical SSE Design Ground Response Spectra at Foundation Level

DCD

CHAPTER 2 — SITE CHARACTERISTICS

2.0 INTRODUCTION

The information in this subsection of the referenced DCD is incorporated by reference.

2.0.1 Conformance of Site Characteristics with Site Parameters

2.0.1.1 COL Application Not Referencing an Early Site Permit

The information in this subsection of the referenced DCD is incorporated by reference.

2.0.1.2 COL Application Referencing an Early Site Permit

The information in this subsection of the referenced DCD is incorporated by reference with the following supplement.

NAPS COL 2.0.1.2

Table 2.0-3 provides a comparison of the ESBWR DCD site parameters to the North Anna Unit 3 site characteristics. Table 2.0-4 demonstrates that the design of the North Anna Unit 3 facility falls within the site characteristics and design parameters specified in the Early Site Permit.

[New Table 2.0-3 will expand Table 2.0-1 to show that the site characteristics fall within the ESBWR DCD site parameters. New Table 2.0-4 addresses other site characteristics and design parameters from the Early Site Permit not addressed in Table 2.0-3 and any exemptions or variances, if needed.]

DCD

2.0.2 COL Information

[Later]

NAPS ESP

2.1 GEOGRAPHY AND DEMOGRAPHY

2.1.1 Site and Location Description

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplements.

NAPS ESP COL 2.1-1

The latitude, longitude, and Universal Transverse Mercator (UTM) coordinates of the North Anna Unit 3 reactor building centerline are as follows:

Geographic Coordinates	**[Later]** Latitude	**[Later]** Longitude
State Plane Coordinates Virginia NAD83 - 4502-VA South (US feet)	**[Later]** Northing/Y	**[Later]** Easting/X
UTM Coordinates NAD83 - Zone 17 - 84W to 78W (meters)	**[Later]** Northing/Y	**[Later]** Easting/X

NAPS ESP

2.1.2 Exclusion Area Authority and Control

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplements.

NAPS ESP PC 1

[New information will be provided to address approvals called for by State law including agreements providing for shared control of the North Anna Unit 3 exclusion area.]

NAPS SUP

[Information provided in the ESP SSAR will be revised, as required, if there are any known significant changes identified within the North Anna Unit 3 exclusion area consistent with DG-1145, C.III.2, Subsection 2.1.2.]

NAPS ESP COL 2.1-2

Should an event necessitate implementing boating and water use restrictions on Lake Anna, the restrictions **[are implemented]** under the direction and authority of the Virginia Department of Game and Inland Fisheries (VDGIF), and the Sheriffs' Departments of Louisa, Spotsylvania, and Orange Counties. Arrangements for control over the WHTF and portions of Lake Anna within the exclusion area **[have been made]** with local agencies and **[have been documented]** in the North Anna Unit 3 Emergency Plan. In parallel, Dominion implements the appropriate portions of the Emergency Plan in support of those state and local actions.

NAPS ESP PC 2

[New information will be provided to address the commercial agreements and regulatory approvals giving Dominion the right to implement the Site Redress Plan for Limited Work Authorization-1 activities.]

NAPS ESP

2.1.3 Population Distribution

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

2.2 NEARBY INDUSTRIAL, TRANSPORTATION, AND MILITARY FACILITIES

2.2.1–2.2.2 Identification of Potential Hazards in Site Vicinity

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS ESP COL 2.2-1

[New information will be provided pertaining to any industrial hazards in the vicinity, not previously identified in the ESP SSAR, due to new construction or zoning which has occurred within 5 miles of NAPS.]

NAPS ESP

2.2.3 Evaluation of Potential Hazards

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS ESP COL 2.2-1

[New information will be added to provide an evaluation of any new potential hazards identified per NAPS ESP COL 2.2-1 above, if required.]

NAPS ESP COL 2.2-2

The locations and quantities of onsite hazardous chemical sources, which could impact control room habitability for Unit 3, are listed in Table 2.2-3. In a postulated accident, the entire contents of the largest single storage container of each toxic or flammable chemical is assumed to be released, resulting in a toxic vapor cloud and/or plume which is conservatively assumed to be transported by the wind directly toward the MCR and TSC air intakes. MCR and TSC habitability due to an accidental release of chemicals listed in Table 2.2-3 is discussed in Section 6.4.

Table 2.2-3 Hazardous Chemical Information

[Insert separate page with Table including Name, Quantity, and Location of hazardous chemicals stored at the NAPS site.]

NAPS ESP

2.3 METEOROLOGY

2.3.1 Regional Climatology

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

2.3.2 Local Meteorology

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplements.

NAPS ESP COL 2.3-1

[New information will be added to address potential impact on the design and operation of Unit 3 due to any cooling-tower-induced local increase in 1) ambient air temperature, 2) ambient air moisture content, or 3) moisture and salt deposition.]

NAPS ESP

2.3.3 Onsite Meteorological Measurements Program

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

2.3.4 Short-Term Diffusion Estimates for Accidental Atmospheric Releases

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplements.

NAPS ESP COL 2.3-2

2.3.4.3 Relative Concentration Estimates at the Control Room Intake

Control room atmospheric dispersion factors (χ/Q values) that are not exceeded more than 5 percent of the time **[have been calculated]** for all potential accident release points for use in control room radiological habitability analyses. **[Table ___]** presents the χ/Q estimates which conform to the methods described in Regulatory Guide 1.194. A site plan showing true North; locations of all potential accident release pathways; and control room intake and unfiltered

in-leakage pathways are provided in **[Figure ___]**. Control Room dispersion estimates are based on the meteorological data used for the ESP SSAR.

NAPS ESP

2.3.4.4 Relative Concentration Estimates at the Technical Support Center Intake

Technical Support Center atmospheric dispersion factors (χ/Q values) that are not exceeded more than 5 percent of the time **[have been calculated]** for all potential accident release points for use in Technical Support Center radiological habitability analyses. **[Table ___]** presents the χ/Q estimates which conform to the methods described in Regulatory Guide 1.194. A site plan showing true North; locations of all potential accident release pathways; and Technical Support Center intake and unfiltered in-leakage pathways are provided in **[Figure ___]**. Technical Support Center dispersion estimates are based on the meteorological data used for the ESP SSAR.

2.3.5 Long-Term Diffusion Estimates

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS ESP COL 2.3-3

The North Anna Unit 3 release point characteristics (i.e., release height and location for an ESBWR as oriented at North Anna Unit 3) are inside the perimeter and higher than the release points assumed for the North Anna ESP SSAR. Since the locations of the receptors of interest are not changed from those used in the ESP SSAR, atmospheric dispersion is verified as conservatively calculated in the ESP SSAR.

NAPS ESP

2.4 HYDROLOGIC ENGINEERING

2.4.1 Hydrologic Description

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS ESP COL 2.4-1

[Include a commitment to provide the layout showing North Anna Unit 3 use of the existing intake or discharge tunnels from the abandoned units and the construction techniques to be used before start of construction activities.]

NAPS ESP

2.4.2 Floods

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplements.

NAPS ESP COL 2.4-4
NAPS ESP COL 2.4-5

[New information will be added to discuss the local Probable Maximum Precipitation (PMP) flooding analysis to be performed to demonstrate that all safety-related components and structures are above the local PMP flood levels, even with all active drainage systems blocked. Figure(s) will also be

added to depict the site topography with the plant arrangement and drainage features in sufficient detail to show drainage paths and the local site drainage boundaries. Table(s) will also be added to show that all elevations of safety-related components and structures are above the respective PMP flood levels at the component or structure location.]

NAPS ESP

2.4.3 Probable Maximum Flood on Streams and Rivers

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

2.4.4 Potential Dam Failures

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS ESP COL 2.4-6 NAPS ESP COL 2.4-7

[In the event of an accident, the UHS is the atmosphere with the Isolation Condenser/Passive Containment Cooling System (IC/PCCS) pools and Spent Fuel Pool providing the heat transfer mechanism. New information will be added to demonstrate that water sources, including tanks or reservoirs used to provide backup water to the IC/PCCS pools and spent fuel pool, satisfy NRC regulations for emergency cooling water needs and account for any and all losses including but not limited to seepage, evaporation, and icing. Include cross-reference to programmatic provisions for plant shutdown when the liquid water volume in storage is inadequate.]

NAPS ESP

2.4.5 Probable Maximum Surge and Seiche Flooding

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

2.4.6 Probable Maximum Tsunami Flooding

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

2.4.7 Ice Effects

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

TBD

[New information will be provided to discuss how the potential for anchor ice formation and surface ice are addressed in the design of the Unit 3 intake structure for supply of water from Lake Anna.]

NAPS ESP

2.4.8 Cooling Water Canals and Reservoirs

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS ESP COL 2.4-8

[New information will be provided to address whether Lake Anna will be used for safety-related water withdrawals.]

NAPS ESP

2.4.9 Channel Diversions

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

2.4.10 Flooding Protection Requirements

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS ESP COL 2.4-9

[Provide new information to address slope embankment protection for the intake structure; design of drainage for the Unit 3 site; and if flooding protection requirements are needed for SSCs that are important to safety but that are not part of the ESBWR certified design.]

NAPS ESP

2.4.11 Cooling Water Supply

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplements.

NAPS ESP COL 2.4-2
NAPS ESP COL 2.4-10

Lake Anna, which was formed by the construction of the North Anna Dam on the North Anna River, provides cooling water for Units 1 and 2. Lake Anna also provides make-up water for the cooling towers for Unit 3. Lake Anna is maintained at an operating water level of 250 ft msl. Units 1 and 2 can continue to operate with lake water levels as low as Elevation 242.0 ft msl before shutdown of the units must occur in accordance with the Units 1 and 2 Technical Requirements Manual (TRM) **[Reference XX]**.

A minimum plant operating lake level of Elevation 242.0 ft msl has also been established for North Anna Unit 3, based on calculated water levels and the cooling system selected. The Unit 3 intake structure design is based on this elevation, with sufficient margin to ensure plant operation during low water events. When the lake water level falls below this elevation, a plant shutdown protocol in the Unit 3 **[Technical Requirements Manual, Reference XX]** is initiated.

NAPS ESP

2.4.12 Groundwater

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

[Coordinate with Subsection 2.5.4 for groundwater information related to ESP COL Item 2.5-4 and addressing guidance in DG-1145, C.III.2, Subsection 2.5.4.]

NAPS SUP

2.4.13 Accidental Releases of Liquid Effluents in Ground and Surface Waters

NAPS ESP PC 4

[New information will be added to address how the ESBWR design complies with ESP Permit Condition 4 since the ESBWR radwaste system design precludes any and all accidental releases of radioactive liquid effluents into any potential liquid pathway.

See ESBWR DCD Subsection 15.3.16, "Liquid Containing Tank Failure."]

NAPS SUP

2.4.14 Technical Specification and Emergency Operation Requirements

2.4.14.1 External Flood Protection Requirements

NAPS ESP COL 2.4-5

Safety-related SSCs for North Anna Unit 3 are protected from external floods as discussed in Section 3.4. The elevation of exterior access openings, which **[are above]** the Lake Anna PMF and local PMP flood levels; and the design of exterior penetrations below design flood and groundwater levels, which are appropriately sealed, result in a design and site combination that do not necessitate Technical Specifications or emergency procedures to ensure safety-related functions at Unit 3. **[Confirm information based on FSAR Subsections 2.4.2 and 3.4.1.]**

NAPS SUP

2.4.14.2 Adequate Water Supply Requirements

The Unit 3 Technical Specifications include requirements for ensuring an adequate water supply from the passive decay heat removal system for the first 72-hours following an accident. The requirements in the Unit 3 Technical Specifications include provisions for plant shutdown to less than Mode 5 when the liquid water volume in the pools is inadequate for longer than allowed.

[New information will be provided to identify other technical specifications and emergency procedures if either is required to ensure an adequate water supply for shutdown and cooldown purposes.]

NAPS ESP COL 2.4-2
NAPS ESP COL 2.4-10

During normal operations, Lake Anna provides make-up water for the circulating water system and plant service water system cooling towers, and station water system for Unit 3. The lake is maintained at an operating water level of 250 ft msl. Unit 3 can continue to operate with lake water levels as low as Elevation 242.0 ft msl before shutdown occurs in accordance with the Unit 3 **[Technical Requirements Manual, Reference XX]**.

NAPS ESP COL 2.4-7

[New information will be provided if needed, for programmatic provisions for plant shutdown, when the liquid water volume in the UHS storage basin is inadequate.]

NAPS ESP COL 2.4-8

[New information will be provided if Lake Anna is used for safety-related water withdrawals for Unit 3.]

NAPS ESP

2.5 GEOLOGY, SEISMOLOGY, AND GEOTECHNICAL ENGINEERING

2.5.1 Basic Geologic and Seismic Information

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS ESP COL 2.5-1

[New Information to be provided on the additional borings being performed in the COL subsurface investigation. Summarize the number of borings, cone penetrometer tests, seismic cone penetrometer tests, and downhole seismic tests. Update the observations in the ESP SSAR regarding characteristics of weathered and fractured rock beneath the foundations for the proposed plant layout.]

NAPS ESP

2.5.2 Vibratory Ground Motion

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplement.

NAPS SUP

[Later]

NAPS ESP

2.5.3 Surface Faulting

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

2.5.4 Stability of Subsurface Materials and Foundations

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplements.

NAPS ESP COL 2.5-2 through 2.5-9

[Later]

NAPS ESP PC 5, 6, 7 and 8

[Later]

NAPS SUP

[To the extent needed after addressing the ESP COL Action Items above, new information will be provided to revise the information provided in the ESP SSAR based on results of additional subsurface borings, soil and rock testing, geotechnical and geophysical investigations, and site explorations performed for COL application consistent with DG-1145, C.III.2, Subsection 2.5.4]

NAPS ESP **2.5.5 Stability of Slopes**

The information in this subsection of the referenced ESP SSAR is incorporated by reference with the following supplements.

NAPS ESP COL 2.5-10 NAPS ESP COL 2.5-11 **[New information will be provided to describe the location of all safety-related facilities and all permanent slopes that could potentially fail and, as required, a description of dynamic analyses performed based on the SSE ground motion to demonstrate that the failed slopes will not impact safety-related facilities. For safety-related slopes, plot plans and cross-sections/profiles will be provided, along with measures that will be taken to ensure safety of these slopes and any structures located adjacent to the slopes.]**

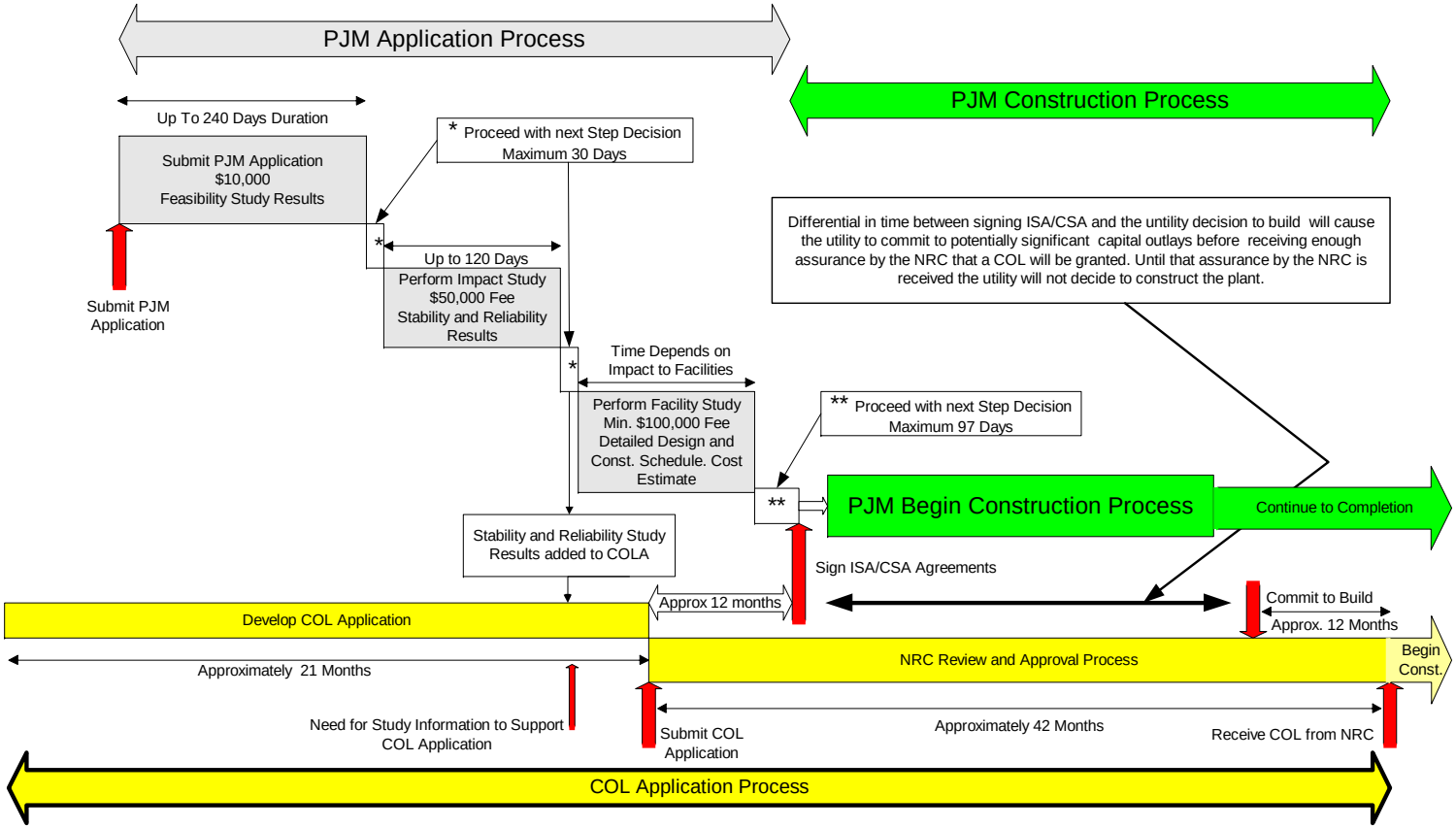
NAPS SUP **[New information will be provided to update the ESP SSAR Subsections 2.5.5 and 2.5.6, as required, based on results of the COL Subsurface Investigation Program. This update will include detailed information consistent with guidance provided in DG-1145, C.III.2, Subsection 2.5.5.]**

NAPS ESP **2.5.6 Embankments and Dams**

The information in this subsection of the referenced ESP SSAR is incorporated by reference.

Future Focus Issues

- COL Information Item Disposition
- Electrical Power
  - GDC 17
  - FERC/NRC Processes
  - Transmission/Switchyard interface
  - Conceptual Design Information
- Permitting Activities (State/Local)
- Referencing and ESP in the COLA ER
- NRC COLA Review Duration
- Emergency Action Levels



Generic COL (NRC) and PJM Application
Process Timelines and Interfaces