FINAL SAFETY ANALYSIS REPORT

CHAPTER 1

INTRODUCTION AND GENERAL DESCRIPTION OF THE PLANT

1.0 INTRODUCTION AND GENERAL DESCRIPTION OF THE PLANT

This chapter of the U.S. EPR Final Safety Analysis Report (FSAR) is incorporated by reference with supplements as identified in the following sections.

1.1 INTRODUCTION

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

This Final Safety Analysis Report is submitted to the Nuclear Regulatory Commission as part of an application for a Class 103 combined license (COL) to construct and operate a nuclear power facility under the provisions of 10 CFR 52, Subpart C. {This FSAR is also being submitted to the Nuclear Regulatory Commission to support the necessary Materials License requested in the COL Application Letter (UNE, 2008) to receive, possess and use special nuclear material under 10 CFR 70.} This nuclear power facility is designated {Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3.} This FSAR incorporates the FSAR prepared for the design certification application for the AREVA evolutionary pressurized water reactor, (herein referred to as the U.S. EPR). AREVA, the entity sponsoring the design certification application for the U.S. EPR, submitted a revised U.S. EPR design certification application to the NRC on July 17, 2014 (AREVA, 2014).

Upon approval and issuance of the design certification for the U.S. EPR, the approved version of the FSAR for the U.S. EPR and the associated Appendix to 10 CFR 52 documenting the design certification for the U.S. EPR are incorporated by reference into this COL application. Within each section, or subsection, only supplemental information or departures from the certified design are presented. If the U.S. EPR provides sufficient information, this FSAR will state "This section of the U.S. EPR FSAR is incorporated by reference" at the section (i.e., X.Y) level and "No departures or supplements" at the highest subsection level where such a statement can be made. Likewise, if a section contains additional information, a statement is provided at the section level to identify if departures or supplements are provided. Section and subsection numbering is only provided to the extent necessary to provide sufficient context to correlate the information provided in this FSAR with the information provided in the U.S. EPR FSAR.

Supplemental information is provided in three forms. Additional information, such as this text, is provided in the appropriate section. The second form is COL Item responses. COL Items are statements in the U.S. EPR FSAR that indicate that the COL applicant must provide additional information. Each applicable COL Item is restated in the equivalent section/subsection in this FSAR and information to address the COL Item is provided. The final type of supplemental information provided in this FSAR is to address conceptual design information provided in the U.S. EPR FSAR. Conceptual design information is presented in the U.S. EPR FSAR enclosed in double brackets "[[ ]]". As stated in the U.S. EPR FSAR, the conceptual design information is outside the scope of the U.S. EPR standard design, and is not submitted for certification as part of that document. Like COL Items, the conceptual design information is restated in this FSAR followed by the site specific information.

Departures from the U.S. EPR FSAR are identified in the applicable sections of the COL Application.

{U.S. EPR nuclear power plants that are licensed, constructed, and operated in cooperation with UniStar Nuclear Operating Services LLC (UniStar Nuclear Operating Services) are standardized to the extent practical. This allows for a standardized FSAR. Information that is unique to {CCNPP Unit 3} is enclosed in braces "{ }". Information not enclosed in braces is generic for all UniStar Nuclear Operating Services facilities. Minor changes are made within the generic text that are not identified as site specific. These include figure and table numbers, which are organized sequentially within sections, and minor grammatical changes necessary to support introduction of site specific text.}

The U.S. EPR FSAR includes the following COL Item in Section 1.1:

> A combined license (COL) applicant that references the U.S. EPR design certification and proposes a multi-unit license application will provide the changes and additional information needed to license a multi-unit plant.

This COL Item is addressed as follows:

{This COL application is for a single unit U.S. EPR. As such, no changes or additional information are needed to address this COL Item.}

1.1.1 Plant Location

The U.S. EPR FSAR includes the following COL Item in Section 1.1.1:

> A COL applicant that references the U.S. EPR design certification will identify the specific plant site location.

This COL Item is addressed as follows:

{CCNPP Unit 3 is co-located with two currently licensed reactors (CCNPP Units 1 and 2). CCNPP Unit 3 is located south of the existing nuclear power plant on the existing CCNPP site. The CCNPP site consists of 2070 acres (838 hectares) in Calvert County, Maryland, on the west bank of Chesapeake Bay, approximately halfway between the mouth of the bay and its headwaters at the Susquehanna River. As reflected in Figure 2.1-1, CCNPP Unit 3 is within the CCNPP Units 1 and 2 Exclusion Area Boundary and the CCNPP Units 1 and 2 Independent Spent Fuel Storage Installation Exclusion Area Boundary. The site is approximately 40 mi (64 km) southeast of Washington D.C. and 7.5 mi (12 km) north of Solomons Island, Maryland. Figure 1.1-1 through Figure 1.1-3 illustrate the location of the site, and the arrangement of the three units.

CCNPP Unit 3 shares the following structures, systems, and components with CCNPP Units 1 and 2:

- Offsite transmission system
- Chesapeake Bay intake channel and embayment
- Meteorological tower
- Emergency Operations Facility (EOF)
- Barge dock

Section 1.10 provides an assessment of the potential hazards to the structures, systems, and components (SSCs) important to safety of the operating units resulting from new unit construction activities in accordance with 10 CFR 52.79(a)(31) (CFR, 2008) and Interim Staff Guidance (ISG) COL-ISG-022 (NRC, 2012).}

Additional site details are provided in Chapter 2.

1.1.2 Containment Type

No departures or supplements.

1.1.3 Reactor Type

No departures or supplements.

1.1.4 Power Output

No departures or supplements.

1.1.5 Schedule

The U.S. EPR FSAR includes the following COL Item in Section 1.1.5:

> A COL applicant that references the U.S. EPR design certification will provide the estimated schedules for completion of construction and commercial operation.

This COL Item is addressed as follows:

{The following major activities are scheduled*:

Order Ultra Heavy Forgings for Reactor Vessel and NSSS Components	April 2006 (complete)
Submit Environmental Report for CCNPP Unit 3	July 2007 (complete)
Submit Certificate of Public Convenience and Necessity (CPCN) Application to the State of Maryland	November 2007 (complete)
Submit Design Certification Application for the U.S. EPR	December 2007 (complete)
Submit Remainder of COL Application for CCNPP Unit 3	March 2008 (complete)
State of Maryland Issues CPCN for CCNPP Unit 3	December 2008
NRC Issues Design Certification for U.S. EPR	October 2010
NRC Issues COL	March 2011
Plant Construction Starts	April 2011
Construction Complete	July 2015
Plant Startup Testing Begins	July 2015
Commercial Operation	December 2015}
* The COLA has been developed with an assumed commercial operation date in 2015. This estimated date is provided for illustrative purposes only. The exact construction and startup schedules have yet to be finalized, and many potential scenarios are under evaluation. As specified in RG 1.206, section C.I.1.1.5, UniStar will provide the construction and startup schedules after issuance of the COL once UniStar has made a final decision on the details of the construction of the plant.	

1.1.6 Format and Content

1.1.6.1 Regulatory Guide 1.206

This FSAR follows the U.S. EPR FSAR organization and numbering. The U.S. EPR FSAR was written in accordance with the format and content of Regulatory Guide 1.206, (NRC, 2007). This FSAR provides departures and supplemental information from the standard U.S. EPR design that is unique to the {CCNPP Unit 3} project. If the information provided in the U.S. EPR FSAR

sufficiently addresses the Regulatory Guide 1.206 content for {CCNPP Unit 3}, this FSAR will state "No departures or supplements" at the highest section level where such a statement can be made.

In addition, this FSAR may add a final section or subsection (when necessary) for references made within this document. References will be provided if they are used in this FSAR even if they were identified within the U.S. EPR FSAR.

1.1.6.2 Standard Review Plan

No departures or supplements.

1.1.6.3 Text, Tables and Figures

Tables and figures are identified by the section or subsection in which they appear and are numbered sequentially. For example, Table 1.1-1 and Figure 1.1-1 would be the first table and figure appearing in Section 1.1. Figures consist of diagrams, plots, pictures, graphs or other illustrations. Tables and figures are located at the end of the applicable section (X.Y) immediately following the text.

1.1.6.4 Numbering of Pages

Pages are numbered sequentially within each chapter.

1.1.6.5 Proprietary Information

This document contains no proprietary information.

1.1.6.6 Acronyms

Table 1.1-1 provides a list of acronyms that are used in this document.

1.1.6.7 COL Information Items

The COL Items in the U.S. EPR FSAR are discussed in Section 1.8.

1.1.6.8 Tense

This section is added as a supplement to the U.S. EPR FSAR.

This FSAR is a licensing basis document that will control plant design and operations after the COL is issued and is generally written in the present tense. Plant design and configuration are described in the present tense although the plant is not yet built. Similarly, programs, procedures, and organizational matters are generally described in the present tense although such descriptions may not yet be implemented. Accordingly, the use of the present tense in this FSAR should be understood as describing the plant, programs and procedures, and organization as they will exist when in place, and not as a representation that they are already in place.

1.1.7 References

{This section is added as a supplement to the U.S. EPR FSAR.

AREVA, 2014. Submittal of Revision 7 of the U.S. EPR Final Safety Analysis Report for Design Certification, P. Salas letter to U. S. Nuclear Regulatory Commission Document Desk, dated July 17, 2014.

CFR, 2008. Title 10, Code of Federal Regulations, Part 52.79, Contents of Applications; Technical Information in Final Safety Analysis Report, U.S. Nuclear Regulatory Commission, 2008.

NRC, 2007. Combined License Applications for Nuclear Power Plants (LWR Edition), Regulatory Guide 1.206, Revision 0, U.S. Nuclear Regulatory Commission, March 2007.

NRC, 2012. Interim Staff Guidance COL-ISG-022 on Impact of Construction (Under a Combined License) of New Nuclear Power Plant Units on Operating Units at Multi-Unit Sites, 2012.

UNE, 2008. UniStar Nuclear Energy Letter, G. Gibson to U.S. Nuclear Regulatory Commission, UN#08-003, Submittal of Revision 2 to the Partial Combined License Application for the Calvert Cliffs Nuclear Power Plant, Unit 3, dated March 14, 2008.}

Table 1.1-1 — {Acronyms Used in this Document}

(Page 1 of 6)

Acronym	Description
χ/Q	Atmospheric Dispersion Value
A/E	Architect – Engineer
AASHTO	American Association of State Highway and Transportation Officials
AB	Access Building
ACI	American Concrete Institute
AFDD	Accumulated Freezing Degree-Days
ALOHA	Areal Locations of Hazardous Atmospheres
ANS	American Nuclear Society
ANSI	American National Standards Institute
ANSS	Advanced National Seismic Network
AOV	Air-Operated Valve
AQCR	Air Quality Control Region
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
AWWA	American Water Works Association
BE	Best Estimate
BF	Butterfly Valve
BGE	Baltimore Gas and Electric
BMA	Brunswick Magnetic Anomaly
BWI	Baltimore/Washington International
C/NM	Consumable/Non-Metallic
CAM	Continuous Air Monitor
CBBT	Chesapeake Bay Bridge Tunnel
CBIS	Common Basemat Intake Structures
CCNPP	Calvert Cliffs Nuclear Power Plant
CD	Certified Design
CEUS	Central and Eastern United States
CK	Check Valve
CPCN	Certificate of Public Convenience and Necessity
CPT	Cone Penetrometer Test
CR	Control Room
CRE	Control Room Envelope
CRR	Cyclic Resistance Ratio
CSDRS	Certified Seismic Design Response Spectra
CSR	Cyclic Stress Ratio
CTI	Cooling Tower Institute
CVSZ	Central Virginia Seismic Zone
D.C.	District of Columbia
D/Q	Deposition Factor

Table 1.1-1 — {Acronyms Used in this Document}

(Page 2 of 6)

Acronym	Description
DAC	Derived Air Concentration
DC	Direct Current
DCPLNG	Dominion Cove Point Liquefied Natural Gas
DI	Diaphragm Valve
DNAG	Decade of North American Geology
DOE	Department of Energy
DOT	Department of Transportation
EC	Erosion/Corrosion
ECFS	East Coast Fault System
ECL	Effluent Concentration Limits
ECMA	East Coast Magnetic Anomaly
EMC	Electromagnetic Compatibility
EPA	Environmental Protection Agency
EPGB	Emergency Power Generating Building
EPIX	Equipment Performance and Information Exchange
EPR	Evolutionary Power Reactor
EQ	Environmental Qualification
ER	Environmental Report or Electrical Resistivity
ERC	Estuarine Research Center
ES	Engineered Safeguards
ESP	Early Site Permit
EST	Earth Science Team
ESWB	Essential Service Water Building
ETR	Energy Transfer Ratio
FERC	Federal Energy Regulatory Commission
FFD	Fitness for Duty
FHA	Fire Hazards Analysis
FIRS	Foundation Input Response Spectra
FOS	Factor of Safety
FPE	Fire Protection Engineer
GB	Globe Valve
GMRS	Ground Motion Response Spectra
GSA	Geological Society of America
GT	Gate Valve
HF	High Frequency
HMR	Hydrometeorological Report
HO	Hydraulic Operated
HPS	Health Physics Society

Table 1.1-1 — {Acronyms Used in this Document}

(Page 3 of 6)

Acronym	Description
ICEA	Insulated Cable Engineers Association
ICRP	International Commission on Radiological Protection
ID	Identification
IDLH	Immediately Dangerous to Life and Health
IRC	Independent Review Committee
ISFSI	Independent Spent Fuel Storage Installation
JFD	Joint Frequency Distribution
JPM	Job Performance Measures
KKS	Kraftworks Kennzeichen System
LB	Lower Bound
LERF	Large Early Release Frequency
LF	Low Frequency
LFL	Lower Flammability Limit
LiDAR	Light Detection and Ranging
LLC	Limited Liability Company
LNG	Liquefied Natural Gas
LSS	Low Safety Significance
LSZ	Lancaster Seismic Zone
MA	Manual Actuated
MD	Maryland
MDE	Maryland Department of Environment
MDNR	Maryland Department of Natural Resources
MED	Master Equipment Database
MEDEVAC	Medical Evacuation
MEOW	Maximum Envelopes of Water
MGS	Maryland Geological Survey
MHHW	Mean Higher High Water
MLLW	Mean Lower Low-Water
MLW	Mean Low Water
MMI	Modified Mercalli Intensity
MOM	Maximum of the MEOWS
MPSSZ	Middleton Place-Summerville Seismic Zone
MRFF	Maintenance Rule Functional Failure
MSL	Mean Sea Level
MSS	Medium Safety Significance
NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
NEC	National Electrical Code
NEI	Nuclear Energy Institute

Table 1.1-1 — {Acronyms Used in this Document}
(Page 4 of 6)

Acronym	Description
NERC	North American Electric Reliability Corporation
NGVD 29	National Geodetic Vertical Datum of 1929
NHC	National Hurricane Center
NIC	National Ice Center
NIOSH	National Institute for Occupational Safety and Health
NJ	New Jersey
NLSWE	Nonlinear Shallow Water Equations
NOAA	National Oceanic and Atmospheric Administration
NP	Non-Proprietary
NPDES	National Pollution Discharge Elimination System
NPRDS	Nuclear Plant Reliability Data System
NRC	Nuclear Regulatory Commission
NRCS	U.S. National Resources Conservation Service
NWS	National Weather Service
NYAL	New York – Alabama Lineament
OBE	Operating Basis Earthquake
OCR	Over Consolidation Ratio
ODCM	Offsite Dose Calculation Manual
OJT	On-the-Job Training
OSHA	Occupational Safety and Health Administration
P	Proprietary
PA	Pilot Actuated
PCP	Process Control Program
PEPCO	Potomac Electric Power Company
PGA	Peak Ground Acceleration
PJM	Pennsylvania, New Jersey, and Maryland Regional Transmission Organization
PL	Plug Valve
PMH	Probable Maximum Hurricane
PMSS	Probable Maximum Storm Surge
PMT	Probable Maximum Tsunami
PMWP	Probable Maximum Winter Precipitation
PPRP	Power Plant Research Program
PSAR	Preliminary Safety Analysis Report
PSHA	Probabilistic Seismic Hazard Analysis
PSP	Physical Security Plan
PST	Pre-Service Testing
PTS	Pressurized Thermal Shock

Table 1.1-1 — {Acronyms Used in this Document}

(Page 5 of 6)

Acronym	Description
QAPD	Quality Assurance Program Description
QC	Quality Control
RCA	Radiologically Controlled Area
RCTS	Resonant Column Torsional Shear
RD	Rupture Disk Valve
REMP	Radiological Environmental Monitoring Program
RETS	Radiological Effluent Technical Specifications
RMS	Records Management System
RV	Relief Valve
RVT	Random Vibration Theory
SA	Self Actuated
SAR	Safety Analysis Report
SARA	Superfund Amendments and Reauthorization Act
SB	Safeguard Building
SCDOT	South Carolina Department of Transportation
SCR	Stable Continental Region
SDWIS	Safe Drinking Water Information System
SECPOP	Sector Population Land Fraction, and Economic Estimation Program
SEUSSN	Southeastern U.S. Seismic Network
SGA	Salisbury Geophysical Anomaly
SLOSH	Sea, Lake, and Overland Surges from Hurricanes
SOV	Solenoid-Operated Valve
SPH	Standard Project Hurricane
SPT	Standard Penetration Test
SSCs	Structures, Systems, and Components
SSE	Safe Shutdown Earthquake
SSI	Soil-Structure Interaction
SSSI	Structure-Soil-Structure Interaction
STEL	Short-Term Exposure Limit
SWBVS	Switchgear Building Ventilation System, Turbine Island
SWGB	Switchgear Building
TEDE	Total Effective Dose Equivalent
TIP	Trial Implementation Project
TLD	Thermoluminescent Dosimeter
TNT	Trinitrotoluene
TOC	Top of Concrete
TRT	Test Review Team

Table 1.1-1 — {Acronyms Used in this Document}

(Page 6 of 6)

Acronym	Description
TSU	Tsunami Model
TWA	Time Weighted Average
UB	Upper Bound
UCSS	Updated Charleston Seismic Source
UFL	Upper Flammability Limit
UFSAR	Updated Final Safety Analysis Report
UHS	Uniform Hazard Spectra or Ultimate Heat Sink
UHS MWIS	Ultimate Heat Sink Makeup Water Intake Structure
USACE	U.S. Army Corps of Engineers
USCG	United States Coast Guard
USCS	Unified Sort Classification System
USGS	U.S. Geological Survey
USNSN	U.S. National Seismograph Network
VA	Virginia
Vp	Compressional Wave Velocity
Vs	Shear-Wave Velocity
WOH	Weight of Hammer
WOR	Weight of Rod
WUS	Western United States

Figure 1.1-1 — {50 mi (80 km) Surrounding Area}

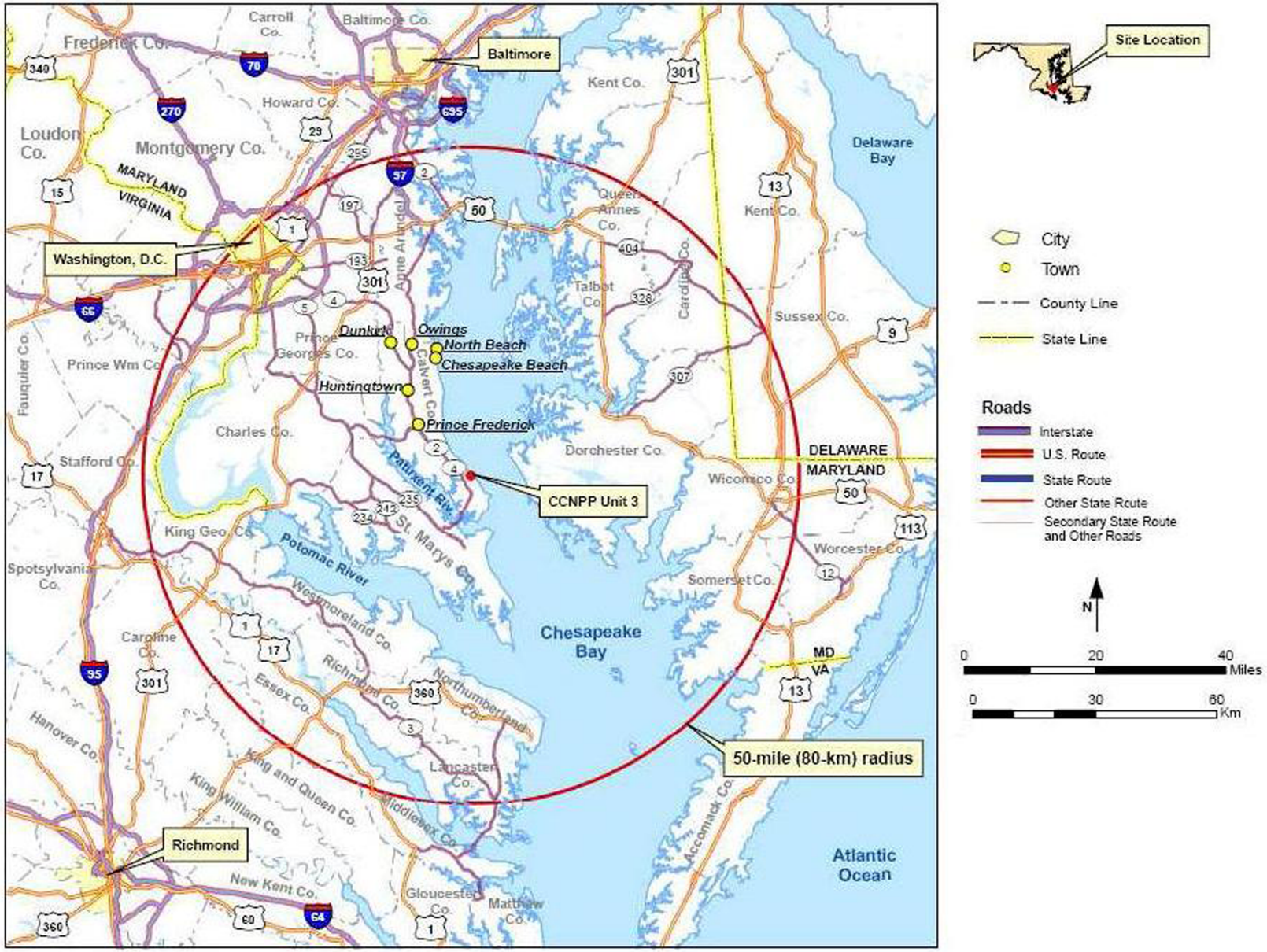


Figure 1.1-2 — {10 mi (16 km) Surrounding Area}

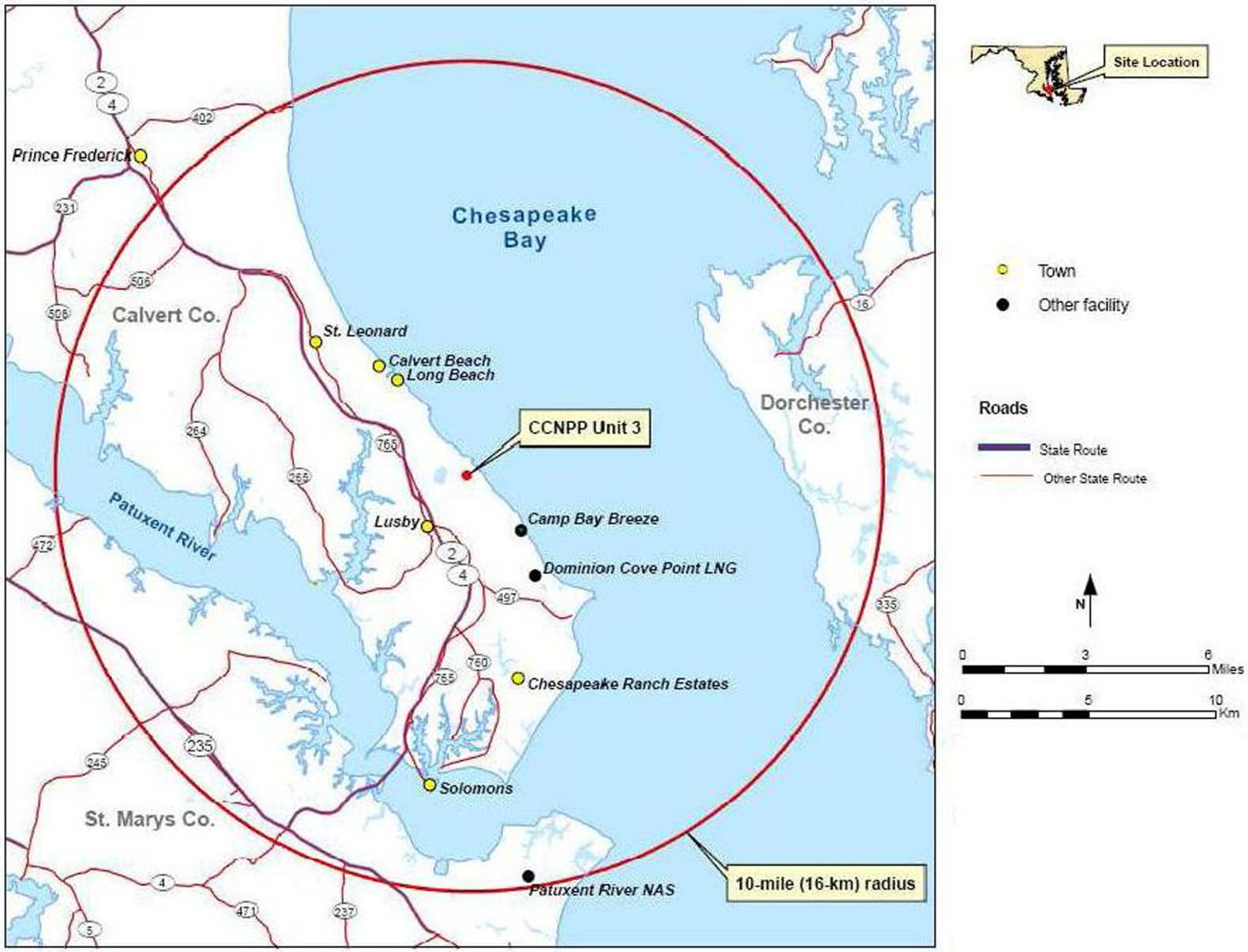
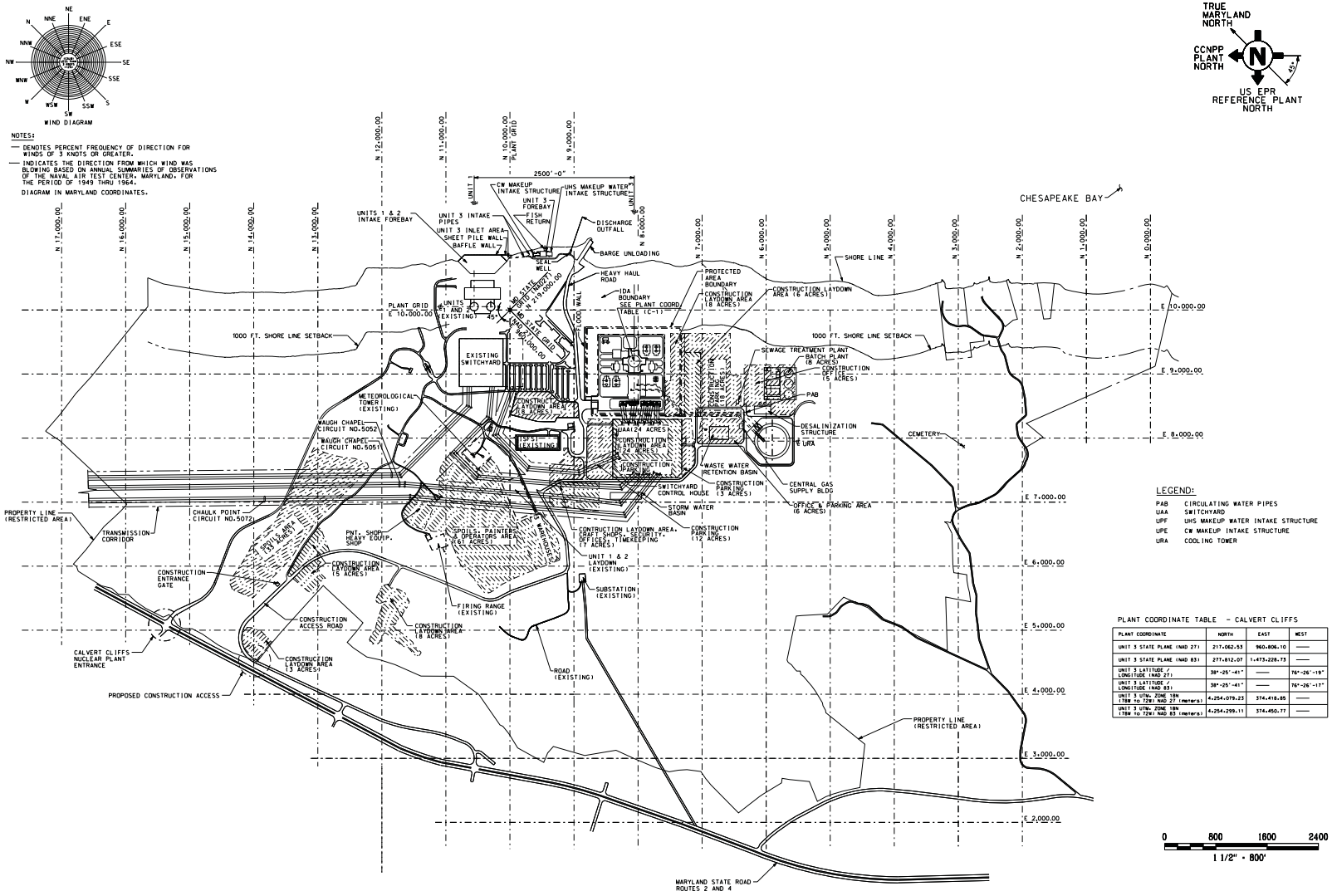


Figure 1.1-3 — {Site Area Map}



1.2 GENERAL PLANT DESCRIPTION

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

The U.S. EPR FSAR includes the following COL Item in Section 1.2:

> A COL applicant that references the U.S. EPR design certification will identify those site-specific features of the plant likely to be of special interest because of their relationship to safety. The COL applicant will also highlight items such as unusual site characteristics, solutions to particularly difficult engineering, construction problems, and significant extrapolations in technology represented by the site specific design.

This COL Item is addressed as follows:

{There are no site-specific features of the plant considered to be of special interest because of their relationship to safety. There are no unusual site characteristics, and no particularly difficult engineering or construction problems, and no significant extrapolations in technology represented by the site specific design.}

1.2.1 Principal Design Criteria, Operating Characteristics, and Safety Considerations

No departures or supplements.

1.2.2 Site Description

The U.S. EPR FSAR includes the following conceptual design information in Section 1.2.2 for the Turbine Building:

> Turbine Building – [[Figures 1.2-28 through 1.2-48.]]

The above conceptual design information is addressed as follows:

An Alstom turbine generator design has been selected. This is the reference design reflected in U.S. EPR FSAR Section 10.1, 10.2, and 10.4.7. Figures in Section 1.2 of the U.S. EPR FSAR are incorporated by reference.

The U.S. EPR FSAR includes the following conceptual design information in Section 1.2.2 for the Access Building:

> Access Building – [[Figures 1.2-50 through 1.2-58.]]

The above conceptual design information is addressed as follows:

The reference Access Building shown in U.S. EPR FSAR Figures 1.2-50 through 1.2-58 is incorporated by reference.

The U.S. EPR FSAR includes the following COL Item in Section 1.2.2:

> A COL applicant that references the U.S. EPR design certification will provide a site-specific layout figure.

This COL Item is addressed as follows:

{The site specific layout is presented in Figure 1.1-3 showing the CCNPP Unit 3 circulating water system cooling tower and intake structures on the Chesapeake Bay. An enlargement of the layout of the Nuclear and Turbine Building Islands is presented in Figure 1.2-1.}

The U.S. EPR FSAR includes the following COL Item in Section 1.2.2:

A COL applicant that references the U.S. EPR design certification will provide site-specific general arrangement drawings for the Turbine Building and Access Building.

This COL Item is addressed as follows:

The reference plant Turbine Building and Access Building are utilized. The general arrangement drawings provided in the U.S. EPR FSAR are incorporated by reference as discussed above.

1.2.3 Plant Description

1.2.3.1 Introduction to the U.S. EPR Design and Building Arrangement

1.2.3.1.1 Overview

No departures or supplements.

1.2.3.1.2 Buildings and Arrangement

The U.S. EPR FSAR includes the following conceptual design information in Section 1.2.3.1.2 for the Turbine Building:

Physical separation also protects the [[Turbine Building and Switchgear Building. The Turbine Building houses the components of the steam condensate main feedwater cycle, including the turbine-generator. This building is located in a radial position with respect to the Reactor Building, but is independent from the NI. The Turbine Building is further described in Section 3.7.2. The Switchgear Building, which contains the power supply, the instrumentation and controls (I&C) for the balance of plant, and the SBO diesel generators, is located next to the Turbine Building and is physically separate from the NI. The Switchgear Building is shown in Figure 1.2-1.]]

The above conceptual design information is addressed as follows:

The reference Turbine Building and Switchgear Building designs are utilized. The information as stated in the U.S. EPR FSAR is incorporated by reference.

1.2.3.2 Reactor Coolant System

No departures or supplements.

1.2.3.3 Engineered Safety Features and Emergency Systems

No departures or supplements.

1.2.3.4 Instrumentation and Control Systems

No departures or supplements.

1.2.3.5 Electrical Systems

1.2.3.5.1 General

The U.S. EPR FSAR includes the following conceptual design information in Section 1.2.3.5.1:

> [[For operational flexibility and reliability, the switchyard is configured in either a breaker-and-a-half or double breaker scheme.]]

The above conceptual design information is addressed as follows:

{The CCNPP Unit 3 switchyard is configured in a breaker-and-a-half arrangement.}

1.2.3.5.2 Offsite Power

No departures or supplements.

1.2.3.5.3 Onsite Power System

No departures or supplements.

1.2.3.6 Power Conversion Systems

No departures or supplements.

1.2.3.7 Fuel Handling and Storage Systems

No departures or supplements.

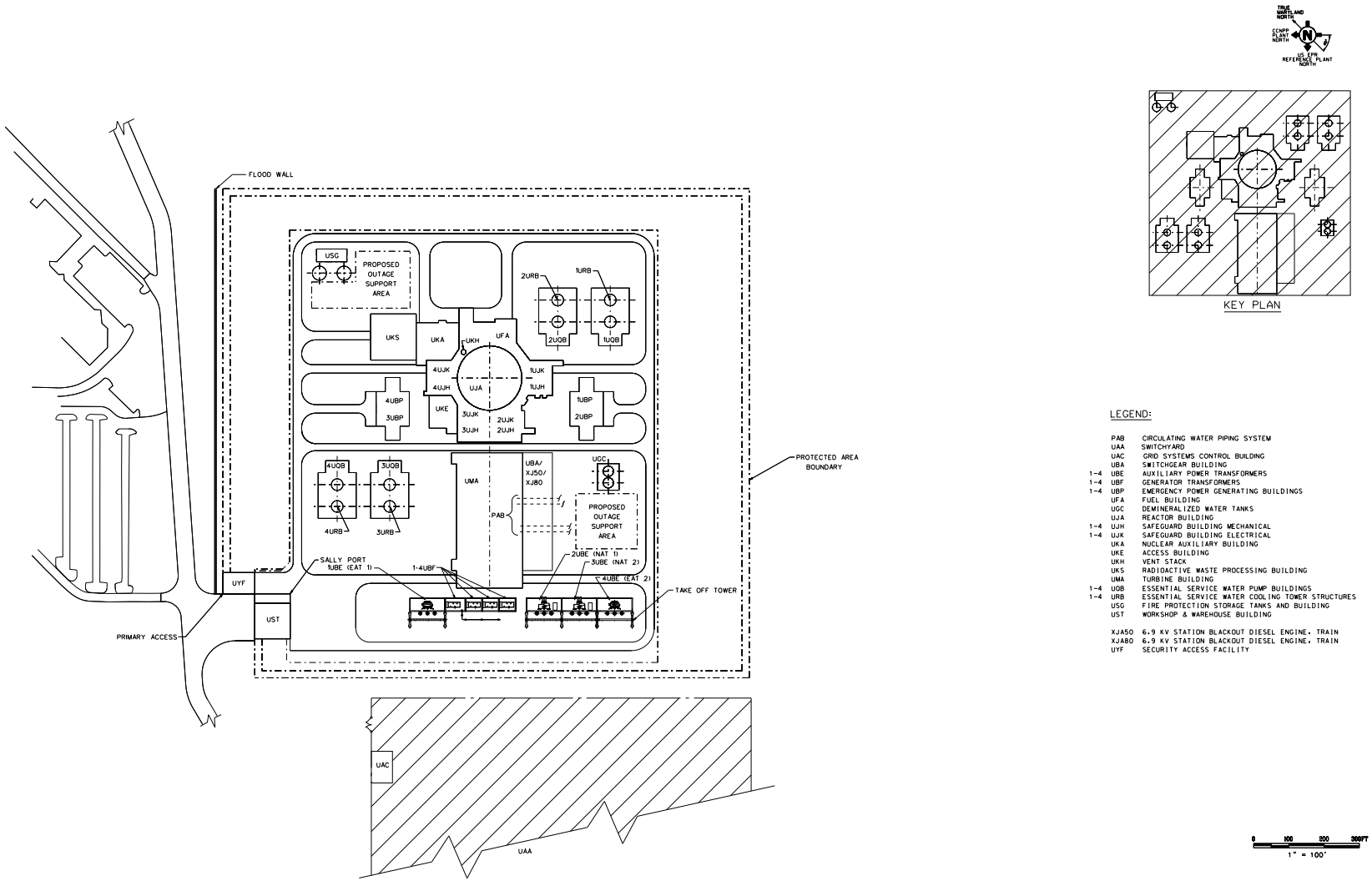
1.2.3.8 Cooling Water and Other Auxiliary Systems

No departures or supplements.

1.2.3.9 Radioactive Waste Management Systems

No departures or supplements.

Figure 1.2-1 — {CCNPP Unit 3 Nuclear and Turbine Building Island Layout}



1.3 COMPARISONS WITH SIMILAR FACILITY DESIGNS

This section of the U.S. EPR FSAR is incorporated by reference.

1.4 IDENTIFICATION OF AGENTS AND CONTRACTORS

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

1.4.1 Applicant – Program Manager

{Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC are applying for a combined license for CCNPP Unit 3. The owner of the proposed project is Calvert Cliffs 3 Nuclear Project, LLC. The operator of the proposed project is UniStar Nuclear Operating Services, LLC. The contact with the NRC during the licensing process is UniStar Nuclear Energy, LLC. UniStar Nuclear Energy, LLC owns and controls Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC. The measures taken to address the potential for foreign, ownership domination, control or influence of UniStar Nuclear Energy, LLC are addressed in the Negation Action Plan provided as Appendix 1A.

Sections 1.4.1.1 and 1.4.1.2 are added as supplements to the U.S. EPR FSAR.

1.4.1.1 Calvert Cliffs 3 Nuclear Project, LLC

Calvert Cliffs 3 Nuclear Project, LLC is a limited liability company and is an indirect subsidiary (through UniStar Nuclear Holdings, LLC and UniStar Project Holdings, LLC, which operate as holding companies) of UniStar Nuclear Energy, LLC. UniStar Nuclear Energy is owned by EDF, Inc. EDF Inc. is an indirect subsidiary of (through E.D.F. International SA) of Èlectricitè de France SA.

The principal offices of Calvert Cliffs 3 Nuclear Project, LLC are located in Baltimore, Maryland. Calvert Cliffs 3 Nuclear Project, LLC is organized under the laws of the State of Delaware pursuant to the First Amended and Restated Operating Agreement of Calvert Cliffs 3 Nuclear Project, LLC dated April 22, 2010 by UniStar Project Holdings, LLC and GSS Holdings (CCNP 3), Inc. Calvert Cliffs 3 Nuclear Project, LLC will be one of the licensees and will own CCNPP Unit 3.

1.4.1.2 UniStar Nuclear Operating Services, LLC

UniStar Nuclear Operating Services, LLC has been formed to be a licensee and to operate U.S. EPR nuclear power plants in the United States. The principal offices of UniStar Nuclear Operating Services, LLC are located in Baltimore, Maryland.

UniStar Nuclear Operating Services, LLC is organized under the laws of the State of Delaware pursuant to the First Amended and Restated Operating Agreement of UniStar Nuclear Operating Services, LLC dated January 12, 2011 by UniStar Nuclear Holdings, LLC. This entity will be one of the licensees for, and will provide the operating services for, CCNPP Unit 3.}

1.4.2 Other Contractors and Participants

The U.S. EPR FSAR includes the following COL Item in Section 1.4.2:

> A COL applicant that references the U.S. EPR design certification will identify the prime agents or contractors for the construction and operation of the nuclear power plant.

This COL Item is addressed as follows:

Design responsibility for the U.S. EPR nuclear power plant resides with AREVA Inc. (AREVA) for the portions of the facility included in the design certification application. AREVA has

headquarters in Lynchburg, Virginia, and major design organizations in Lynchburg, Virginia; Charlotte, North Carolina; and Marlborough, Massachusetts. AREVA and its predecessor companies have designed light water reactors for over 40 years. As such, AREVA has extensive nuclear design experience in addition to maintaining fabrication facilities for fuel and major components in Europe and the United States. AREVA will provide additional services during conduct of startup testing.

{Bechtel North American Power Corporation (Bechtel) provides design services for portions of the facility design not included in the U.S. EPR design certification (balance of plant) and is expected to be the prime contractor for the construction of CCNPP Unit 3. Bechtel has extensive architectural-engineering experience, and has participated in the design and construction of more than 150 nuclear power plants worldwide. Bechtel provides design assistance to AREVA which retains design responsibility for the U.S. EPR.

UniStar Nuclear Energy, LLC. provides project management, engineering, procurement, training, regulatory affairs and startup, testing, and commissioning support during the design, construction, startup and operation of CCNPP Unit 3.

CCNPP Unit 3 will be operated by UniStar Nuclear Operating Services, LLC as discussed in Section 1.4.1.2.}

Other various agents and contractors provide specialized services to the project.

1.5 REQUIREMENTS FOR FURTHER TECHNICAL INFORMATION

This section of the U.S. EPR FSAR is incorporated by reference.

1.6 MATERIAL REFERENCED

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

The U.S. EPR FSAR includes the following COL Item in Section 1.6:

> A COL applicant that references the U.S. EPR design certification will include any site-specific topical reports that are incorporated by reference as part of the COL application in Table 1.6-1.

This COL Item is addressed as follows:

Table 1.6-1 of this FSAR contains a list of topical reports submitted to the NRC to support this application.

Table 1.6-1 — {Reports Referenced}

Report No.	Title/Revision	Date Submitted to the NRC	FSAR Section
NEI 07-08A	Generic FSAR Template Guidance for Ensuring that Occupational Radiation Exposures Are As Low As Is Reasonably Achievable (ALARA), Revision 0	October 2009	12.1.3
NEI 07-03A	Generic FSAR Template Guidance for Radiation Protection Program Description, Revision 0	May 2009	12.1.3 12.5
NEI 06-13A	Template for an Industry Training Program Description, Revision 2	March 2009	13.2
UN-TR-06-001-A	Quality Assurance Program Description, Revision 0	April 2007	17.5
QAPD	UniStar Quality Assurance Program Description, Revision 4	June 2014	17.5
NEI 07-02A	Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed Under 10 CFR Part 52, Revision 0	March 2008	17.7
NEI 06-06	Fitness for Duty Program Guidance for New Revision Power Plant Construction Sites, Revision 5	August 2009	13.7
NEI 04-07	Pressurized Water Reactor Sump Performance Evaluation Methodology	December 2004	6.3.2.2.2
NEI 00-02	Probabilistic Risk Assessment (PRA) Peer Review Process Guidance, Revision 1	May 2006	19.1.2
NEI 07-09A	Generic FSAR Template Guidance for Offsite Dose Calculation Manual (ODCM) Description, Revision 0	March 2009	11.5
NEI 07-10A	Generic FSAR Template Guidance for Process Control Program (PCP), Revision 0	August 2009	11.4
NEI 08-08A	Generic FSAR Template Guidance for Life Cycle Minimization of Contamination	October 2009	11.2, 11.3, 11.4, 11.5
NEI 12-01	Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities, Revision 0	May 2012	13.3

1.7 DRAWINGS AND OTHER DETAILED INFORMATION

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

1.7.1 Electrical and Instrumentation and Control Drawings

The U.S. EPR FSAR includes the following COL Item in Section 1.7.1:

> A COL applicant that references the U.S. EPR design certification will list additional site specific instrumentation and control functional diagrams and electrical one-line diagrams included in the COL FSAR in Table 1.7-1 and supplement the figure legends, if applicable.

This COL Item is addressed as follows:

Table 1.7-1 contains a list of site specific instrumentation and control functional diagrams and electrical one-line diagrams included in the COL FSAR.

1.7.2 Piping and Instrumentation Diagrams

The U.S. EPR FSAR includes the following COL Item in Section 1.7.2:

> A COL applicant that references the U.S. EPR design certification will list additional site specific P&IDs included in the COL FSAR in Table 1.7-2 and supplement the figure legend, if applicable.

This COL Item is addressed as follows:

A list of site specific P&IDs included in the {CCNPP Unit 3} FSAR is presented in Table 1.7-2.

Table 1.7-1 — {I&C Functional and Electrical One Line Diagrams}

FSAR Figure Number	Title
Figure 8.2-2	CCNPP Unit 3 500 kV Switchyard Single Line Diagram
Figure 8.3-1	CCNPP Unit 3 Emergency Power Supply System Single Line Drawing (three sheets)
Figure 8.3-2	CCNPP Unit 3 Normal Power Supply System Single Line Drawing (five sheets)
Figure 8.3-3	CCNPP Unit 3 Transformer 30BBT03 Distribution System Single Line Drawing

Table 1.7-2 — {Piping and Instrumentation Diagrams}

FSAR Figure Number	Title
Figure 9.2-1	Potable Water System
Figure 9.2-2	Sanitary Waste Water System
Figure 9.2-3	Normal Makeup, Ultimate Heat Sink Makeup, Blowdown & Chemical Treatment
Figure 9.2-7	Raw Water & Desalinated Water Supply
Figure 9.4-1	Turbine Building Ventilation System
Figure 9.4-2	UHS Makeup Water Intake Structure Ventilation System
Figure 9.5-1	CCNPP Unit 3 Fire Water Distribution System - Cooling Tower Loop
Figure 9.5-2	CCNPP Unit 3 Fire Water Distribution System - Intake Structure Loop
Figure 9.5-3	CCNPP Unit 3 UHS Makeup Water Intake Structure
Figure 10.4-1	Circulating Water System P&ID (Circulating Water Pump Building)
Figure 10.4-2	Circulating Water System P& ID (Turbine Building)
Figure 10.4-3	Circulating Water System Makeup System P& ID
Figure 10.4-6	Circulating Water System Blowdown Flowpath

1.8 INTERFACES WITH STANDARD DESIGNS AND EARLY SITE PERMITS

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

The U.S. EPR FSAR includes the following COL Item in Section 1.8:

> A COL applicant that references the U.S. EPR design certification will describe where the interface requirements are satisfied in the COL Final Safety Analysis Report (FSAR) to demonstrate compatibility with the U.S. EPR design.

This COL Item is addressed as follows:

Interface requirements for systems, structures, and components (SSCs) that relate to specific mechanical, electrical, nuclear, or structural systems are identified in appropriate sections of the FSAR. Table 1.8-1 provides a cross-reference to the description of these interfaces.

1.8.1 COL Information Items

The U.S. EPR FSAR includes the following COL Item in Section 1.8.1:

> A COL applicant that references the U. S. EPR design certification will identify the FSAR section, or provide a list, that demonstrates how the COL information items have been addressed.

This COL Item is addressed as follows:

The text of the COL Items and COL No. identifier listed in Table 1.8-2 of the U.S. EPR FSAR are presented in Table 1.8-2. For each COL Item listed, the corresponding section of this FSAR that addresses the COL Item is identified. Additional explanatory comments are provided as necessary or appropriate.

1.8.2 Departures

The U.S. EPR FSAR includes the following COL Item in Section 1.8.2:

> A COL applicant that references the U. S. EPR design certification will provide a list of any departures from the FSAR in the COL FSAR.

This COL Item is addressed as follows:

{The list of departures from the U.S. EPR FSAR is as follows:

Maximum Differential Settlement (across the basemat)	FSAR 2.5.4 and 3.8.5
Maximum Annual Average Atmospheric Dispersion Factor (limiting sector)	FSAR 2.3.5
Accident Atmospheric Dispersion Factor from (0 - 2 hour, Low Population Zone)	FSAR 2.3.4 and 15.0.3
Safe Shutdown Earthquake (SSE)	FSAR Table 2.0-1, FSAR Sections 2.5.2.6 and 3.7.1
Soil Properties	FSAR Table 2.0-1, FSAR Section 2.5.2.6
Shear Wave Velocity	FSAR 2.5.4.2.5.8, FSAR Table 2.0-1, and COLA Part 10, ITAAC Table 2.4-1
Post-DBA UHS Makeup Keep-Fill Line (piping, valve, and orifice) - UHS Makeup Water System	FSAR 9.2.5.5
UHS Makeup Water Pump Starting Logic	FSAR Section 9.2.5.7.3.1

Justification for these departures is presented in Part 7 of the COL application.}

Table 1.8-1 — FSAR Sections that Demonstrate Conformance to U.S. EPR FSAR Interface Requirements

Item No.	Interface	Interface Type	FSAR Section
1-1	Switchgear Building	U.S. EPR Interface	1.2, 8.3, 8.4
1-2	Access Building	U.S. EPR Interface	1.2, 3.7.2
1-3	Turbine Building	U.S. EPR Interface	1.2, 3.7.2
1-4	Fire Protection Storage Tanks and Building	U.S. EPR Interface	1.2, 3.7.2
2-1	Envelope of U.S. EPR site related design	Site Parameter	2.0, Table 2.0-1
2-2	Consequences of potential hazards from nearby industrial, transportation and military facilities	Site Parameter	2.2
2-3	Site-specific χ/Q values based on site-specific meteorological data at the exclusion area boundary (EAB), low population zone (LPZ), and control room	Site Parameter	2.3
2-4	Site-specific seismic characteristics	Site Parameter	2.5, 3.7
2-5	Soil conditions and profiles	Site Parameter	2.5
2-6	Bearing pressure of soil beneath the nuclear island basemat	Site Parameter	2.5
2-7	Foundation settlements	Site Parameter	2.5
3-1	Missiles generated from nearby facilities	Site Parameter	3.5
3-2	Missiles generated by extreme winds	Site Parameter	3.5
3-3	Aircraft hazards	Site Parameter	3.5
3-4	Site-specific loads that lie within the standard plant design envelope for Seismic Category I structures	Site Parameter	3.8
3-5	Buried conduit and duct banks, and pipe and pipe ducts	U.S. EPR Interface	3.8
8-1	Off-site AC power transmission system connections to the switchyard and the connection to the plant power distribution system	U.S. EPR Interface	8.2
8-2	On-site AC power transmission system connections to the switchyard and the connection to the plant power distribution system	U.S. EPR Interface	8.3
8-3	Auxiliary power and generator transformer areas	U.S. EPR Interface	8.2
8-4	Lightning protection and grounding system grid	U.S. EPR Interface	8.3.1
8-5	Design details for electrical distribution for circulating water system components outside the Turbine Building	U.S. EPR Interface	8.3
9-1	Provide a cask design that satisfies the requirement for interfacing with the Spent Fuel Cask Transfer Facility (SFCTF).	U.S. EPR Interface	9.1.4
9-2	Provide support systems such as makeup water, blowdown and chemical treatment (to control biofouling) for the UHS	U.S. EPR Interface	9.2.5
9-3	Raw water system	U.S. EPR Interface	9.2.9
9-4	Fire water distribution system	U.S. EPR Interface	9.5.1
10-1	Design details for circulating water system including makeup water, and water treatment	U.S. EPR Interface	10.4.5
11-1	Process Control program and program aspects of process and effluent monitoring and sampling	U.S. EPR Interface	11.5
13-1	Site-specific information for administrative, operating, emergency, maintenance, and other operating procedures.	U.S. EPR Interface	13.5
13-2	Site-specific emergency plan	U.S. EPR Interface	13.3
13-3	Site-specific security assessment and Physical Security Plan	U.S. EPR Interface	13.6
14-1	Site-specific information for development of the initial test program	U.S. EPR Interface	14.2

Table 1.8-2 — FSAR Sections that Address COL Items

(Page 1 of 21)

Item No.	Description	Section
1.1-1	A COL applicant that references the U.S. EPR design certification and proposes a multi-unit license application will provide the changes and additional information needed to license a multi-unit plant.	1.1
1.1-2	A COL applicant that references the U.S. EPR design certification will identify the specific plant site location.	1.1.1
1.1-3	A COL applicant that references the U.S. EPR design certification will provide the estimated schedules for completion of construction and commercial operation.	1.1.5
1.2-1	A COL applicant that references the U.S. EPR design certification will identify those site specific features of the plant likely to be of special interest because of their relationship to safety. The COL applicant will also highlight items such as unusual site characteristics, solutions to particularly difficult engineering, construction problems, and significant extrapolations in technology represented by the site specific design.	1.2
1.2-2	A COL applicant that references the U.S. EPR design certification will provide a site-specific layout figure.	1.2.2
1.2-3	A COL applicant that references the U.S. EPR design certification will provide site-specific general arrangement drawings for the Turbine Building and Access Building.	1.2.2
1.4-1	A COL applicant that references the U.S. EPR design certification will identify the prime agents or contractors for the construction and operation of the nuclear power plant.	1.4.2
1.6-1	A COL applicant that references the U.S. EPR design certification will include any site-specific topical reports that are incorporated by reference as part of the COL application in Table 1.6-1.	1.6
1.7-1	A COL applicant that references the U.S. EPR design certification will list additional site specific instrumentation and control functional diagrams and electrical one-line diagrams included in the COL FSAR in Table 1.7-1 and supplement the figure legends, if applicable.	1.7.1
1.7-2	A COL applicant that references the U.S. EPR design certification will list additional site specific P&IDs included in the COL FSAR in Table 1.7-2 and supplement the figure legend, if applicable.	1.7.2
1.8-1	A COL applicant that references the U.S. EPR design certification will describe where the interface requirements are satisfied in the COL FSAR to demonstrate compatibility with the U.S. EPR design.	1.8
1.8-2	A COL applicant that references the U. S. EPR design certification will identify the FSAR section, or provide a list, that demonstrates how the COL information items have been addressed.	1.8.1
1.8-3	A COL applicant that references the U. S. EPR design certification will provide a list of any departures from the FSAR in the COL FSAR.	1.8.2
1.9-1	A COL applicant that references the U.S. EPR design certification will review and address the conformance with Regulatory Criteria in effect six months before the docket date of the COL application for the site-specific portions and operational aspects of the facility design.	1.9
2.0-1	A COL applicant that references the U.S. EPR design certification will compare the characteristics of its proposed site to the site parameters in Table 2.1-1. If the characteristics of the site fall within the assumed site parameters in Table 2.1-1, then the U.S. EPR standard design is bounding for the site. For site-specific characteristics that are outside the bounds of the assumptions presented in Table 2.1-1, the COL applicant will demonstrate that the U.S. EPR design acceptably meets the regulatory requirements, given the site-specific characteristic. In such an instance, the COL applicant will also demonstrate that the design commitments and acceptance criteria described in the FSAR do not need to be changed, or will propose new design commitments or acceptance criteria, or both.	2.0
2.1-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information related to site location and description, exclusion area authority and control, and population distribution.	2.1
2.2-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information related to the identification of potential hazards stemming from nearby industrial, transportation, and military facilities within the site vicinity, including an evaluation of potential accidents (such as explosions, toxic chemicals, and fires).	2.2
2.2-2	A COL applicant that references the U.S. EPR design certification will provide information concerning site-specific evaluations to determine the consequences that potential accidents at nearby industrial, transportation, and military facilities could have on the site. The information provided by the COL applicant will include specific changes made to the U.S. EPR design to qualify the design of the site against potential external accidents with an unacceptable probability of severe consequences.	2.2.3

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
2.3-1	If A COL applicant that references the U.S. EPR design certification identifies site-specific meteorology values outside the range of the site parameters in Table 2.1-1, then the COL applicant will demonstrate the acceptability of the site-specific values in the appropriate sections of the Combined License application.	2.3
2.3-2	A COL applicant that references the U.S. EPR design certification will provide site-specific characteristics for regional climatology.	2.3.1
2.3-3	A COL applicant that references the U.S. EPR design certification will provide site-specific characteristics for local meteorology.	2.3.2
2.3-4	A COL applicant that references the U.S. EPR design certification will provide the site-specific, onsite meteorological measurement program.	2.3.3
2.3-5	A COL applicant that references the U.S. EPR design certification will provide a description of the atmospheric dispersion modeling used in evaluating potential design basis events to calculate concentrations of hazardous materials (e.g., flammable or toxic clouds) outside building structures resulting from the onsite and/or offsite airborne releases of such materials.	2.3.4
2.3-6	A COL applicant that references the U.S. EPR design certification will confirm that site specific χ/Q values, based on site-specific meteorological data, are bounded by those specified in Table 2.1-1 at the EAB, LPZ and at the control room. For site-specific χ/Q values that exceed the bounding χ/Q values, a COL applicant that references the U.S. EPR design certification will demonstrate that the radiological consequences associated with the controlling design basis accident continue to meet the dose reference values given in 10 CFR 50.34 and the control room operator dose limits given in GDC 19 using site-specific χ/Q values.	2.3.4.2
2.3-7	Deleted	Deleted
2.3-8	A COL applicant that references the U.S. EPR design certification will provide the site-specific, long-term diffusion estimates for routine releases. In developing this information, the COL applicant should consider the guidance provided in RG 1.23, RG 1.109, RG 1.111, and RG 1.112.	2.3.5
2.3-9	A COL applicant that references the U.S EPR design certification will also provide estimates of annual average atmospheric dispersion (χ/Q values) and deposition (D/Q values) for 16 radial sectors to a distance of 50 miles from the plant as part of its environmental assessment.	2.3.5
2.3-10	Deleted	Deleted
2.4-1	A COL applicant that references the U.S. EPR design certification will provide a site-specific description of the hydrologic characteristics of the plant site.	2.4.1
2.4-2	A COL applicant that references the U.S. EPR design certification will identify site-specific information related to flood history, flood design considerations, and effects of local intense precipitation.	2.4.2
2.4-3	A COL applicant that references the U.S. EPR design certification will provide site-specific information to describe the probable maximum flood of streams and rivers and the effect of flooding on the design.	2.4.3
2.4-4	A COL applicant that references the U.S. EPR design certification will verify that the site specific potential hazards to the safety-related facilities due to the failure of upstream and downstream water control structures are within the hydrogeologic design basis.	2.4.4
2.4-5	A COL applicant that references the U.S. EPR design certification will provide site-specific information on the probable maximum surge and seiche flooding and determine the extent to which safety-related plant systems require protection. The applicant will also verify that the site-specific characteristic envelope is within the design maximum flood level, including consideration of wind effects.	2.4.5
2.4-6	A COL applicant that references the U.S. EPR design will provide site-specific information and determine the extent to which safety-related facilities require protection from tsunami effects, including Probable Maximum Tsunami Flooding.	2.4.6
2.4-7	A COL applicant that references the U.S. EPR design certification will provide site-specific information regarding ice effects and design criteria for protecting safety-related facilities from ice-produced effects and forces with respect to adjacent water bodies.	2.4.7

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
2.4-8	A COL applicant that references the U.S. EPR design certification will evaluate the potential for freezing temperatures that may affect the performance of the ultimate heat sink makeup, including the potential for frazil and anchor ice, maximum ice thickness, and maximum cumulative degree-days below freezing.	2.4.7
2.4-9	A COL applicant that references the U.S. EPR design certification will provide site-specific information and describe the design basis for cooling water canals and reservoirs used for makeup to the UHS cooling tower basins.	2.4.8
2.4-10	A COL applicant that references the U.S. EPR design certification will provide site-specific information and demonstrate that in the event of diversion or rerouting of the source of cooling water, alternate water supplies will be available to safety-related equipment.	2.4.9
2.4-11	A COL applicant that references the U.S. EPR design certification will use site-specific information to compare the location and elevations of safety-related facilities, and of structures and components required for protection of safety-related facilities, with the estimated static and dynamic effects of the design basis flood conditions.	2.4.10
2.4-12	A COL applicant that references the U.S. EPR design certification will identify natural events that may reduce or limit the available cooling water supply, and will verify that an adequate water supply exists for operation or shutdown of the plant in normal operation, anticipated operational occurrences, and in low water conditions.	2.4.11
2.4-13	A COL applicant that references the U.S. EPR design certification will provide site-specific information to identify local and regional groundwater reservoirs, subsurface pathways, onsite use, monitoring or safeguard measures, and to establish the effects of groundwater on plant structures.	2.4.12
2.4-14	A COL applicant that references the U.S. EPR design certification will provide site-specific information on the ability of the groundwater and surface water environment to delay, disperse, dilute, or concentrate accidental radioactive liquid effluent releases, regarding the effects that such releases might have on existing and known future uses of groundwater and surface water resources.	2.4.13
2.4-15	A COL applicant that references the U.S. EPR design certification will describe any emergency measures required to implement flood protection in safety-related facilities and to verify there is an adequate water supply for shutdown purposes.	2.4.14
2.5-1	A COL applicant that references the U.S. EPR design certification will use site-specific information to investigate and provide data concerning geological, seismic, geophysical, and geotechnical information.	2.5.1
2.5-2	A COL applicant that references the U.S. EPR design certification will review and investigate site-specific details of seismic, geophysical, geological, and geotechnical information to determine the safe shutdown earthquake (SSE) ground motion for the site and compare site specific ground motion to the Certified Seismic Design Response Spectra (CSDRS) for the U.S. EPR.	2.5.2
2.5-3	A COL applicant that references the U.S. EPR design certification will compare the final strain-dependent soil profile with the U.S. EPR design generic soil parameters and verify that the site-specific seismic response is enveloped by the CSDRS and the profiles discussed in Section 2.5.2, 2.5.4.7 and 3.7.1 and summarized in Table 3.7.1-6, Table 3.7.1-8 and Table 3.7.1-9.	2.5.2.6
2.5-4	A COL applicant that references the U.S. EPR design certification will verify that site-specific foundation soils beneath the foundation basemats of Seismic Category I structures have the capacity to support the bearing pressure with a factor of safety of 3.0 under static conditions or 2.0 under dynamic conditions, whichever is greater.	2.5.4.10.1
2.5-5	A COL applicant that references the U.S. EPR design certification will investigate site-specific surface and subsurface geologic, seismic, geophysical, and geotechnical aspects within 25 miles around the site and evaluate any impact to the design. The COL applicant will evaluate the potential for surface deformation at the site in accordance with the requirements of 10 CFR 100.23 and of 10 CFR 50, Appendix S. If the potential for surface deformation is present at the site, the COL applicant will evaluate the effects of potential surface deformation on the design and operation of the U.S. EPR.	2.5.3
2.5-6	A COL applicant that references the U.S. EPR design certification will present site-specific information about the properties and stability of soils and rocks that may affect the nuclear power plant facilities under both static and dynamic conditions, including the vibratory ground motions associated with the CSDRS and the site specific SSE.	2.5.4

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
2.5-7	A COL applicant that references the U.S. EPR design certification will verify that the predicted tilt settlement value of ½ in per 50 ft in any direction across the foundation basemat of a Seismic Category I structure is not exceeded. Settlement values larger than this may be demonstrated acceptable by performing additional site-specific evaluations.	2.5.4.10.2
2.5-8	A COL applicant that references the U.S. EPR design certification will evaluate site-specific information concerning the stability of earth and rock slopes, both natural and manmade (e.g., cuts, fill, embankments, dams, etc.), of which failure could adversely affect the safety of the plant.	2.5.5
2.5-9	A COL applicant that references the U.S. EPR design certification will reconcile the site specific soil and backfill properties with those used for design of U.S. EPR Seismic Category I structures and foundations described in Section 3.8.	2.5.4.2
2.5-10	A COL applicant that references the U.S. EPR design certification will investigate and determine the uniformity of the soil layer(s) underlying the foundation basemats of Seismic Category I structures.	2.5.4.10.3
2.5-11	Deleted	Deleted
2.5-12	A COL applicant that references the U.S. EPR design certification will provide an assessment of predicted settlement values across the basemat of Seismic Category I structures during and post construction. The assessment will address both short term (elastic) and long term (heave and consolidation) settlement effects with the site-specific soil parameters, including the soil loading effects from adjacent structures.	2.5.4.10.2
2.5-13	A COL applicant that references the U.S. EPR design certification will perform a site-specific analysis to determine the bearing pressure demand and peak displacement of the NAB. The foundation soils beneath the NAB foundation basemat shall have the capacity to support the bearing pressure with a factor of safety of 3.0 under static conditions, or 2.0 under combined static and dynamic conditions, whichever is greater. The minimum required separation distance is a factor of two times the calculated absolute sum of the maximum combined site-specific NAB and U.S. EPR NI design displacements, but not less than 30 inches.	2.5.4.10.1 3.7.2.8.1
3.1-1	A COL applicant that references the U.S. EPR design certification will identify the site-specific QA Program Plan that demonstrates compliance with GDC-1.	3.1.1.1.1
3.2-1	A COL applicant that references the U.S. EPR design certification will identify the seismic classification of applicable site-specific SSCs that are not identified in Table 3.2.2-1.	3.2.1
3.2-2	A COL applicant that references the U.S. EPR design certification will identify the quality group classification of site-specific pressure-retaining components that are not identified in Table 3.2.2-1.	3.2.2
3.3-1	A COL applicant that references the U.S. EPR design certification will determine site-specific wind, hurricane, and tornado characteristics and compare these to the standard plant criteria. If the site-specific wind, hurricane, and tornado characteristics are not bounded by the site parameters, postulated for the certified design, then the COL applicant will evaluate the design for site-specific wind, hurricane, and tornado events and demonstrate that these loadings will not adversely affect the ability of safety-related structures to perform their safety functions during or after such events.	3.3
3.3-2	A COL applicant that references the U.S. EPR design certification will demonstrate that failure of site-specific structures or components not included in the U.S. EPR standard plant design, and not designed for wind loads, will not affect the ability of other structures to perform their intended safety functions.	3.3.1
3.3-3	A COL applicant that references the U.S. EPR design certification will demonstrate that failure of site-specific structures or components not included in the U.S. EPR standard plant design, and not designed for hurricane and tornado loads, will not affect the ability of other structures to perform their intended safety functions.	3.3.2
3.4-1	A COL applicant that references the U.S. EPR design certification will confirm the potential site specific external flooding events are bounded by the U.S. EPR design basis flood values or otherwise demonstrate that the design is acceptable.	3.4.3.2
3.4-2	A COL applicant that references the U.S. EPR design certification will perform a flooding analysis for the ultimate heat sink makeup water intake structure based on the site-specific design of the structures and the flood protection concepts provided herein.	3.4.3.10
3.4-3	A COL applicant that references the U.S. EPR design certification will define the need for a site-specific permanent dewatering system.	3.4.3.11

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
3.4-4	Deleted	Deleted
3.4-5	Deleted	Deleted
3.4-6	A COL applicant that references the U.S. EPR design certification will include in its maintenance program appropriate watertight door preventive maintenance in accordance with manufacturer recommendations so that each Safeguards Building and Fuel Building watertight door above elevation +0 feet remains capable of performing its intended function.	3.4.1
3.4-7	A COL applicant that references the U.S. EPR design certification will design the watertight seal between the Access Building and the adjacent Category I access path to the Reactor Building Tendon Gallery. Watertight seal design will account for hydrostatic loads, lateral earth pressure loads, and other applicable loads.	3.4.2
3.5-1	A COL applicant that references the U.S. EPR design certification will describe essential elements of a program to confirm that unsecured maintenance equipment, including that required for maintenance and that are undergoing maintenance, will be removed from containment prior to operation, moved to a location where it is not a potential hazard to safety-related SSCs, or seismically restrained to prevent it from becoming a missile.	3.5.1.2.3
3.5-2	A COL applicant that references the U.S. EPR design certification will confirm the evaluation of the probability of turbine missile generation for the selected turbine generator, P1, is less than 1×10^{-5} for turbine-generators unfavorably oriented.	3.5.1.3
3.5-3	A COL applicant that references the U.S. EPR design certification will assess the effect of potential turbine missiles from turbine generators within other nearby or co-located facilities.	3.5.1.3
3.5-4	A COL applicant that references the U.S. EPR design certification will evaluate the potential for other missiles generated by natural phenomena, such as hurricane and tornado winds, and their potential impact on the missile protection design features of the U.S. EPR.	3.5.1.4
3.5-5	A COL applicant that references the U.S. EPR design certification will evaluate the potential for site proximity explosions and missiles generated by these explosions for their potential impact on missile protection design features.	3.5.1.5
3.5-6	A COL applicant that references the U.S. EPR design certification will evaluate site-specific aircraft hazards and their potential impact on plant SSCs.	3.5.1.6
3.5-7	For sites with surrounding ground elevations higher than plant grade, a COL applicant that references the U.S. EPR design certification will confirm that automobile missiles cannot be generated within a 0.5 mile radius of safety-related SSCs that would lead to impact higher than 30 ft above plant grade.	3.5.1.4
3.5-8	A COL applicant that references the U.S. EPR design certification will describe controls to confirm that unsecured compressed gas cylinders will be either removed or seismically supported when not in use to prevent them from becoming missiles.	3.5.1.1.3
3.5-9	A COL applicant that references the U.S. EPR design certification will describe controls to confirm that unsecured maintenance equipment, including that required for maintenance and that are undergoing maintenance, will be either removed or seismically supported when not in use to prevent it from becoming a missile.	3.5.1.1.3
3.6-1	Deleted	Deleted
3.6-2	Deleted	Deleted
3.6-3	Deleted	Deleted
3.6-4	A COL applicant that references the U.S. design certification will provide diagrams showing the configurations, locations, and orientations of the pipe whip restraints in relation to break locations in each piping system.	3.6.2.5.1
3.6-5	A COL applicant that references the U.S. EPR design certification will implement the ISI program as augmented with NRC approved ASME Code cases that are developed and approved for augmented inspections of Alloy 690/152/52 material to address PWSCC concerns.	3.6.3
3.7-1	A COL applicant that references the U.S. EPR design certification will confirm that the site specific seismic response is within the parameters of section 3.7 of the U.S. EPR standard design.	3.7.2
3.7-2	A COL applicant that references the US EPR design certification will provide the site-specific separation distances for the access building and turbine building.	3.7.2.8

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
3.7-3	A COL applicant that references the U.S. EPR design certification will provide a description of methods used for seismic analysis of site-specific Category I concrete dams, if applicable.	3.7.3.13
3.7-4	A COL applicant that references the U.S. EPR design certification will determine whether essentially the same seismic response from a given earthquake is expected at each of the units in a multi-unit site or instrument each unit. In the event that only one unit is instrumented, annunciation shall be provided to each control room.	3.7.4.2
3.7-5	A COL applicant that references the U.S. EPR design certification will determine a location for the free-field acceleration sensor such that the effects associated with surface features, buildings, and components on the recordings of ground motion are insignificant. The acceleration sensor must be based on material representative of that upon which the Nuclear Island (NI) and other Seismic Category I structures are founded.	3.7.4.2.1
3.7-6	A COL applicant that references the US EPR design certification will provide the seismic design basis for the sources of fire protection water supply for safe plant shutdown in the event of a SSE.	3.7.2.8
3.7-7	A COL applicant that references the U.S. EPR design certification will demonstrate that the response of the Access Building to an SSE event will not impair the ability of Seismic Category I systems, structures, or components to perform their design basis safety functions.	3.7.2.8
3.7-8	A COL applicant that references the U.S. EPR design certification will demonstrate that the response of the TB (including Switchgear Building on the common basemat) to an SSE event will not impair the ability of Seismic Category I systems, structures, or components to perform their design basis safety functions.	3.7.2.8
3.8-1	A COL applicant that references the U.S. EPR design certification will confirm that site specific loads lie within the standard plant design envelope for the Reactor Containment Building, or perform additional analyses to verify structural adequacy.	3.8.1.3
3.8-2	A COL applicant that references the U.S. EPR design certification will describe any differences between the standard plant layout and design of Seismic Category I structures required for site-specific conditions.	3.8.4.1
3.8-3	A COL applicant that references the U.S. EPR design certification will confirm that site specific loads lie within the standard design envelope for other Seismic Category I structures, or perform additional analyses to verify structural adequacy.	3.8.4.3
3.8-4	A COL applicant that references the U.S. EPR design certification will provide a description of Seismic Category I buried conduit and duct banks.	3.8.4.1.8
3.8-5	A COL applicant that references the U.S. EPR design certification will provide a description of Seismic Category I buried pipe and pipe ducts.	3.8.4.1.9
3.8-6	A COL applicant that references the U.S. EPR design certification will confirm that site specific loads lie within the standard design envelope for RB internal structures, or perform additional analyses to verify structural adequacy.	3.8.3.3
3.8-7	A COL applicant that references the U.S. EPR design certification will confirm that site-specific conditions for Seismic Category I buried conduit, electrical duct banks, pipe, and pipe ducts satisfy the criteria specified in Section 3.8.4.4.5 and those specified in U.S. EPR FSAR Appendix 3F.	3.8.4.5
3.8-8	A COL applicant that references the U.S. EPR design certification will address site-specific Seismic Category I structures that are not described in this section.	3.8.4.1
3.8-9	A COL applicant that references the U.S. EPR design certification will describe site-specific foundations for Seismic Category I structures that are not described in this section.	3.8.5.1
3.8-10	A COL applicant that references the U.S. EPR design certification will evaluate site-specific methods for shear transfer between the foundation basemats and underlying soil for site-specific soil characteristics that are not within the envelope of the soil parameters specified in Section 2.5.4.2.	3.8.5.5
3.8-11	*[A COL applicant that references the U.S. EPR design certification will evaluate the use of epoxy coated rebar for foundations subjected to aggressive environments, as defined in ACI 349/349R-01, Chapter 4. In addition, waterproofing and dampproofing systems of Seismic Category I foundations subjected to aggressive environments will be evaluated for use in aggressive environments. Also, the concrete of Seismic Category I foundations subjected to aggressive environments will meet the durability requirements of ACI 349/349R-01, Chapter 4 or ASME Code, Section III, Division 2, Article CC-2231.7, as applicable.]*[1]	3.8.5.6.1

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
3.8-12	A COL applicant that references the U.S. EPR design certification will describe the program to examine inaccessible portions of below-grade concrete structures for degradation and monitoring of groundwater chemistry.	3.8.5.7
3.8-13	A COL applicant that references the U.S. EPR design certification will identify site-specific settlement monitoring requirements for Seismic Category I foundations based on site-specific soil conditions.	3.8.5.7
3.8-14	A COL applicant that references the U.S. EPR design certification will describe the design and analysis procedures used for buried conduit and duct banks, and buried pipe and pipe ducts.	3.8.4.4.5
3.8-15	A COL applicant that references the U.S. EPR design certification will use results from site specific investigations to determine the routing of buried pipe and pipe ducts.	3.8.4.4.5
3.8-16	A COL applicant that references the U.S. EPR design certification will perform geotechnical engineering analyses to determine if the surface load will cause lateral and/or vertical displacement of bearing soil for the buried pipe and pipe ducts and consider the effect of wide or extra heavy loads.	3.8.4.4.5
3.8-17	A COL applicant that references the U.S. EPR design certification will address examination of buried safety-related piping in accordance with ASME Section XI, IWA-5244, "Buried Components."	3.8.4.7
3.8-18	A COL applicant that references the U.S. EPR design certification will compare the NI common basemat site-specific predicted angular distortion to the angular distortion in the relative differential settlement contours in U.S. EPR FSAR Figure 3.8-124 through Figure 3.8-134, using methods described in U.S. Army Engineering Manual 1110-1-1904. The comparison is made throughout the basemat in both the east-west and north-south directions. If the predicted angular distortion of the NI common basemat structure is less than the angular distortion shown for each of the construction steps, the site is considered acceptable. Otherwise, further analysis will be required to demonstrate that the structural design is adequate.	3.8.5.5.1
3.8-19	A COL applicant that references the U.S. EPR design certification will compare the EPGB site-specific predicted angular distortion to the angular distortion in the total differential settlement contours in Figure 3.8-135, using methods described in U.S. Army Engineering Manual 1110-1-1904. The comparison is made throughout the basemat in both the east-west and north-south directions. If the predicted angular distortion of the basemat of EPGB structures is less than the angular distortion shown, the site is considered acceptable. Otherwise, further analysis will be required to demonstrate that the structural design is adequate.	3.8.5.5.2
3.8-20	A COL applicant that references the U.S. EPR design certification will compare the ESWB site-specific predicted angular distortion to the angular distortion in the total differential settlement contours in Figure 3.8-136, using methods described in U.S. Army Engineering Manual 1110-1-1904. The comparison is made throughout the basemat in both the east-west and north-south directions. If the predicted angular distortion of the basemat of ESWB structures is less than the angular distortion shown, the site is considered acceptable. Otherwise, further analysis will be required to demonstrate that the structural design is adequate.	3.8.5.5.3
3.8-21	Deleted	Deleted
3.9-1	A COL applicant that references the U.S. EPR design certification will submit the results from the vibration assessment program for the U.S. EPR RPV internals, in accordance with RG 1.20.	3.9.2.4
3.9-2	A COL applicant that references the U.S. EPR design certification will prepare the design specifications and design reports for site-specific ASME Class 1, 2, and 3 components, piping, supports and core support structures that comply with and are certified to the requirements of Section III of the ASME Code. The COL applicant will address the results and conclusions from the reactor internals material reliability programs applicable to the U.S. EPR reactor internals with regard to known aging degradation mechanisms such as irradiation-assisted stress corrosion cracking and void swelling addressed in Section 4.5.2.1.	3.9.3
3.9-3	Deleted	Deleted
3.9-4	As noted in U.S. EPR FSAR Appendix 3F, A COL applicant that references the U.S. EPR design certification will describe essential elements of a program to confirm that thermal deflections do not create adverse conditions during hot functional testing.	3.9.3.1.1

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
3.9-5	As noted in U.S. EPR FSAR Appendix 3F, should a COL applicant that references the U.S. EPR design certification find it necessary to route Class 1, 2, and 3 piping not included in the U.S. EPR design certification so that it is exposed to wind, hurricane, and tornadoes, the design must withstand the plant design-basis loads for this event.	3.9.3.1.1
3.9-6	A COL applicant that references the US EPR design certification will identify any additional site-specific valves in Table 3.9.6-2 to be included within the scope of the IST program.	3.9.6.3
3.9-7	A COL applicant that references the U.S. EPR design certification will submit the preservice testing (PST) program and IST program for pumps, valves, and snubbers as required by 10 CFR 50.55a.	3.9.6
3.9-8	A COL applicant that references the US EPR design certification will identify any additional site-specific pumps in Table 3.9.6-1 to be included within the scope of the IST program.	3.9.6.2
3.9-9	COL applicant that references the U.S. EPR design certification will either use a piping analysis program based on the computer codes described in Section 3.9.1 and Appendix 3C or will implement a U.S. EPR benchmark program using models specifically selected for the U.S. EPR.	3.9.1.2
3.9-10	Pipe stress and support analysis will be performed by a COL applicant that references the U.S. EPR design certification.	3.9.1.2
3.9-11	Deleted	Deleted
3.9-12	A COL applicant that references the U.S.EPR design certification will provide a table identifying the safety-related systems and components that use snubbers in their support systems, including the number of snubbers, type (hydraulic or mechanical), applicable standard, and function (shock, vibration, or dual-purpose snubber). For snubbers identified as either a dual-purpose or vibration arrester type, the COL applicant shall indicate whether the snubber or component was evaluated for fatigue strength.	3.9.6.4
3.9-13	A COL applicant that references the U.S. EPR design certification will identify the implementation milestones and applicable ASME OM Code for the preservice and inservice examination and testing programs. These programs will be consistent with the requirements in the latest edition and addenda of the OM Code incorporated by reference in 10 CFR 50.55a on the date 12 months before the date for initial fuel load.	3.9.6
3.9-14	Deleted	Deleted
3.10-1	Deleted	Deleted
3.10-2	A COL applicant that references the U.S. EPR design certification will identify any additional site specific components that need to be added to the equipment list in Table 3.10-1.	3.10.1.1
3.10-3	If the seismic and dynamic qualification testing is incomplete at the time of the COL application, A COL applicant that references the U.S. EPR design certification will submit an implementation program, including milestones and completion dates, for NRC review and approval prior to installation of the applicable equipment.	3.10.4
3.11-1	Deleted	Deleted
3.11-2	A COL applicant that references the U.S. EPR design certification will identify additional site specific components that need to be added to the environmental qualification list in Table 3.11-1.	3.11.1.1.3
3.11-3	If the equipment qualification testing is incomplete at the time of the COL application, a COL applicant that references the U.S. EPR design certification will submit an implementation program, including milestones and completion dates, for NRC review and approval prior to installation of the applicable equipment.	3.11.3
3.12-1	A COL applicant that references the U.S. EPR design certification will perform a review of the impact of contributing mass of supports on the piping analysis following the final support design to confirm that the mass of the support is no more than ten percent of the mass of the adjacent pipe span. If the impact review determines the piping analysis does not bound the additional mass of the pipe support, the COL applicant will perform reanalysis of the piping to include the additional mass.	3.12.4.2
3.12-2	As indicated in U.S. EPR FSAR Appendix 3F, pipe and support stress analysis will be performed by the COL applicant that references the U.S. EPR design certification. If the COL applicant that references the U.S. EPR design certification chooses to use a piping analysis program other than those listed in Section 3F.5.1 of the U.S. EPR FSAR, the COL applicant will implement a benchmark program using models specifically selected for the U.S. EPR.	3.12.4.3

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
3.12-3	A COL applicant that references the U.S. EPR design certification will describe essential elements of a program to monitor the RHR/SIS/EBS injection piping from the RCS to the first isolation valve (all four trains), and RHR/SIS suction piping from the RCS to the first isolation valve (trains 1 and 4) during the first cycle of the first U.S. EPR initial plant operation to verify that operating conditions have been considered in the design unless data from a similar plant's operation demonstrates that thermal oscillation is not a concern for piping connected to the RCS.	3.12.5.9
3.12-4	A COL applicant that references the U.S. EPR design certification will describe essential elements of a program to monitor pressurizer surge line temperatures during the first fuel cycle of initial plant operation to verify that the design transients for the surge line are representative of actual plant operations.	3.12.5.10.1
3.12-5	A COL applicant that references the U.S. EPR design certification will describe essential elements of a program to monitor the normal spray line temperatures during the first cycle of the first U.S. EPR initial plant operation to verify that the design transients for the normal spray are representative of actual plan operations unless data from a similar plant's operation determines that monitoring is not warranted.	3.12.5.10.3
3.12-6	Deleted	Deleted
3.13-1	A COL applicant referencing the U.S. EPR design certification will submit the inservice inspection program for ASME Class 1, Class 2, and Class 3 threaded fasteners, to the NRC prior to performing the first inspection. The program will identify the applicable edition and addenda of ASME Section XI and ensure compliance with the requirements of 10 CFR 50.55a(b)(2)(xxvii).	3.13.2
3E-1	A COL applicant that references the U.S. EPR design certification will address critical sections relevant to site-specific Seismic Category I structures.	3E
5.2-2	A COL applicant that references the U.S. EPR design certification will identify additional ASME code cases to be used.	5.2.1.2
5.2-3	A COL applicant that references the U.S. EPR design certification will identify the implementation milestones for the site-specific ASME Section XI preservice and inservice inspection program for the reactor coolant pressure boundary, consistent with the requirements of 10 CFR 50.55a (g). The program will identify the applicable edition and addenda of the ASME Code Section XI, and will identify additional relief requests and alternatives to Code requirements.	5.2.4
5.2-4	Deleted	Deleted
5.3-1	A COL applicant that references the U.S. EPR design certification will identify the implementation milestones for the material surveillance program.	5.3.1.6
5.3-2	A COL applicant that references the U.S. EPR design certification will provide a plant-specific pressure and temperature limits report (PTLR), consistent with an approved methodology.	5.3.2.1
5.3-3	A COL applicant that references the U.S. EPR design certification will provide plant-specific RT_{PTS} values in accordance with 10 CFR 50.61 for vessel beltline materials.	5.3.2.3
5.3-4	A COL Applicant that references the U.S. EPR design certification will provide plant specific surveillance data to benchmark BAW-2241P-A and demonstrate applicability to the specific plant.	5.3.1.6.2
5.4-1	A COL applicant that references the U.S. EPR design certification will identify the edition and addenda of ASME Section XI applicable to the site specific Steam Generator inspection program.	5.4.2.5.2.2
5.4-2	A COL applicant that references the U.S. EPR design certification will assess the risk (impact on the PRA and risk significant human actions) associated RCS maintenance performed with fuel in the vessel.	5.4.7
6.1-1	A COL applicant that references the U.S. EPR design certification will review the fabrication and welding procedures and other QA methods of ESF component vendors to verify conformance with RGs 1.44 and 1.31.	6.1.1.1
6.1-2	A COL applicant that references the U.S. EPR design certification will define a coating application and maintenance program for components that cannot be procured with DBA qualified coatings in accordance with 10 CFR 50 Appendix B, Criterion IX.	6.1.2.3.2
6.1-3	A COL applicant that references the U.S. EPR design certification will define the coatings program and its implementation, including maintenance and repair of coatings.	6.1.2.2.2

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
6.2-1	A COL applicant that references the U.S. EPR design certification will identify the implementation milestones for the CLRT program described under 10 CFR 50, Appendix J.	6.2.6
6.3-1	A COL applicant that references the U.S. EPR design certification will describe the containment cleanliness program which limits debris within containment.	6.3.2.2.2
6.4-2	A COL applicant that references the U.S. EPR design certification will provide written emergency planning and procedures in the event of a radiological or a hazardous chemical release within or near the plant, and will provide training of control room personnel.	6.4.3
6.4-3	A COL applicant that references the U.S. EPR design certification will evaluate the results of the toxic chemical accidents from Section 2.2.3, address their impact on control room habitability in accordance with RG 1.78, and if necessary, identify the types of sensors and automatic control functions required for control room operator protection.	6.4.1
6.4-4	A COL applicant that references the U.S. EPR design certification will confirm that the radiation exposure of main control room occupants resulting from a design basis accident at a nearby unit on a multi-unit site is bounded by the radiation exposure from the postulated design basis accidents analyzed for the U.S. EPR; or confirm that the limits of GDC-19 are met.	6.4.4
6.6-1	A COL applicant that references the U.S. EPR design certification will identify the implementation milestones for the site-specific ASME Section XI preservice and inservice inspection program for the Class 2 and Class 3 components, consistent with the requirements of 10 CFR 50.55a (g). The program will identify the applicable edition and addenda of the ASME Code Section XI, and will identify additional relief requests and alternatives to Code requirements.	6.6
7.1-1	Deleted	Deleted
7.1-2	A COL applicant that references the U.S. EPR design certification will, following selection of the actual plant operating instrumentation and calculation of the instrumentation uncertainties of the operating plant parameters, calculate the primary power calorimetric uncertainty. The calculations will be completed using an NRC acceptable method and confirm that the safety analysis primary power calorimetric uncertainty bounds the calculated values.	7.7.2.3.5
7.1-3	A COL applicant that references the U.S. EPR design certification will identify the need for any site-specific PAM variables.	7.5.2.2.1
7.1-4	A COL applicant that references the U.S. EPR design certification will establish a plan to address the site-specific implementation of the limitations and conditions identified in Section 4 of the NRC Safety Evaluation for Topical Report ANP-10272A, "Software Program Manual for TELEPERM XS Safety Systems."	7.1.1
8.1-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information describing the interface between the offsite transmission system, and the nuclear unit, including switchyard interconnections.	8.1.1
8.1-2	A COL applicant that references the U.S. EPR design certification will identify site-specific loading differences that raise EDG or Class 1E battery loading, and demonstrate the electrical distribution system is adequately sized for the additional load.	8.1.3
8.2-1	A COL applicant that references the U.S. EPR design certification will provide site specific information regarding the offsite transmission system and their connections to the station switchyard.	8.2.1.1
8.2-2	A COL applicant that references the U.S. EPR design certification will provide site-specific information for the switchyard layout design.	8.2.1.2
8.2-3	A COL applicant that references the U.S. EPR design certification will provide site-specific information that identifies actions necessary to restore offsite power and use available nearby power sources when offsite power is unavailable.	8.2.2.7
8.2-4	A COL applicant that references the U.S. EPR design certification will provide a site-specific grid stability analysis.	8.2.2.4
8.2-5	A COL applicant that references the U.S. EPR design certification will provide site-specific information for the protective devices that control the switchyard breakers and other switchyard relay devices.	8.2.1.2
8.2-6	A COL applicant that references the U.S. EPR design certification will provide site-specific information for the station switchyard equipment inspection and testing plan.	8.2.2.5

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
8.2-7	A COL applicant that references the U.S. EPR design certification will provide site specific information regarding the communication agreements and protocols between the station and the transmission system operator, independent system operator, or reliability coordinator and authority. Additionally, the applicant will provide a description of the analysis tool used by the transmission system operator to determine, in real time, the impact that the loss or unavailability of various transmission system elements will have on the condition of the transmission system to provide post-trip voltages at the switchyard. The information provided will be consistent with information requested in NRC Generic Letter 2006-02.	8.2.1.1
8.2-8	A COL applicant that references the U.S. EPR design certification will provide site-specific information regarding indication and control of switchyard components.	8.2.1.2
8.2-9	A COL applicant that references the U.S. EPR design certification will describe essential elements of a program for the operation, setpoint determination, and surveillance testing of the Phase Monitoring System for the GDC 17 off-site power feeds to address NRC Bulletin 2012-01.	8.2.2.4
8.3-1	A COL applicant that references the U.S. EPR design certification will establish procedures to monitor and maintain EDG reliability during plant operations to verify the selected reliability level target is being achieved as intended by RG 1.155.	8.3.1.1.5
8.3-2	A COL applicant that references the U.S. EPR design certification will describe inspection, testing and monitoring programs to detect the degradation of inaccessible or underground power cables that support EDGs, offsite power, ESW and other systems that are within the scope of 10 CFR 50.65.	8.3.1.1.8
8.4-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information that identifies any additional local power sources and transmission paths that could be made available to resupply the power plant following a LOOP.	8.4.1.3
8.4-2	A COL applicant that references the U.S. EPR design certification will address the RG 1.155 guidance related to procedures and training to cope with SBO.	8.4.2.6.4
9.1-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information on the heavy load handling program, including a commitment to procedures for heavy load lifts in the vicinity of irradiated fuel or safe shutdown equipment, and crane operator training and qualification.	9.1.5.2.5
9.1-2	A COL applicant that references the U.S. EPR design certification will perform appropriate tests and analyses, which demonstrate that an identified NRC-approved cask can be safely connected to the spent fuel cask transfer facility (SFCTF), and the cask and its adapter meet the criteria specified in Table 9.1.4-1, prior to initial fuel loading into the reactor.	9.1.4
9.2-1	A COL applicant that references the U.S. EPR design certification will provide site specific information for the UHS support systems such as makeup water, blowdown, and chemical treatment (to control biofouling).	9.2.5.2
9.2-2	A COL applicant that references the U.S. EPR design certification will provide site-specific details related to the sources and treatment of makeup to the potable and sanitary water system along with a simplified piping and instrument diagram.	9.2.4.2.1
9.2-3	The raw water supply system (RWSS) and the design requirements of the RWSS are site specific and will be addressed by the COL applicant.	9.2.9
9.2-4	A COL applicant that references the U.S. EPR design certification will provide a description of materials that will be used for the essential service water system (ESWS) at their site location, including the basis for determining that the materials being used are appropriate for the site location and for fluid properties that apply	9.2.1.3.5
9.2-5	A COL applicant that references the U.S. EPR design certification will provide a description of materials that will be used for the UHS at their site location, including the basis for determining that the materials being used are appropriate for the site location and for the fluid properties that apply.	9.2.5.2, 9.2.5.3.2
9.2-6	A COL applicant that references the U.S. EPR design certification will confirm by analysis of the highest average site-specific wet bulb and dry bulb temperatures over a 72-hour period from a 30-year hourly regional climatological data set that the site-specific evaporative and drift losses for the UHS are bounded by the values presented in Table 9.2.5-3.	9.2.5.3.3

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
9.2-7	A COL applicant that references the U.S. EPR design certification will confirm that the site characteristic sum of 0% exceedance maximum noncoincident wet bulb temperature and the site-specific wet bulb correction factor does not exceed the value provided in Table 9.2.5-2. If the value in Table 9.2.5-2 is exceeded, the maximum UHS cold-water return temperature of 95°F is to be confirmed by analysis (see Section 9.2.5.3.3).	9.2.5.3.1, 9.2.5.3.3
9.2-8	A COL applicant that references the U.S. EPR design certification will confirm that the site-specific UHS makeup capacity is sufficient to meet the maximum evaporative and drift water loss after 72 hours through the remainder of the 30-day period consistent with RG 1.27.	9.2.5.3.3
9.2-9	A COL applicant that references the U.S. EPR design certification will compare site-specific chemistry data for normal and emergency makeup water to the parameters in Table 9.2.5-5. If the specific data for the site fall within the assumed design parameters in Table 9.2.5-5, then the U.S. EPR standard design is bounding for the site. For site-specific normal and emergency makeup water data or characteristics that are outside the bounds of the assumptions presented in Table 9.2.5-5, the COL applicant will provide an analysis to confirm that the U.S. EPR UHS cooling towers are capable of removing the design basis heat load for a minimum of 30 days without exceeding the maximum specified temperature limit for ESWS and minimum required basin water level.	9.2.5.2, 9.2.5.2.4
9.2-10	A COL applicant that references the U.S. EPR design certification will perform an evaluation of the interference effects of the UHS cooling tower on nearby safety-related air intakes. This evaluation will confirm that potential UHS cooling tower interference effects on the safety related air intakes does not result in air intake inlet conditions that exceed the U.S. EPR Site Design Parameters for Air Temperature as specified in Table 2.1-1.	9.2.5.3.1
9.2-11	A COL applicant that references the U.S. EPR design certification will confirm that the maximum UHS cold-water return temperature of 95°F is met by an analysis that confirms that the worst combination of site-specific wet bulb and dry bulb temperatures over a 24-hour period, from a 30-year hourly regional climatological data set is bounded by the values presented in Table 9.2.5-4.	9.2.5.3.3
9.4-1	A COL applicant that references the U.S. EPR design certification will provide site-specific design information for the turbine building ventilation system (TBVS).	9.4.4
9.4-2	A COL applicant that references the U.S. EPR design certification will provide site-specific design information for the switchgear building ventilation system, turbine island (SWBVS).	9.4.4
9.5-1	A COL applicant referencing the U.S. EPR certified design will identify additional site specific communication locations necessary to support effective communication between plant personnel in all vital areas of the plant during normal operation, as well as during accident conditions.	9.5.2.3
9.5-2	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.1.7.1, Design and Procurement Document Control.	Table 9.5-1, C.1.7.1
9.5-3	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.1.7.2, Instructions, Procedures and Drawings.	Table 9.5-1, C.1.7.2
9.5-4	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.1.7.3, Control of Purchased Material, Equipment, and Services.	Table 9.5-1, C.1.7.3
9.5-5	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.1.8, Fire Protection Program Changes/Code Deviations.	Table 9.5-1, C.1.8
9.5-6	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.1.8.1, Change Evaluations.	Table 9.5-1, C.1.8.1
9.5-7	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.1.8.5, 10 CFR 50.72 Notification and 10 CFR 50.73 Reporting.	Table 9.5-1, C.1.8.5
9.5-8	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.1.8.7, Fire Modeling.	Table 9.5-1, C.1.8.7

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Item No.	Description	Section
9.5-9	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.5.5, Post-Fire Safe- Shutdown Procedures.	Table 9.5-1, C.5.5
9.5-10	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.5.5.1, Safe- Shutdown Procedures.	Table 9.5-1, C.5.5.1
9.5-11	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.5.5.2, Alternative/Dedicated Shutdown Procedures.	Table 9.5-1, C.5.5.2
9.5-12	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.5.5.3, Repair Procedures.	Table 9.5-1, C.5.5.3
9.5-13	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.6.2.4, Independent Spent Fuel Storage Areas.	Table 9.5-1, C.6.2.4
9.5-14	A COL applicant that references the U.S. EPR design certification will submit site specific information to address the Regulatory Guide 1.189, Regulatory Position C.6.2.6, Cooling Towers.	9.5.1.2.1
9.5-15	A COL applicant that references the U.S. EPR design certification will submit site specific information to address Regulatory Guide 1.189, Regulatory Position C.7.6, Nearby Facilities.	Table 9.5-1, C.7.6
9.5-16	Deleted	Deleted
9.5-17	Deleted	Deleted
9.5-18	A COL applicant that references the U.S. EPR design certification will perform a supplemental Fire Protection Analysis for site-specific areas of the plant not analyzed by the FSAR.	9.5.1.3
9.5-19	A COL applicant that references the U.S. EPR design certification will provide a description and simplified Fire Protection System piping and instrumentation diagrams for site-specific systems.	9.5.1.2.1
9.5-20	A COL applicant that references the U.S. EPR design certification will describe the program used to monitor and maintain an acceptable level of quality in the fire protection system freshwater storage tanks.	9.5.1.2.1
9.5-21	A COL applicant that references the U.S. EPR design certification will provide a description of the offsite communication system that interfaces with the onsite communication system, including type of connectivity, radio frequency, normal and backup power supplies and plant security system interface.	9.5.2.1.1
9.5-22	A COL applicant that references the U.S. EPR design certification will describe the site-specific sources of acceptable fuel oil available for refilling the EDG fuel oil storage tanks within seven days, including the means of transporting and refilling the fuel storage tanks, following a design basis event to enable each diesel generator system to supply uninterrupted emergency power.	9.5.4.4
10.0-1	Deleted	Deleted
10.2.1	Deleted	Deleted
10.2-2	A COL applicant that references the U.S. EPR design certification will provide applicable material properties of the site-specific turbine rotor, including the method of calculating the fracture toughness properties.	10.2.3.1
10.2-3	A COL applicant that references the U.S. EPR design certification will provide applicable site-specific turbine disk rotor specimen test data, load displacement data from the compact tension specimens and the fracture toughness properties.	10.2.3.2
10.2-4	Deleted	Deleted
10.2-5	A COL applicant that references the U.S. EPR design certification will provide the site-specific turbine rotor inservice inspection program and inspection interval consistent with the manufacturer's turbine missile analysis.	10.2.3.6
10.2-6	A COL applicant that references the U.S. EPR design certification will include ultrasonic examination of the turbine rotor welds or provide an analysis which demonstrates that defects in the root of the rotor welds will not grow to critical size for the life of the rotor.	10.2.3.6

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Item No.	Description	Section
10.2-7	A COL applicant that references the U.S. EPR design certification will provide the site-specific inservice inspection program, inspection intervals, and exercise intervals consistent with the turbine manufacturer's recommendations for the main steam stop and control valves, the reheat stop and intercept valves, and the extraction non-return valves.	10.2.2.12
10.2-8	A COL applicant that references the U.S. EPR design certification will provide a reliability evaluation of the overspeed protection system, which includes the inspection, testing, and maintenance requirements needed to demonstrate reliable performance of the system.	10.2.2.9
10.3-1	A COL applicant that references the U.S. EPR design certification will identify the authority responsible for implementation and management of the secondary side water chemistry program.	10.3.5
10.3-2	A COL applicant that references the U.S. EPR design certification will describe essential elements of a FAC condition monitoring program that is consistent with Generic Letter 89-08 and NSAC-202L-R3 for the carbon steel portions of the steam and power conversion systems that contain water or wet steam.	10.3.6.3
10.4-1	A COL applicant that references the U.S. EPR design certification will describe the site-specific main condenser materials.	10.4.1.2
10.4-2	A COL applicant that references the U.S. EPR design certification will describe the site-specific design pressure and test pressure for the main condenser.	10.4.1.2
10.4-3	A COL applicant that references the U.S. EPR design certification will provide the description of the site-specific portions of the CWS.	10.4.5.2.1
10.4-4	A COL applicant that references the U.S. EPR design certification will provide the specific chemicals used to support the chemical treatment system as determined by the site-specific water conditions.	10.4.5.2.2
10.4-5	A COL applicant that references the U.S. EPR design certification will provide the site-specific CWS piping design pressure.	10.4.5.2.2
10.4-6	If a vacuum priming system is required, a COL applicant that references the U.S. EPR design certification will provide the site-specific information.	10.4.5.2.2
10.4-7	A COL applicant that references the U.S. EPR design certification will provide information to address the potential for flooding of safety-related equipment due to failures of the site-specific CWS.	10.4.5.3
11.2-1	A COL applicant that references the U.S. EPR design certification will perform a site-specific liquid waste management system cost-benefit analysis.	11.2.4
11.2-2	A COL applicant that references the U.S. EPR design certification will provide site-specific information on the release pathway, including a detailed description of the discharge path and plant sources of dilution, the need for backflow prevention to the retention pond, the discharge flow rate, and dilution factors at or beyond the point of discharge.	11.2.3.3
11.2-3	A COL applicant that references the U.S. EPR design certification will confirm that the site-specific parameters are bounded by those provided in Table 11.2-5 and the dose pathways provided in Section 11.2.3.4.1. For site-specific parameters that are not bounded by the values provided in Table 11.2-5 and dose pathways other than those provided in Section 11.2.3.4.1, a COL applicant that references the U.S. EPR design certification will perform a site-specific liquid pathway dose analysis following the guidance provided in RG 1.109 and RG 1.113, and compare the doses to the numerical design objectives of 10 CFR Part 50, Appendix I and demonstrate compliance with requirements of 10 CFR Part 20.1302 and 40 CFR Part 190.	11.2.3.4.2
11.2-4	A COL applicant that references the U.S. EPR design certification will confirm that the site-specific annual average liquid effluent concentrations are bounded by those specified in Table 11.2-7. For site-specific annual average liquid effluent concentrations that exceed the values provided in Table 11.2-7, a COL applicant that references the U.S. EPR design certification will demonstrate that the annual average liquid effluent concentrations for expected and design basis conditions meet the limits of 10 CFR Part 20, Appendix B, Table 2 in unrestricted areas.	11.2.3.5

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Item No.	Description	Section
11.2-5	A COL applicant that references the U.S. EPR design certification will confirm that the site-specific data (such as distance from release location to unrestricted area, contaminant migration time, and dispersion and dilution in surface or ground water) are bounded by those specified in Section 11.2.3.7. For site-specific parameters that exceed the values provided in Section 11.2.3.7, a COL applicant that references the U.S. EPR design certification will provide a site-specific analysis to demonstrate that the resulting water concentrations in the unrestricted area would meet the concentration limits of 10 CFR Part 20, Appendix B, Table 2 using the guidance provided in SRP Sections 2.4.12, 2.4.13, 11.2 and BTP 11-6.	11.2.3.7
11.2-6	A COL applicant that references the U.S. EPR design certification, and that chooses to install and operate mobile radioactive waste processing skids, or mobile decontamination systems connected to permanently installed U.S. EPR equipment will include plant and site-specific information describing how design features and implementation of operating procedures will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.2, RG 4.21 and RG 1.143, IE Bulletin 80-10, NEI 08-08, and the quality assurance requirements as stated in Section 4.3 of ANSI/ANS 55.6-1993.	11.2.1.2.4
11.3-1	A COL applicant that references the U.S. EPR design certification will perform a site-specific gaseous waste management system cost-benefit analysis.	11.3.4
11.3-2	A COL applicant that references the U.S. EPR design certification will provide a discussion of the onsite vent stack design parameters and site-specific release point characteristics.	11.3.3.3
11.3-3	A COL applicant that references the U.S. EPR design certification will confirm that the site-specific parameters are bounded by those provided in Table 11.3-4 and the dose pathways provided in Section 11.3.3.4. For site-specific parameters that are not bounded by the values provided in Table 11.3-4 and dose pathways other than those provided in Section 11.3.3.4, a COL applicant that references the U.S. EPR design certification will perform a site-specific gaseous pathway dose analysis following the guidance provided in RG 1.109 and RG 1.111, and compare the doses to the numerical design objectives of 10 CFR Part 50, Appendix I and demonstrate compliance with requirements of 10 CFR Part 20.1302 and 40 CFR Part 190.	11.3.3.4
11.3-4	A COL applicant that references the U.S. EPR design certification will confirm that the site-specific annual average gaseous effluent concentrations are bounded by those specified in Table 11.3-6. For site-specific annual average gaseous effluent concentrations that exceed the values provided in Table 11.3-6, a COL applicant that references the U.S. EPR design certification will demonstrate that the annual average gaseous effluent concentrations for expected and design basis conditions meet the limits of 10 CFR Part 20, Appendix B, Table 2 in unrestricted areas.	11.3.3.5
11.3-5	A COL applicant that references the U.S. EPR design certification will confirm that the site-specific accident atmospheric dispersion data is bounded by the values provided in Table 2.1-1. For site-specific accident atmospheric dispersion data that exceed the values provided in Table 2.1-1, a COL applicant that references the U.S. EPR design certification will provide a site-specific analysis demonstrating that the resulting dose at the exclusion area boundary associated with a radioactive release due to gaseous waste system leak or failure does not exceed 0.1 rem in accordance with SRP Section 11.3, BTP 11-5.	11.3.3.6
11.3-6	A COL applicant that references the U.S. EPR design certification and that chooses to install and operate mobile skid-mounted processing systems connected to permanently installed GWMS processing equipment will include plant and site-specific information describing how design features and implementation of operating procedures for the GWMS will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.3, RG 4.21, RG 1.143, IE Bulletin 80-10, and NEI 08-08.	11.3.1.2.4
11.4-1	A COL Applicant that references the U.S. EPR design certification will fully describe, at the functional level, elements of the Process Control Program (PCP). This program description will identify the administrative and operational controls for waste processing process parameters and surveillance requirements which demonstrate that the final waste products meet the requirements of applicable federal, state, and disposal site waste form requirements for burial at a 10 CFR 61 licensed low level disposal site, toxic or hazardous waste requirements per 10 CFR 20.2007, and will be in accordance with the guidance provided in RG 1.21, NUREG-0800 Branch Technical Position 11-3, ANSI/ANS-55.1-1992, and Generic Letters 80-09, 81-38, and 81-39. NEI 07-10A PCP Template is an alternate means of demonstrating compliance with GL 89-01 and SECY 05-0197 until a plant specific PCP is developed under license conditions.	11.4.3

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Item No.	Description	Section
11.4-2	A COL applicant that references the U.S. EPR design certification and that chooses to install and operate mobile skid-mounted processing systems connected to permanently installed solid waste management system (SWMS) processing equipment will include plant and site-specific information describing how design features and implementation of operating procedures for the SWMS will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.4, Regulatory Guides 4.21 and 1.143, IE Bulletin 80-10, industry standards, NEI 08-08, and all quality assurance requirements as stated in Section 7 of ANSI/ANS 40.37-1993.	11.4.1.2.5
11.4-3	A COL applicant that references the U.S. EPR design certification will address plant-specific commitments to address the long-term storage of LLRW beyond the provisions described in the U.S. EPR design certification when such storage capacity is exhausted and describe how additional onsite LLRW storage or alternate LLRW storage will be integrated in plant operations. To address the need for additional storage, the commitment will address the requirements of 10 CFR Part 20, Appendix B (Table 2, Column 1 and 2); dose limits of 10 CFR 20.1301, 20.1302, and 20.1301(e) in unrestricted areas; Part 20.1406(b) in minimizing the contamination of plant facilities and environs; and design objectives of Sections II.A, II.B, II.C, and II.D of Appendix I to 10 CFR Part 50. The design and operations of additional onsite storage capacity will be integrated in the plant-specific process control program and consider the guidance of SRP Section 11.4 and Appendix 11.4-A, Regulatory Guides 1.206, 4.21 and 1.143, IE Bulletin 80-10, industry standards, and NEI 08-08.	11.4.1.2.1
11.5-1	A COL applicant that references the U.S. EPR design certification will fully describe, at the functional level, elements of the process and effluent monitoring and sampling programs required by 10 CFR Part 50 Appendix I, and 10 CFR 52.79 (a)(16). This program description, Offsite Dose Calculation Manual (ODCM), will specify how a licensee controls, monitors, and performs radiological evaluations of releases. The program will also document and report radiological effluents discharged to the environment. NEI 07-09A is an alternate means of demonstrating compliance with GL 89-01 and SECY 05-0197 until a plant and site-specific ODCM is developed under a license condition.	11.5.2
11.5-2	A COL applicant that references the U.S. EPR design certification and that chooses to install and operate skid-mounted radiation monitoring and sampling systems connected to permanently installed radioactive process and waste management systems will include plant-specific information describing how design features and implementation of operating procedures for the PERMSS will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.5, Regulatory Guides 4.21 and 1.143, IE Bulletin 80-10, ANSI/HPS-13.1-1999 and ANSI N42.18-2004, and NEI 08-08.	11.5.1
11.5-3	A COL applicant that references the U.S. EPR design certification is responsible for deriving PERMSS subsystem's lower limits of detection or detection sensitivities, and set-points (alarms and process termination/diversion) for liquid and gaseous process radiation monitoring equipment not covered by the ODCM based on plant and site-specific conditions and operating characteristics of each installed radiation monitoring subsystem.	11.5.2
11.5-4	A COL applicant that references the U.S. EPR design certification is responsible for developing a plant-specific process and effluent radiological sampling and analysis plan for systems not covered by the ODCM, including provisions describing sampling and analytical frequencies, and radiological analyses for the expected types of liquid and gaseous samples and waste media generated by the LWMS, GWMS, and SWMS.	11.5.2
12.1-1	A COL applicant that references the U.S. EPR design certification will fully describe, at a functional level, elements of the ALARA program for ensuring that occupational radiation exposures are ALARA. This program will comply with provisions of 10 CFR Part 20 and be consistent with the guidance in RGs 1.8, 8.2, 8.7, 8.8, 8.9, 8.10, 8.13, 8.15, 8.27, 8.28, 8.29, 8.34, 8.35, 8.36, and 8.38, and the applicable portions of NUREG-1736.	12.1.3
12.2-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information for required radiation sources containing byproduct, source, and special nuclear material that may warrant shielding design considerations. This site-specific information will include a listing of isotope, quantity, form, and use of all sources in this latter category that exceed 100 millicuries.	12.2.1.13
12.3-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information on the extent to which the guidance provided by RG 1.21, 1.97, 8.2, 8.8, and ANSI/ HPS-N13.1-1999 is employed in sampling recording and reporting airborne releases of radioactivity.	12.3.4.5

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Item No.	Description	Section
12.3-2	A COL applicant that references the U.S. EPR design certification will provide site-specific information on estimated annual doses to construction workers in a new unit construction area as a result of radiation from onsite radiation sources from the existing operating plant(s). This information will include bases, models, assumptions, and input parameters associated with these annual doses.	12.3.5.1
12.3-3	A COL applicant that references the U.S. EPR design certification will describe the use of portable instruments, and the associated training and procedures, to accurately determine the airborne iodine concentration within the facility where plant personnel may be present during an accident, in accordance with requirements of 10 CFR 50.34(f)(2)(xxvii) and the criteria in Item III.D.3.3 of NUREG-0737. The procedures for locating suspected high-activity areas will be described.	12.3.4.5
12.3-4	Deleted	Deleted
12.3-5	A combined license (COL) applicant that references the U.S. EPR design certification will include in its normal radiation protection program administrative controls to verify the requirements of 10 CFR 20.1601(d) and 10 CFR 20.1602 are met through periodic testing of reactor containment building doors (i.e., every 24 months).	12.3.1.8.1
12.5-1	A COL applicant that references the U.S. EPR design certification will fully describe, at the functional level, elements of the Radiation Protection Program. The purpose of the Radiation Protection Program is to maintain occupational and public doses ALARA. The program description will identify how the program is developed, documented, and implemented through plant procedures that address quality requirements commensurate with the scope and extent of licensed activities. This program will comply with the provisions of 10 CFR Parts 19, 20, 50, 52, and 71 and be consistent with the guidance in Regulatory Guides 1.206, 1.8, 8.2, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.13, 8.15, 8.27, 8.28, 8.29, 8.34, 8.35, 8.36, 8.38, and the consolidated guidance in NUREG-1736.	12.5
13.1-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information for management, technical support, and operating organizations.	13.1
13.2-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information for training programs for plant personnel.	13.2
13.2-2	A COL applicant that references the U.S. EPR design certification will assess their training program to demonstrate that the spent fuel pool instrumentation will be maintained available and reliable in an extended loss of AC power. Personnel shall be trained in the use and the provision of alternate power to the safety-related level instrument channels.	13.2
13.3-1	A COL applicant that references the U.S. EPR design certification will provide a site-specific emergency plan in accordance with 10 CFR 50.47 and 10 CFR 50 Appendix E.	13.3
13.3-2	A COL applicant that references the U.S. EPR design certification will address the requested information in Fukushima Recommendation 9.3 regarding Emergency Preparedness Communications and Staffing, as outlined in Enclosure 5 of the request for additional information, pursuant to the 10 CFR 50.54(f) letter dated March 12, 2012 (ML12053A340).	13.3
13.4-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information for operational programs and schedule for implementation.	13.4
13.5-1	A COL applicant that references the U.S. EPR design certification will provide site-specific information for administrative, operating, emergency, maintenance, and other operating procedures.	13.5
13.6-1	A COL applicant that references the U.S. EPR design certification will provide a site-specific security assessment that adequately demonstrates how the performance requirements of 10 CFR 73.55(a) are met for the initial implementation of the security program.	13.6
13.6-2	A COL applicant that references the U.S. EPR design certification will provide a security plan to the NRC to fulfill the requirements of 10 CFR 52.79(a)(35).	13.6
13.6-3	A COL applicant that references the U.S. EPR design certification will provide a security program through the PSP and supporting documents such as the vital equipment list and the vital areas list that incorporates the security features listed in the U.S. EPR FSAR Tier 2, Section 13.6.	13.6
13.6-4	A COL applicant that references the U.S. EPR design certification will provide a cyber security plan consistent with 10 CFR 73.54.	13.6
13.7-1	A COL applicant that references the U.S. EPR design certification will submit a physical security plan to the NRC to fulfill the fitness for duty requirements of 10 CFR Part 26.	13.7

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Item No.	Description	Section
14.2-1	A COL applicant that references the U.S. EPR certified design will provide site specific information that describes the organizational units that manage, supervise, or execute any phase of the test program.	14.2.2
14.2-2	A COL applicant that references the U.S. EPR certified design will develop a test program that considers the following guidance components: 1. The applicant should allow at least nine months to conduct preoperational testing. 2. The applicant should allow at least three months to conduct startup testing, including fuel loading, low-power tests, and power-ascension tests. 3. Plant safety will not be dependent on the performance of untested SSCs during any phase of the startup test program. 4. Surveillance test requirements will be completed in accordance with plant Technical Specification requirements for SSC operability before changing plant modes. 5. Overlapping test program schedules (for multiunit sites) should not result in significant divisions of responsibilities or dilutions of the staff provided to implement the test program. 6. The sequential schedule for individual startup tests should establish, insofar as practicable, that test requirements should be completed prior to exceeding 25 percent power for SSC that are relied on to prevent, limit, or mitigate the consequences of postulated accidents. 7. Approved test procedures should be in a form suitable for review by regulatory inspectors at least 60 days prior to their intended use or at least 60 days prior to fuel loading for fuel loading and startup test procedures. 8. Identify and cross reference each test (or portion thereof) required to be completed before initial fuel loading and that is designed to satisfy the requirements for completing ITAAC.	14.2.11
14.2-3	A COL applicant that references the US EPR design certification will provide site-specific information for review and approval of test procedures.	14.2.3
14.2-4	A COL applicant that references the US EPR design certification will address the site-specific administrative procedures for review and approval of test results.	14.2.5
14.2-5	A COL applicant that references the U.S. EPR design certification will provide site-specific test abstract information for the circulating water supply system.	14.2.12
14.2-6	A COL applicant that references the U.S. EPR certified design will either perform the natural circulation test (Test #196) or provide justification for not performing the test. The need to perform the test will be based on evaluation of previous natural circulation test results and a comparison of reactor coolant system (RCS) hydraulic resistance coefficients applicable to normal flow conditions.	14.2.12
14.2-7	A COL applicant that references the U.S. EPR design certification will provide site-specific test abstract information for the cooling tower.	14.2.12
14.2-8	A COL applicant that references the U.S. EPR design certification will provide site-specific test abstract information for the raw water supply system.	14.2.12
14.2-9	A COL applicant that references the U.S. EPR design certification will provide site-specific test abstract information for personnel radiation monitors.	14.2.12
14.2-10	A COL applicant that references the U.S. EPR design certification will plan, and subsequently conduct, the plant startup test program.	14.2.4
14.2-11	A COL applicant that references the U.S. EPR design certification will identify the specific operator training to be conducted as part of the low-power testing program related to the resolution of TMI Action Plan Item I.G.1, as described in (1) NUREG-0660 - NRC Action Plans Developed as a Result of the TMI-2 Accident, Revision 1, August 1980, (2) NUREG-0694 - TMI-Related Requirements for New Operating Licenses, June 1980, and (3) NUREG-0737 - Clarification of TMI Action Plan requirements.	14.2.9
14.2-12	A COL applicant that references the U.S. EPR design certification will provide site-specific test abstract information for plant laboratory equipment.	14.2.12
14.2-13	A COL applicant that references the U.S. EPR design certification will provide site-specific test abstract information for the turbine island ventilation systems.	14.2.12
14.3-1	A COL applicant that references the U.S. EPR design certification will provide ITAAC for emergency planning, physical security, and site specific portions of the facility that are not included in the Tier 1 ITAAC associated with the certified design (10 CFR 52.80(a)).	14.3
14.3-2	A COL applicant that references the U.S. EPR design certification will describe the selection methodology for site-specific SSCs to be included in ITAAC, if the selection methodology is different from the methodology described within the FSAR, and will also provide the selection methodology associated with emergency planning and physical security hardware.	14.3

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Item No.	Description	Section
14.3-3	A COL applicant that references the U.S. EPR design certification will identify a plan for implementing DAC. The plan will identify 1) the evaluations that will be performed for DAC, 2) the schedule for performing these evaluations, and 3) the associated design processes and information that will be available to the NRC for audit.	14.3.6.3
15.0-1	A COL applicant that references the U.S. EPR design certification will provide for staff review a report that demonstrates compliance with the following items applicable to the first cycle of operation: ♦ Examine fuel assembly characteristics to verify that they are hydraulically compatible based on the criterion that a single package of assembly specific critical heat flux (CHF) correlations can be used to evaluate the assembly performance. ♦ Verify that uncertainties used in the setpoint analyses are appropriate for the plant and cycle being analyzed. ♦ Verify that the DNBR and LPD satisfy SAFDL with a 95/95 assurance. ♦ Review the U.S. EPR FSAR Tier 2 analysis results for the first cycle to confirm that the static setpoint value provides adequate protection for at least three limiting AOO.	15.0
16.0-1	Reviewer's Notes and brackets are used to identify information or characteristics that are plant specific or are based on preliminary design information. A COL applicant that references the U.S. EPR design certification will provide the necessary information in response to the Reviewer's Notes and replace preliminary information provided in brackets of the Technical Specifications and Technical Specification Bases with plant specific values.	16.0
17.2-1	A COL applicant that references the U.S. EPR design certification will provide the Quality Assurance Programs associated with the construction and operations phases.	17.2
17.4-1	A COL applicant that references the U.S. EPR design certification will identify the site-specific SSCs within the scope of the RAP.	17.4.2
17.4-2	A COL applicant that references the U.S. EPR design certification will provide the information requested in Regulatory Guide 1.206, Section C.I.17.4.4.	17.4.4
17.6-1	A COL applicant that references the U.S. EPR design certification will describe the process for determining which plant structures, systems, and components (SSCs) will be included in the scope of the Maintenance Rule Program in accordance with 10 CFR 50.65(b). The program description will identify that additional SSCs functions may be added to or subtracted from the Maintenance Rule scope prior to fuel load, when additional information is developed (e.g., emergency operating procedures, or EOP), and after the license is issued.	17.6.1
17.6-2	A COL applicant that references the U.S. EPR design certification will provide the process for determining which SSCs within the scope of the Maintenance Rule program will be tracked to demonstrate effective control of their performance or condition in accordance with 10 CFR 50.65(a)(2).	17.6.2
17.6-3	A COL applicant that references the U.S. EPR design certification will provide a program description for monitoring SSCs in accordance with 10 CFR 50.65(a)(1).	17.6.2
17.6-4	A COL applicant that references the U.S. EPR design certification will identify and describe the program for periodic evaluation of the Maintenance Rule program in accordance with 10 CFR 50.65(a)(3).	17.6.3
17.6-5	A COL applicant that references the U.S. EPR design certification will describe the program for maintenance risk assessment and management in accordance with 10 CFR 50.65(a)(4). Since the removal of multiple SSCs from service can lead to a loss of Maintenance Rule functions, the program description will address how removing SSCs from service will be evaluated. For qualitative risk assessments, the program description will explain how the risk assessment and management program will preserve plant-specific key safety functions.	17.6.4
17.6-6	A COL applicant that references the U.S. EPR design certification will describe the program for selection, training, and qualification of personnel with Maintenance-Rule-related responsibilities consistent with the provisions of Section 13.2 as applicable. Training will be commensurate with maintenance rule responsibilities, including Maintenance Rule Program administration, the expert panel process, operations, engineering, maintenance, licensing, and plant management.	17.6.5

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
17.6-7	A COL applicant that references the U.S. EPR design certification will describe the relationship and interface between the Maintenance Rule Program and the Reliability Assurance Program.	17.6.6
17.6-8	A COL applicant that references the U.S. EPR design certification will describe the plan or process for implementing the Maintenance Rule Program in the COL application, which includes establishing program elements through sequence and milestones and monitoring or tracking the performance and/or condition of SSCs as they become operational.	17.6.8
17.6-9	A COL applicant that references the U.S. EPR design certification will describe the program for Maintenance Rule implementation.	17.6
18.1-1	A COL applicant that references the U.S. EPR design certification will execute the NRC approved HFE program as described in this section.	18.1
18.1-2	A COL applicant that references the U.S. EPR design certification will be responsible for HFE design implementation for a new Emergency Operations Facility (EOF) or changes resulting from the addition of the U.S. EPR to an existing EOF.	18.1.1.3
18.5-1	A COL applicant that references the U.S. EPR design will confirm that actual staffing levels and qualifications of plant personnel specified in Section 13.1 of the COL application remain bounded by regulatory requirements and results of the staffing and qualifications analysis.	18.5
18.8-1	A COL applicant that references the U.S. EPR design certification will describe how HFE principles and criteria are incorporated into the development program for site procedures.	18.8
18.9-1	A COL applicant that references the U.S. EPR design certification will describe how HFE principles and criteria are incorporated into the development of training program scope, structure, and methodology.	18.9
19.0-1	A COL applicant that references the U.S. EPR design certification will either confirm that the PRA in the design certification bounds the site specific design information and any design changes or departures, or update the PRA to reflect the site-specific design information and any design changes or departures.	19.0
19.1-1	A COL applicant that references the U.S. EPR design certification will describe the uses of PRA in support of licensee programs and identify and describe risk-informed applications being implemented during the combined license application phase.	19.1.1.2
19.1-2	A COL applicant that references the U.S. EPR design certification will describe the uses of PRA in support of licensee programs and identify and describe risk-informed applications being implemented during the construction phase.	19.1.1.3
19.1-3	A COL applicant that references the U.S. EPR design certification will describe the uses of PRA in support of licensee programs and identify and describe any risk-informed applications being implemented during the operational phase.	19.1.1.4
19.1-4	A COL applicant that references the U.S. EPR design certification will conduct a peer review of the PRA relative to the ASME PRA Standard prior to use of the PRA to support risk-informed applications.	19.1.2.3
19.1-5	A COL applicant that references the U.S. EPR design certification will describe the applicant's PRA maintenance and upgrade program.	19.1.2.4.1
19.1-6	A COL applicant that references the U.S. EPR design certification will confirm that the U.S. EPR PRA-based seismic margin assessment is bounding for their specific site, and will update it to include site-specific SSC and soil effects (including sliding, overturning liquefaction and slope failure).	19.1.5.1.2.4
19.1-7	A COL applicant that references the U.S. EPR design certification will perform the site-specific screening analysis and the site-specific risk analysis for external events applicable to their site.	19.1.5.4
19.1-8	A COL applicant that references the U.S. EPR design certification will describe the uses of PRA in support of site-specific design programs and processes during the design phase.	19.1.1.1

Table 1.8-2 — FSAR Sections that Address COL Items

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Item No.	Description	Section
19.1-9	A COL applicant that references the U.S. EPR design certification will describe the process to review as-designed and as-built information and conduct walk-downs as necessary to confirm that the assumptions used in the PRA (including PRA inputs to RAP and SAMDA) remain valid with respect to internal events, internal flood and fire events (routings and locations of pipe, cable and conduit), and HRA analyses (development of operating procedures, emergency operating procedures and severe accident management guidelines and training), external events including PRA-based seismic margins plant and sequence level HCLPF capacities, and LPSD procedures. The process to review and confirm assumptions shall consider the key uncertainties identified by the PRA.	19.1.2.2
19.1-10	A COL applicant that references the U.S. EPR design certification will, for equipment on the SEL, confirm that seismic margin is achieved through the seismic qualification implementation program by demonstrating HCLPF capacities as provided in Table 19.1-106.	19.1.5.1.1.3
19.2-1	A COL applicant that references the U.S. EPR design certification will develop and implement severe accident management guidelines using the Operating Strategies for Severe Accidents (OSSA) methodology described in U.S. EPR FSAR Section 19.2.5 and in ANP-10314, Revision 0, "The Operating Strategies for Severe Accidents Methodology for the U.S. EPR Technical Report."	19.2.5
19.2-2	AREVA Technical Report ANP-10329 discusses the Phase 1, Phase 2, and Phase 3 actions that are performed to mitigate an ELAP event. A COL applicant that references the U.S. EPR design certification will address the actions listed in Table 19.2-6. The COL applicant will also address obtaining sufficient offsite resources to sustain core cooling, containment, and spent fuel pool cooling functions indefinitely.	19.2.8

[1]This is U.S. EPR FSAR Tier 2* information, therefore, NRC Staff approval is required prior to implementing a change in this information marked in this table; see U.S. EPR FSAR Introduction.

1.9 CONFORMANCE WITH REGULATORY CRITERIA

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

The U.S. EPR FSAR includes the following COL Item in Section 1.9:

> A COL applicant that references the U.S. EPR design certification will review and address the conformance with regulatory criteria in effect six months before the docket date of the COL application for the site-specific portions and operational aspects of the facility design.

This COL Item is addressed as follows:

A guide to U.S. EPR conformance with regulatory criteria is presented in Section 1.9 of the U.S. EPR FSAR. Conformance with regulatory criteria was summarized in Sections 1.9.1 through 1.9.5 of the U.S. EPR FSAR, including four conformance demonstration tables. These four conformance demonstration tables include U.S. EPR FSAR Table 1.9–2, U.S. EPR Conformance with Regulatory Guides, U.S. EPR FSAR Table 1.9–3, U.S. EPR Conformance with TMI Requirements (10 CFR 50.34(f)) and Generic Issues (NUREG-0933), U.S. EPR FSAR Table 1.9–4, U.S. EPR Conformance with Advanced and Evolutionary Light-Water Reactor Design Issues (SECY-93-087), Table 1–2, U.S. EPR Conformance with Standard Review Plan (NUREG-0800) from ANP-10292, U.S. EPR Conformance with Standard Review Plan (NUREG-0800) Technical Report (AREVA 2009).

Codes used to indicate conformance determinations in the "U.S. EPR Assessment" columns of the four conformance demonstration tables are listed in Table 1.9-1 of the U.S. EPR FSAR. The definition of the conformance code "N/A-COL" is:

> Guidance addresses concerns not addressed with the context of a design certification application and must be addressed by a combined license (COL) applicant referencing the U.S. EPR design certification.

Site-specific conformance to relevant aspects of the associated NRC guidance, as stipulated within the specific context of the cited guidance statement, was assessed for the regulatory guidance assigned a code of "N/A-COL" in the four conformance demonstration tables of the U.S. EPR FSAR.

Regulatory guidance not applicable to {CCNPP Unit 3} or not within the scope of the FSAR is not identified as non-conforming. Therefore, exceptions to this non-applicable regulatory guidance are not required. For example, Regulatory Guide 1.81, Shared Emergency and Shutdown Electric Systems for Multi-Unit Nuclear Power Plants, is not applicable to {CCNPP Unit 3} since it does not share emergency or shutdown electric systems with {CCNPP Units 1 and 2}. The results of these assessments are presented in Sections 1.9.1, 1.9.2, 1.9.3, and 1.9.5. Conformance with regulatory criteria associated with operational experience (generic communications) is addressed in Section 1.9.4.

1.9.1 Conformance with Regulatory Guides

Site-specific assessment of conformance with the regulatory guidance identified with a code of "N/A-COL" in Table 1.9-2 of the U.S. EPR FSAR was performed. Those Regulatory Guides for which the facility takes exception are identified in Table 1.9-1. The document and section that address the exceptions are also provided in Table 1.9-1. No exceptions are taken to other applicable Regulatory Guides included in U.S. EPR FSAR Table 1.9-2.

1.9.2 Conformance with the Standard Review Plan

Site-specific assessment of conformance with regulatory guidance identified with a code of "N/A-COL" in Table 1-2 of ANP-10292 (AREVA, 2009) was performed. No exceptions are taken to the applicable NUREG-0800 acceptance criteria included in ANP-10292, Table 1-2.

1.9.3 Generic Issues

Assessment of the conformance with regulatory requirements and guidance identified with a code of "N/A-COL" in Table 1.9-3 of the U.S. EPR FSAR was performed. {CCNPP Unit 3} conforms to the regulatory requirements and applicable regulatory guidance in effect six months prior to the submittal date of the COL application that were assigned an assessment code of "N/A-COL" in Table 1.9-3 of the U.S. EPR FSAR.

1.9.4 Operational Experience (Generic Communications)

Operational experience described in Bulletins and Generic Letters are incorporated by the NRC staff into updates of applicable sections of NUREG-0800. The U.S. EPR design certification application was submitted on December 11, 2007 (AREVA, 2007) and addressed conformance with the most recent NUREG-0800 updates relative to the U.S. EPR design certification application, March 2007 (for NUREG-0800 Chapters 1-18) and June 2007 (for NUREG-0800 Chapter 19). {In the time period from the mentioned NUREG-0800 updates to September, 2007 (i.e. six months prior to submittal of the remainder of the CCNPP Unit 3 COL application), no new applicable NRC Bulletins or Generic Letters were issued. Therefore, the conformance assessment for CCNPP Unit 3 relative to operational experience is satisfied by the conformance assessment provided in Section 1.9.2 above.}

1.9.5 Advanced and Evolutionary Light-Water Reactor Design Issues

Assessment of the conformance with regulatory guidance identified with a code of "N/A-COL" in Table 1.9-4 of the U.S. EPR FSAR was performed. {CCNPP Unit 3} conforms to the applicable regulatory guidelines in effect six months prior to the submittal date of the COL application that were assigned an assessment code of "N/A-COL" in Table 1.9-4 of the U.S. EPR FSAR.

1.9.6 References

AREVA, 2007. Application for Standard Design Certification of the U.S. EPR (Project No. 733), AREVA, December 2007.

AREVA, 2009. U.S. EPR Conformance with Standard Review Plan (NUREG-0800) Technical Report, ANP-10292, Revision 1, AREVA, May 2009.

Table 1.9-1 — {Conformance with Regulatory Guides}

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RG / Rev	Description	Exception Descriptions	Reference
		Division 1 Regulatory Guides	
1.8, R3	Qualification and Training of Personnel for Nuclear Power plants	Licensed personnel are not able to meet Regulatory Guide 1.8, Rev. 3 operating plant experience requirements on CCNPP Unit 3. Regulatory Guide 1.8, Rev. 2, Regulatory Position C.1.b will be followed instead for a cold licensing program.	FSAR 13.1.3.1 FSAR 13.2 Technical Specifications 5.3.1
		Quality Control and Quality Assurance personnel will meet education and experience requirements in accordance with the approved Quality Assurance Program Description.	FSAR 13.1.3.1
		The Quality Assurance Manager will approve the use of an alternative for the formal education and experience requirements for Quality Assurance positions in accordance with the approved Quality Assurance Program Description.	FSAR 13.1.3.1
1.16, R4	Reporting of Operating Information—Appendix A Technical Specifications	The annual operating report and monthly operating report are submitted in accordance with Technical Specifications. Event reporting is performed in accordance with 10 CFR 50.72 and 50.73 utilizing the guidance of NUREG-1022. Technical Specifications reporting requirements are implemented, as required.	License Condition and Technical Specifications
1.23, R1	Meteorological Monitoring Programs for Nuclear Power Plants	Atmospheric moisture data for the UHS and CWS cooling towers are not taken on site. They are taken from the closest source of atmospheric moisture data at the Patuxent River Naval Air Station. The meteorological tower is at a different elevation than plant grade to assure the tower is on a level, open terrain. No wind shield installed on the precipitation gauge prior to June 2009. A digital data sampling rate of 10 seconds will be used instead of 5 seconds.	FSAR 2.3.3.1.7, 2.3.1.2.2.13, and 2.3.3.2.7 ER 6.4.1, 6.4.1.7, and 6.4.2.7
1.28, R3	Quality Assurance Program Requirements	Quality Assurance Program Requirements are in accordance with the approved Quality Assurance Program Description.	FSAR 17.5
1.30, R0	Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment	Quality Assurance requirements for the installation, inspection, and testing of instrumentation and electric equipment are in accordance with the approved Quality Assurance Program Description.	FSAR 17.5
1.33, R2	Quality Assurance Program Requirements (Operation)	Quality Assurance Program Requirements for Operation are in accordance with the approved Quality Assurance Program Description.	FSAR 17.5
1.38, R2	Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, Handling of Items for Water-Cooled Nuclear Power Plants	Quality Assurance requirements for packaging, shipping, receiving, storage, and handling of items are in accordance with the approved Quality Assurance Program Description.	FSAR 17.5
1.70, R3	Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)	The format and content of the FSAR follows Regulatory Guide 1.206 and the U.S. EPR FSAR.	FSAR 1.1.6

Table 1.9-1 — {Conformance with Regulatory Guides}

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RG / Rev	Description	Exception Descriptions	Reference
1.94, R1	Quality Assurance Requirements for Installation, Inspection and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants	Quality Assurance Program Requirements for installation, inspection and testing of structural concrete and structural steel during the construction phase of nuclear power plants are in accordance with the approved Quality Assurance Program Description.	FSAR 17.5
1.116, R0	Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems	Quality Assurance Program Requirements for installation, inspection, and testing of mechanical equipment and systems are in accordance with the approved Quality Assurance Program Description.	FSAR 17.5
1.132, R2	Site Investigation for Foundations of Nuclear Power Plants	Soil boring quantities, locations, and depths, vertical deviation measurements, and soil core photography deviate from Regulatory Guide 1.132.	FSAR 2.5.4.2.2.2
1.138, R2	Laboratory Investigations of Soils and rocks for Engineering Analysis and Design of Nuclear Power Plants	More recent ASTM or EPA standards were used that are equivalent to the out-of-date and uncommon test procedures discussed in Regulatory Guide 1.138, R2	FSAR 2.5.4.2.4
1.198, R0	Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites	Aerial photography was not conducted to plan and conduct the subsurface investigation due to uniformity in geologic conditions between the existing CCNPP Units 1 and 2 and CCNPP Unit 3.	FSAR 2.5.4.8.2
1.208, R0	A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion	EPRI Report TR-1014381 was used in lieu of EPRI Report 1013105. The former report is the final EPRI report versus the latter update report cited in the Regulatory Guide. There is no technical difference between the recommended CEUS sigma values and report conclusions. Equation 7 in Appendix D, Step 3, Determining Controlling Earthquakes, was not used because it is incorrect. A corrected equation was used instead.	FSAR 2.5.2.4.5
		The mean magnitude and mean distance contributing to high frequency ground motion was used versus the average magnitude and average distance specified in Appendix D. Use of the mean provides a more accurate description of the magnitudes and distances.	FSAR 2.5.2.4.6
Division 4 Regulatory Guides			
4.4, R0	Reporting Procedure for Mathematical Models Selected to Predict Heated Effluent Dispersion in Nuclear Water Bodies	NUREG-1555 Section 5.3.2 was utilized.	ER 5.3.2
Division 5 Regulatory Guides			
None			
Division 8 Regulatory Guides			
8.2, R0	Guide for Administrative Practices in Radiation Monitoring	The reference to 10 CFR 20.401 is no longer valid in the current version of 10 CFR Part 20 ANSI N13.2-1969 was reaffirmed in 1988.	FSAR 12.5

Table 1.9-1 — {Conformance with Regulatory Guides}

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RG / Rev	Description	Exception Descriptions	Reference
8.4, R0	Direct-Reading and Indirect-Reading Pocket Dosimeters	The reference to 10 CFR 20.202 (a) and 20.401 is no longer valid in the current version of 10 CFR Part 20. ANSI N13.5-1972 was reaffirmed in 1989. The two performance criteria specified in Regulatory Guide 8.4 (accuracy and leakage) for these devices are met using acceptance standards in ANSI N322-1997 "American National Standard Inspection, Test, Construction, and Performance Requirements for Direct Reading Electrostatic/ Electroscope Type Dosimeters."	FSAR 12.5
8.6, R0	Standard Test Procedure for Geiger-Muller Counters	The instrument calibration program is based upon criteria in ANSI N323-1978 (R1993) "Radiation Protection Instrumentation and Calibration."	FSAR 12.5
8.8,R3	Information Relevant to Ensuring That Occupational Radiation Exposures at Nuclear Power Stations Will Be As Low As Reasonably Achievable	Section C.3.b – Regulatory Guide 1.16 Section C.1.b (3) data is no longer reported. Reporting is also no longer required for Section C.1.b (2). Sections C.4.b – C.4.d – Conformance is with the latest revision of NUREG-0041.	FSAR 12.5

1.10 {HAZARDS POSED BY NEW UNIT CONSTRUCTION ON THE OPERATING UNITS

This section is added as a supplement to the U.S. EPR FSAR.

Paragraph 10 CFR 52.79(a)(31) requires that the FSAR include the following information:

For nuclear power plants to be operated on multi-unit sites, an evaluation of the potential hazards to the structures, systems, and components important to safety of operating units resulting from construction activities, as well as a description of the managerial and administrative controls to be used to provide assurance that the limiting conditions for operation are not exceeded as a result of construction activities at the multi-unit sites.

In accordance with 10 CFR 52.79(a)(31), the following provides an assessment of the potential hazards to the structures, systems, and components (SSCs) important to safety of CCNPP 1 and 2 operating units resulting from CCNPP Unit 3 construction activities and identifies that managerial and administrative controls are to be used to provide assurance that the limiting conditions for operation (LCOs) at the operating units, are not exceeded as a result of new plant construction activities.

The managerial and administrative controls include coordination, with CCNPP Units 1 and 2, of construction activities which have the potential for causing CCNPP Units 1 and 2 to exceed LCOs or have an adverse impact on the availability of safety and risk significant SSCs, CCNPP Units 1 and 2 procedures and processes are currently in place to control activities that could affect compliance with an LCO or availability of safety and risk significant SSCs, e.g., equipment clearance and tagout procedures, access controls, and switchyard controls.

The potential hazards associated with CCNPP Unit 3 construction activities include, but are not limited to, general construction activities such as site exploration, grading, clearing, and installation of drainage and erosion-control measures; boring, drilling, dredging, pile driving and excavating; transportation, storage and warehousing of equipment; construction, erection, and fabrication of new facilities; and connection, integration, and testing. Specific potential impacts to CCNPP Units 1 and 2 SSCs include the following:

- Relocation and construction of transmission lines/towers (including modifications to CCNPP Units 1 and 2 switchyard)
- Construction of Sheetpile wall and Intake Pipes on the shore of the Chesapeake Bay next to the embayment for the intake structures for CCNPP Units 1 and 2
- Meteorological data transmission modifications (electrical and instrumentation tie-ins and connections to provide input to CCNPP Unit 3 facilities)
- Modification to the existing Emergency Operations Facility to accommodate CCNPP Unit 3 Emergency Planning activities

The majority of the CCNPP Units 1 and 2 SSCs important to safety are contained and protected within safety-related structures. CCNPP Unit 3 managerial controls will protect these internal SSCs from postulated construction hazards by maintaining the integrity and design basis of the safety-related structures and foundations. Heavy load drop controls, crane boom failure standoff requirements, ground vibration controls and construction generated missile controls are examples of managerial controls that shall be established to provide reasonable assurance.

Other managerial controls shall be established to ensure that hazardous materials and gasses are controlled, cooling water supplies are protected, instrumentation is protected from vibrations, and the SSCs are protected from site excavation issues. These managerial controls prevent or mitigate external construction impacts that could affect these SSCs. These controls also prevent or mitigate unnecessary challenges to CCNPP Units 1 and 2 safety systems that could be caused by potential CCNPP Unit 3 construction activity hazards, such as disruption of offsite transmission lines or impact to cooling water supplies. Onsite construction activities with potential safety significance to the operating units shall also be addressed in accordance with established CCNPP Units 1 and 2 procedures and processes, as described above.

Construction impacts on security controls are addressed in the CCNPP Unit 3 Security Plan. The CCNPP Unit 3 Security Plan is provided in Part 8 of the COL application.

The evaluation of potential impact of the construction of CCNPP Unit 3 on CCNPP Units 1 and 2 SSCs important to safety is summarized below, along with a description of the managerial and administrative controls used to provide assurance that CCNPP Units 1 and 2 LCOs are not exceeded as a result of CCNPP Unit 3 construction activities. This evaluation involves several sequential steps:

- Identification of potential construction activity hazards
- Identification of SSCs important to safety
- Identification of LCOs
- Identification of impacted SSCs and LCOs
- Identification of applicable managerial and administrative controls

1.10.1 Potential Construction Activity Hazards

CCNPP Unit 3 is located on the existing Calvert Cliffs Nuclear Power Plant (CCNPP) site on a parcel of land adjacent to and generally south of the two operating units, CCNPP Units 1 and 2, as shown in Figures 2.1-1, 2.1-4, and 2.1-6.

CCNPP Unit 3 construction activities include site exploration, boring, drilling, clearing, grading, demolition and excavation; installation of drainage and erosion control measures, dredging, storage and warehousing of equipment; and construction, erection and fabrication of new facilities. These activities involve major standard plant and site-specific structures such as the Reactor Building, Nuclear Auxiliary Building, Safeguards Buildings, Fuel Building, Emergency Diesel Generator Buildings, Essential Service Water Building, Ultimate Heat Sink Related Structures; Circulating Water Structure, Turbine Building, as well as related support facilities such as transformers, switchyard(s), transmission lines, cooling water structures and systems, water treatment facilities, storage tanks, etc.

The applicable time period for such activities starts when work is first performed under the COL for CCNPP Unit 3 (structural backfill) and ends for each CCNPP Unit 3 SSC when responsibility for that SSC is transferred to the responsible and accountable operating organization. In addition any major site preparation work performed prior to COL issuance, such as excavation, grading, blasting, etc., will be coordinated with CCNPP Units 1 and 2.

Each of the types of construction activities necessary to build CCNPP Unit 3 was examined to identify the potential hazards to the existing CCNPP Units 1 and 2. The resulting list of construction activities and potential hazards is shown in Table 1.10-1.

1.10.2 Structures, Systems and Components Important to Safety

Consistent with 10 CFR 50.34 and 10 CFR 50, Appendix A, CCNPP Units 1 and 2 SSCs important to safety are identified in Chapter 3 through 9 of the CCNPP Units 1 and 2 Updated Final Safety Analysis Report (UFSAR), Revision 45, dated October 2, 2012 (CC1&2, FS2012).

1.10.3 Limiting Conditions for Operation

Pursuant to 10 CFR 50.36, LCOs are the lowest functional capability or performance levels of equipment required for safe operation of a facility and are established in operating unit technical specifications for each item meeting one or more of the following criteria:

- Criterion 1 - Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary (RCPB).

- Criterion 2 - A process variable, design feature, or operating restriction that is an initial condition of a design basis accident (DBA) or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

- Criterion 3 - A SSC that is part of the primary success path and which functions or actuates to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

- Criterion 4 - A SSC which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The applicable LCOs are found in the CCNPP Units 1 and 2 Technical Specifications (CC1& 2, TS 2013).

1.10.4 Impacted Structures, Systems and Components and Limiting Conditions for Operation

The information described in Sections 1.10.1-1.10.3 was evaluated to identify CCNPP Units 1 and 2 SSCs and LCOs that might be impacted by CCNPP Unit 3 construction activities. For example, internal/in-plant CCNPP Units 1 and 2 LCO parameters were eliminated by examination. Similarly, SSCs both internal and specific to CCNPP Units 1 and 2 are not affected.

For each of the potential hazards listed in Table 1.10-1, Table 1.10-2 presents the potential consequences to the SSCs of the existing units that were identified in the above process.

1.10.5 Managerial and Administrative Controls

Managerial and administrative controls are utilized to identify preventive and mitigating measures and provide notification of hazardous activity initiation in order to prevent or minimize exposure of SSCs to the identified hazards. Applicable managerial and administrative controls are listed in Table 1.10-3.

Specific hazards, impacted SSCs, and managerial and administrative controls will be developed and implemented as work progresses on site. For example, prior to construction activities that

involve the use of large construction equipment such as cranes, managerial and administrative controls will be in place to prevent adverse impacts on CCNPP Units 1 and 2 overhead power lines, switchyard, security boundary, etc., by providing the necessary restrictions on the use of large construction equipment.

1.10.6 References

CC1&2, FS2012 Calvert Cliffs Nuclear Power Plant, Units 1 and 2, Updated Final Safety Analysis Report, Revision 45, dated October 2, 2012.

CC1&2, TS2013 Calvert Cliffs Nuclear Power Plant, Units 1 and 2, Operating License Appendix A, Technical Specifications, Revised 7/31/2013.}

Table 1.10-1 — {Potential Hazards to Units 1 and 2 from Unit 3 Construction Activities}

Construction Activity	Potential Hazards
Site Exploration, Grading, Clearing, Installation of Drainage and Erosion Control Measures, etc.	Impact on Overhead Power Lines
	Impact on Transmission Towers
	Impact on Underground Conduits, Piping, Tunnels, etc.
	Impact on Site Access and Egress
	Impact on Drainage Facilities and Structures
	Impact on Onsite Transportation Routes
	Impact on Slope Stability
	Impact of Increased Soil Erosion and Local Flooding
	Impact of Construction-Generated Dust and Equipment Exhausts
	Impact of Encroachment on Plant Protected Vital Areas
	Impact of Encroachment on Structures and Facilities
Boring, Drilling, Pile Driving, Dredging, Demolition, Excavation, etc.	Impact on Underground Conduits, Piping, Tunnels, etc.
	Impact on Foundation Integrity
	Impact on Structural Integrity
	Impact on Slope Stability
	Impact of Ground Vibration
	Impact of Overpressure from Use of Explosives
Equipment Movement, Material Delivery, Vehicle Traffic, etc.	Impact on Overhead Power Lines
	Impact on Transmission Towers
	Impact on Underground Conduits, Piping, Tunnels, etc.
	Impact of Crane Load Drops
	Impact of Crane or Crane Boom Failures
	Impact of Vehicle Accidents
	Impact of Vehicle Runaways
Equipment and Material Laydown, Storage, Warehousing, etc.	Impact of Releases of Stored Flammable, Hazardous or Toxic Materials
	Impact of Increase Local Flooding
	Impact of Wind-Generated, Construction-Related Debris and Missiles
General Construction, Erection, Fabrication, etc., Including Installation of the Sheet Pile Wall	Impact on Instrumentation and Control Systems and Components
	Impact on Electrical Systems and Components
	Impact on Cooling Water Systems and Components
	Impact on Radioactive Waste Release Points and Parameters
	Impact of Abandonment of SSCs
	Impact of Relocation of SSCs
Connection, Integration, Tie-In, Testing, etc., Including Connection to the CCNPP Unit 1 and 2 Switchyard and Meteorological Tower	Impact on Instrumentation and Control Systems and Components
	Impact on Electrical and Power Systems and Components
	Impact on Cooling Water Systems and Components
General Site Construction Activities	Impact on Site Security Systems

Table 1.10-2 — {Potential Consequences to Units 1 and 2 Due to Potential Hazards Resulting from Unit 3 Construction Activities}

(Page 1 of 2)

Potential Hazard	Potential Consequences
Containment Structure	
Impact of Crane or Crane Boom Failures	Building Degradation Due to Crane Boom Failure
Impact of Wind-Generated Construction-Related Debris and Missiles	Effects of Construction-Related Debris or Missiles
Impact of Overpressure from Use of Explosives	Building Degradation Due to Structural Damage as a Result of Explosion
Control Room Emergency HVAC Systems	
Impact of Construction-Generated Dust and Equipment Exhausts	Effects of Construction-Generated Dust and Equipment Exhausts on Control Room Habitability Systems Air Intakes
Impact of Releases of Flammable, Hazardous or Toxic Materials	Effects of Releases of Flammable, Hazardous or Toxic Materials on Control Room Habitability Systems Design Basis
Impact of Vehicle Accidents	Effects of Releases of Flammable, Hazardous or Toxic Materials on Control Room Habitability Systems Design Basis
Diesel Generators	
Impact of Construction-Generated Dust and Equipment Exhausts	Effects of Construction-Generated Dust and Equipment Exhausts on Emergency Diesel Generator Combustion Air Intakes
Fire Protection System	
Impact on Underground Conduits, Piping, Tunnels, etc.	Degradation of Fire Protection System (FPS) Availability or Capacity
Impact of the Relocation of SSCs	Degradation of FPS Availability or Capacity
Fuel Building	
Impact of Wind-Generated Construction-Related Debris and Missiles	Effects of Construction-Related Debris or Missiles
Gaseous Radioactive Waste Management System	
Impact on Radioactive Waste Release Points and Parameters	Building and Facility Effects on Gaseous Release X/Q and D/Q Assumptions
Offsite Power System	
Impact on Overhead Power Lines	Transmission line disruptions due to grading or clearing, equipment movement, crane boom failures, etc.
Impact on Transmission Towers	Transmission line disruptions due to grading or clearing, equipment movement, crane boom failures, etc.
Impact of Vibratory Ground Motion	Operability disruptions due to vibration induced spurious trips
Impact on Electrical Systems and Components	Operability disruptions due to equipment movement, system interconnections, etc.
Onsite Power System	
Impact of Vibratory Ground Motion	Operability disruptions due to vibration induced spurious trips
Impact on Electrical Systems and Components	Operability disruptions due to vibration induced spurious trips, system interconnections, etc.
Service Building	
Impact of Crane or Crane Boom Failures	Building degradation due to crane boom failure
Impact of Wind-Generated Construction-Related Debris and Missiles	Construction-related debris or missile
Service Water System	
Impact on Underground Conduits, Piping, Tunnels, etc.	Degradation of Service Water System availability or capacity
Impact on Cooling Water Systems and Structures	Degradation of Service Water System availability or capacity
Impact of the Relocation of SSCs	Degradation of Service Water System availability or capacity

Table 1.10-2 — {Potential Consequences to Units 1 and 2 Due to Potential Hazards Resulting from Unit 3 Construction Activities}

(Page 2 of 2)

Potential Hazard	Potential Consequences
Salt Water System	
Impact on Underground Conduits, Piping, Tunnels, etc.	Degradation of Salt Water System availability or capacity
Impact on Cooling Water Systems and Components	Degradation of Salt Water System availability or capacity

Table 1.10-3 — {Managerial and Administrative Controls for Unit 3 Construction Activity Hazards}

Hazard	Control
Impact on Overhead Power Lines	Administrative controls for appropriate standoff and/or installation of temporary support towers
Impact on Transmission Towers	Administrative controls for appropriate standoff and/or installation of temporary support towers
Impact on Underground Conduits, Piping, Tunnels, Etc.	Administrative controls to identify potentially affected SSCs; evaluation to ensure structural integrity during construction; and/or temporary measures to mitigate impacts
Impact of Construction-Generated Dust and Equipment Exhausts	Administrative controls to avoid or minimize construction dust (for example, use of water spray trucks) and/or enhanced monitoring of potentially affected system intakes, filters, etc.
Impact of Overpressure From Use of Explosives	Administrative controls to coordinate transport, storage and use of explosives and/or temporary measures to mitigate impacts
Impact of Vehicle Accidents	Administrative controls to respond to site accidents (for example, construction fire brigade and/or hazardous materials response team)
Impact of Ground Vibration	Administrative controls to identify potentially affected SSCs, and/or temporary measures to mitigate impacts
Impact of Crane or Crane Boom Failures	Administrative controls for appropriate standoff and/or load limits (for example, minimum standoff distances and/or load limitations)
Impact of Releases of Flammable, Hazardous or Toxic Materials	Administrative controls on quantities and types of flammable, hazardous or toxic materials
Impact of Wind-Generated, Construction-Related Debris and Missiles	Administrative controls on equipment and material storage and transport, and for reducing power or shutting down Units 1 and 2 during high winds or high wind warnings
Impact on Electrical Systems and Components	Administrative controls to identify potentially affected SSCs; evaluation to ensure system and component integrity during construction; and/or temporary measures to mitigate impacts
Impact on Cooling Water Systems and Components	Administrative controls to identify potentially affected SSCs; evaluation to ensure system and component integrity during construction; and/or temporary measures to mitigate impacts
Impact on Radioactive Waste Release Points and Parameters	Enhanced monitoring and control to ensure releases are within limits
Impact of Relocation of SSCs	Administrative controls to identify potentially affected SSCs effects of releases of flammable, hazardous or toxic materials on control room habitability systems design basis evaluation to ensure system and component integrity during construction; and/or temporary measures to mitigate impacts
Impact on Site Security Systems	Administrative controls to coordinate construction activities with Units 1 and 2 physical protection personnel and procedures

{1A NEGATION ACTION PLAN

1A.1 Introduction

(a). The following Negation Action Plan (the Plan) provides requirements and guidance to ensure negation of potential foreign ownership, control or domination (FOCD) over the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 licenses held by Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC. This Plan implements measures to fully negate FOCD with respect to matters involving the nuclear safety, security, and reliability of CCNPP Unit 3 throughout the design, construction and operation of CCNPP Unit 3. The same measures negate potential foreign influence.

(b). The Plan describes the controls implemented to assure that the governance of UniStar Nuclear Energy, LLC (UNE) and the licensed activities undertaken by Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC are not subject to FOCD within the meaning 10 CFR 50.38 and Section 103.d of the Atomic Energy Act of 1954, as amended (Section 103.d of the Act).

(c). This Plan has been developed using the guidance provided by the NRC's "Final Standard Review Plan on Foreign Ownership, Control, or Domination," 64 FR 52355 (September 28, 1999) (FOCD SRP). Defense in depth is provided through a number of measures in order to ensure that there is U.S. control over matters relating to nuclear safety, security and reliability, including most significantly the UNE security programs and UNE safety programs, including Quality Assurance. These measures effectively negate the risk that UNE's foreign owned parent companies might exercise control, domination, or influence over matters that are required to be under U.S. control pursuant to the terms of 10 CFR 50.38 and Section 103.d of the Act.

(d). UNE owns and controls both UniStar Nuclear Operating Services, LLC and Calvert Cliffs 3 Nuclear Project, LLC, as well as intermediary subsidiaries and other UNE subsidiaries involved in the development of CCNPP Unit 3. UniStar Nuclear Operating Services, LLC is responsible for the operation of CCNPP Unit 3. Calvert Cliffs 3 Nuclear Project, LLC owns CCNPP Unit 3 and is responsible for providing the funding for construction, operation and decommissioning of CCNPP Unit 3.

(e). The negation measures are implemented primarily through the terms of the Third Amended and Restated Limited Liability Company Agreement of UniStar Nuclear Energy, LLC (the UNE LLC Agreement) dated as of June 30, 2014. Additional requirements and further details regarding implementation of the negation measures are included in this Plan. These measures flow through to the actions of the licensee subsidiaries, which are subject to the ultimate control and direction of UNE. Each licensee subsidiary and intermediary subsidiary is a limited liability company managed by its members (in the case of Calvert Cliffs 3 Nuclear Project, LLC) or its member (in the case of all other subsidiaries), and not a Board, with the effect that UNE personnel are responsible for managing the affairs of the licensee subsidiaries.

(f). The terms of the UNE LLC Agreement provide that commencing with the first pouring of safety-related concrete, a Security Subcommittee of the UNE Board shall have the exclusive right to exercise the Board's authority over the matters that are required to be under U.S. control. Prior to that time, such activity shall be delegated to the CEO, who is required to be a U.S. citizen. The Security Subcommittee is made up of U.S. citizens, the majority of whom must be independent directors, who are not employed

by UNE, its parent companies or any of their affiliates. In addition, commencing with the first pouring of safety-related concrete, a Nuclear Advisory Committee (NAC), that is made up of a group of independent U.S. citizens who are experienced in national security and nuclear safety matters, shall provide an oversight function to advise UNE regarding its ongoing compliance with the FOCD restrictions imposed by U.S. law and NRC regulation. If necessary, the NAC can alert the U.S. Government regarding issues involving potential non-compliance with the applicable requirements.

(g). UNE's security programs, including its Safeguards Information Program, assure that only authorized persons are provided access to security related information in accordance with applicable program requirements, and this Plan provides measures to assure that interpretation and implementation of those program requirements are administered under U.S. control. UNE does not possess or control access to restricted data or classified national security information. Rather, it has certain personnel who have obtained security clearances through the U.S. Nuclear Regulatory Commission. These personnel provide contract services to UNE, and they have obtained their security clearances through their employer companies. Thus, to the extent that these personnel may possess or control any restricted data or classified national security information now or in the future, they do so or would do so subject to the requirements of security programs controlled by their employer companies and not controlled by UNE. UNE will not interfere with the administration of such programs by other companies, and UNE will require that its personnel comply with all applicable requirements relating to such information.

(h). Upon acceptance of this Plan by the NRC, changes to this Plan may only be made upon the recommendation of UNE's Chief Executive Officer (CEO) and approval of the UNE Security Subcommittee. However, any proposed change that would result in a decrease in the effectiveness of this Plan will not be implemented without the prior approval of the NRC. This Plan also will be subject to the reporting requirements applicable to the FSAR.

(i). Certain FOCD negation measures described in this Plan have been implemented in the UNE LLC Agreement, because it provides for the governance of UNE. UNE will notify NRC prior to implementing any material changes to the FOCD negation measures in the UNE LLC Agreement.

1A.2 Governance of UniStar Nuclear Energy, LLC

(a). UNE is a single member limited liability company, owned by EDF Inc., which is a Delaware corporation (formerly known as EDF Development, Inc.). EDF Inc. is an indirect wholly-owned subsidiary of Électricité de France S.A. (EDF). EDF International S.A.S. owns 82.5% of EDF Inc., and EDF Trading Ltd. (UK) owns 17.5% of EDF Inc. EDF International S.A.S. is a French company formed by EDF S.A. to conduct its international businesses. EDF Trading Ltd. (UK) is a company organized under the laws of England and Wales, and is wholly owned by EDF Holdings SAS, which is wholly owned by EDF S.A. EDF is a Société Anonyme organized under the laws of France and is governed by a Board of Directors. EDF is a public company listed on the NYSE-Euronext Paris stock exchange. As of December 31, 2013, the French State held approximately 84.5 percent of the shares of EDF and is the only shareholder with an interest greater than 5 percent. It holds its shares through the Agence des Participations de l'Etat (APE), the French Government Shareholding Agency within the French Ministry of Economy. Members of the public, including institutional

investors and individual shareholders, own approximately 14 percent of EDF's shares, while employees own approximately 1.8 percent.

1A.2.1 UNE Board of Directors

(a). The business and affairs of UNE are and will be managed under the direction of a Board of Directors (Board), consisting of at least three and no more than eight directors (including a director to act as Chairman), who are appointed by EDF Inc. The Chairman presides over the meetings of the Board, and in his absence, the CEO presides over Board meetings and otherwise fulfills the functions of the Chairman. The Chairman, and anyone acting for the Chairman, must be a U.S. citizen. All directors hold office until their successor has been appointed and qualified, or until the earlier of such director's death, disability, resignation or removal.

(b). The UNE LLC Agreement also provides that, commencing with the first pouring of safety-related concrete, two directors must be independent directors, who are U.S. citizens. These directors are independent because they may not be officers or employees of UNE, or EDF Inc. or any of its affiliated companies, and neither the directors nor their immediate family members have a material relationship with UNE or its parent companies, such as by being an executive officer or employee, by receiving pension benefits or other compensation for prior service, or by being an executive officer of another company that receives significant revenue from UNE or its affiliates. In accordance with generally accepted practices, the independent directors receive compensation from UNE for their services as directors.

(c). If any independent director acquires any material ownership or other economic interest in EDF or its affiliated companies, this will be reported to UNE and to the NRC. It is possible that independent directors may have investment holdings such as in mutual funds or other similar types of pooled investments that themselves may make a wide range of investments that could include investments in issuances of EDF. Given the impracticality of monitoring and/or limiting such investments, it is UNE's intention that such investments would not be considered "material." Direct holdings in securities, bonds or other issuances of EDF or its affiliates would be considered material and reportable.

(d). Significantly, the Chairman and the two independent U.S. citizen directors serve on a Security Subcommittee, which has been assigned "exclusive authority", commencing with the first pouring of safety-related concrete, to vote upon and decide for the Board matters relating to nuclear safety, security or reliability. Prior to the first pouring of safety-related concrete, such authority shall be delegated to the CEO, who shall be a U.S. citizen. The details of this authority are described further below in Section 2.2 of this Plan.

(e). The Board has reserved authority for itself to decide various matters, notwithstanding any delegations of authority to the CEO and other officers. Ordinarily, the Board as a whole would decide these matters which are listed in Section 3.1(g) of the UNE LLC Agreement. However, this reserved authority is itself subject and subordinate to the exclusive authority of the CEO or Security Subcommittee. Thus, if U.S. control must be exercised over a Section 3.1(g) matter, such matter would be decided by the CEO or Security Subcommittee.

(f). The Board also has delegated significant authority to the CEO, and the details of this authority are described further below in Section 2.3 of this Plan. It also benefits from

the advice and oversight of the members of the Nuclear Advisory Committee, who have substantial expertise in national security and nuclear safety matters, the details of which are described further below in Section 2.4 of this Plan.

1A.2.2 Security Subcommittee

(a). The UNE LLC Agreement provides for a broad delegation of exclusive authority to the Security Subcommittee, in order to assure that the U.S. citizen directors, including the Security Subcommittee's majority of independent directors, have the ultimate authority to make the corporate decisions for UNE regarding: (1) any matter that is to be brought before the Board, where U.S. legal and regulatory requirements direct that the matter must be decided under U.S. control; or (2) any matter that ordinarily might be decided by corporate officers, but where there is a concern that decision-making regarding the matter may be subject to foreign control or influence, and U.S. legal and regulatory requirements direct that the matter must be decided under U.S. control. The Board and Security Subcommittee delegate authority over the day-to-day management of the affairs of UNE to its executive personnel. However, as discussed further below, the UNE governance is structured to ensure that the required U.S. control over matters of safety, security and reliability are not circumvented by having such issues decided without consultation with and oversight by the Security Subcommittee, whenever necessary.

(b). Section 3.1(d)(iii) of the UNE LLC Agreement provides that the Security Subcommittee has and shall exercise the exclusive authority of the Board to vote and decide the following matters (provided, however, that prior to the first pouring of safety-related concrete, the CEO shall have authority to decide such matters):

A. Any matter that, in view of U.S. laws or regulations, requires or makes it reasonably necessary to assure U.S. control;

B. Any matter relating to nuclear safety, security or reliability, including, but not limited to, the following matters:

1). Implementation or compliance with any NRC generic letter, bulletin, order, confirmatory order or similar requirement issued by the NRC;

2). Prevention or mitigation of a nuclear event or incident or the unauthorized release of radioactive material;

3). Placement or restoration of the plant in a safe condition following any nuclear event or incident;

4). Compliance with the Atomic Energy Act of 1954 (as in effect from time to time), the Energy Reorganization Act of 1974 (as in effect from time to time), or any NRC rule;

5). The obtaining of, or compliance with, a specific license issued by the NRC and its technical specifications;

6). Conformance with a specific Final Safety Analysis Report, or other licensing basis document; and

7). Implementation of security plans and procedures, control of security information, control of special nuclear material, administration of access to controlled security information, and compliance with government clearance requirements regarding access to restricted data;

C. Any other issue reasonably determined by a majority of the members of the Security Subcommittee in office, in their prudent exercise of discretion, to be an exigent nuclear safety, security or reliability issue; and

D. Appointment of any successor CEO of the Company and, if one is appointed, Chief Nuclear Officer of the Company, in each case as nominated by the Board provided further, however, that prior to the first pouring of safety-related concrete, the Chairman (and not the CEO) shall have such authority.

(c). The provisions of Section 3.1(d)(iii)(C) make clear that this broad authority includes the authority for the Security Subcommittee or CEO to decide that a matter involves an issue that must be decided under U.S. control and therefore must be brought before and decided by the Security Subcommittee or CEO.

(d). In order to assure that control would be exercised by U.S. citizens who are independent from EDF Inc. and its affiliated companies, Section 3.1(d)(iv) of the UNE LLC Agreement provides that the attendance and participation of the two independent U.S. citizen directors is required to constitute the required quorum for the Security Subcommittee to conduct business.

(e). The ordinary affairs of UNE are managed day-to-day by the company's executive personnel and managers and supervisors. The Board and the Security Subcommittee have delegated authority to the company's executive personnel, but such delegation is subject to limitations including the ultimate authority of the Board and the Security Subcommittee to make decisions for UNE when necessary. In order to assure that such day-to-day issues do not fall subject to FOCD in a way that would circumvent the intended U.S. control and authority of the Security Subcommittee, the UNE LLC Agreement provides for a variety of mechanisms by which such issues could be raised and put before the Security Subcommittee, if necessary. Section 3.1(d)(v) of the UNE LLC Agreement provides that a Special Meeting of the Security Subcommittee shall be conducted where a request is made that a matter be considered by the Security Subcommittee. Such a request (requiring a Special Meeting for consideration of the matter) may be made by: (A) the CEO; (B) any member of the Security Subcommittee; (C) the NAC; or (D) the Board.

(f). Thus, if a circumstance were to arise where an officer or manager had questions about potential foreign control, domination or influence over a matter, the issue could simply be raised within the UNE organization for further review and consideration. Ultimately, the CEO would be in a position to assess whether the matter was being properly decided free from any inappropriate foreign control, domination or influence, or if the concern should be referred so that the matter would be brought before the Security Subcommittee. The CEO's role in this regard is described further below in Section 2.3.

(g). In order to underscore the special role undertaken by the Security Subcommittee, the UNE LLC Agreement provides that each member execute a certificate acknowledging the protective measures undertaken by UNE, as reflected in this Plan. The certificate provides as follows:

By execution of this Certificate, I acknowledge the protective measures that have been taken by UniStar Nuclear Energy, LLC ("UNE") in order to protect against and negate the potential of any foreign ownership, control or domination of UNE within the meaning of Section 103 of the Atomic Energy Act of 1954, as amended, through my duties as a member of the Security Subcommittee provided for in Section 3.1(d) of the Second Amended and Restated Limited Liability Company Agreement dated as of November 3, 2010 (the "Agreement") and pursuant to the negation action plan submitted to the Nuclear Regulatory Commission as Chapter 1.0, Appendix 1A of the FSAR (the "Negation Action Plan", and together with Section 3.1(d) of the Agreement, the "Protective Measures").

I further acknowledge that the United States Government has placed its reliance on me as a United States citizen to exercise all of the responsibilities provided for in the Protective Measures to assure that members of the UNE Board of Directors, the officers of UNE, and the employees of UNE comply with the Protective Measures and to assure that the Nuclear Regulatory Commission is advised of any violation of, attempt to violate, or attempt to circumvent any of the Protective Measures, of which I am aware.

(h). The UNE LLC Agreement provides in Section 3.1(d)(i) that the CEO will exercise the authority of the Security Subcommittee prior to the first pouring of safety-related concrete. The current CEO, Mark Finley executed a certificate substantially similar to the certificates to be executed by the members of the Security Subcommittee. Although the CEO is not a member of the Security Subcommittee, under this Plan UNE has, and will, require that any successor CEO also executes a similar certificate acknowledging the CEO's special role and special duties to the U.S. government regarding FOCD matters.

1A.2.3 Executive Personnel

(a). The CEO of UNE is nominated by the Board, but both the CEO and Chief Nuclear Officer (CNO) must be approved by the Security Subcommittee in accordance Section 3.1(d)(iii)(D) of the LLC Agreement. The CEO, and anyone acting for the CEO, must be a U.S. citizen. The CEO may be, but need not be, a director. Currently, the CEO is the CNO, and therefore, the CNO is a U.S. citizen. In the future, if the CNO were a person other than the CEO, this Plan requires that the CNO also be a U.S. citizen.

(b). Section 3.2(b) of the UNE LLC Agreement provides that, subject to the control of the Board, the CEO "shall have general charge and control of all [of UNE's] business and affairs and shall have all the powers and shall perform all of the duties incident to the office of CEO." To the extent authority regarding the affairs of UNE is further delegated by the Board to the CEO and other executive personnel, the CEO assures that U.S. control is maintained over nuclear safety, security and reliability issues. UNE programs governing security issues, safeguards information, or access to security information are overseen by U.S. citizen managers who report to the CEO. Access and participation in these programs by foreign persons are only be permitted in full compliance with all program requirements, and oversight of these programs and determinations regarding such requirements are and will be subject to U.S. authority and control, because the CEO exercises management authority over such programs, subject only to the ultimate authority of the Security Subcommittee.

(c). In addition, the CNO ensures U.S. control and oversight of nuclear safety issues through control of the Quality Assurance (QA) Program. Currently, the CEO and CNO

are the same person. If the CNO were a different person, the CNO would report directly to and be responsible to the CEO. Through QA audits UNE assures that contractors and subcontractors to it and its subsidiaries conduct nuclear safety related activities in accordance with the QA Program, without regard to whether such activities are undertaken by U.S. citizens or by foreign persons, and without regard to whether such activities are performed within the United States or in another country. The requirements of the QA Program assure that all activities are performed consistent with U.S. requirements imposed upon a licensee or applicant for a license. The QA Program also governs activities internal to UNE and its subsidiaries or affiliates. As such, overall control of the QA Program and imposition of QA Program requirements as required by U.S. law and regulation assures that ultimate U.S. control over nuclear safety is maintained without regard to where activities are performed or who performs them.

(d). In the event that any foreign control, domination or influence may be exercised with the potential to disrupt this U.S. control over nuclear safety, security and reliability issues, the CEO would assure U.S. control by taking one or more of the following actions: (1) raising the U.S. control issue with the foreign persons involved and resolving the matter to the satisfaction of the CEO; (2) consulting with the NAC to obtain advice regarding whether or not U.S. control is required and, if so, regarding the appropriate options to consider for resolving the matter consistent with the requirements of the U.S. government; and (3) referring the matter for resolution by the Security Subcommittee. If a matter is referred to the Security Subcommittee by the NAC or the CEO, Section 3.1(d)(v) of the UNE LLC Agreement requires that the Security Subcommittee conduct a special meeting to consider the matter. It is expected that the Security Subcommittee would first decide whether or not the matter is one that must be decided under U.S. control and, if so, the Security Subcommittee would vote and decide the matter for the UNE Board.

(e). In the future, if it becomes necessary or desirable for UNE to maintain its own independent Facility Security Clearance for purposes of governing security clearances to be issued to UNE personnel, UNE would undergo appropriate security reviews prior to being given control (as a corporation) over restricted data or classified national security information. UNE would comply with the requirements of the National Industrial Security Operating Manual, DoD 5220.22-M (February 28, 2006), including the specific applicable requirements relating to foreign ownership, control and influence (FOCI) and submission of the required "Certificate Regarding Foreign Interests" using Standard Form 328 (SF 328). Currently, however, UNE does not exercise any control over access to restricted data or classified national security information.

1A.2.4 Nuclear Advisory Committee

(a). The UNE LLC Agreement requires UNE to establish a Nuclear Advisory Committee (NAC) prior to the first pouring of safety-related concrete. The NAC members will serve in a non-voting capacity to provide transparency to the NRC and other U.S. governmental authorities regarding FOCD matters impacting UNE. The NAC members will serve two year terms and may be reappointed by the Board. In addition to routine advice, the NAC members will prepare an annual report to the Board advising on whether UNE is subject to FOCD and whether the Security Subcommittee has been able to exercise its decision-making authority. The NAC will also advise whether additional measures should be taken to ensure that UNE and its subsidiaries

are in compliance with U.S. laws and regulations regarding FOCD. These reports will be available for inspection by the U.S. Nuclear Regulatory Commission.

(b). The principal purposes of the NAC are to:

- Provide transparency to the U.S. Nuclear Regulatory Commission and other U.S. government authorities regarding the implementation of the provisions of Section 3.1(d) of UNE LLC Agreement providing for authority of the Security Subcommittee over certain matters in order to protect against and negate the potential for any foreign ownership, control or domination of UNE within the meaning of Section 103 of the Atomic Energy Act of 1954, as amended.

- Advise and make recommendations to the Board whether measures additional to those already in place should be taken to ensure that: (i) UNE is in compliance with U.S. laws and regulations regarding foreign ownership, control, domination or influence including those related to non-proliferation and fuel cycle matters, and (ii) action by a foreign government or foreign corporation could not adversely affect or interfere with the reliable and safe operations of the nuclear assets of the UNE, its subsidiaries, and affiliates ("(i)" and "(ii)" collectively, the "FOCD Matters"), and to provide reports and supporting documentation to the Board relating to such FOCD Matters on at least an annual basis, no later than November 30 of each year.

(c). The NAC will provide ongoing independent assessment of FOCD matters and provide advice to the CEO and the Board regarding FOCD matters. The NAC will be available for consultations with the CEO or Security Subcommittee members at any time. However, the NAC will also conduct regularly scheduled meetings not less frequently than quarterly.

(d). The NAC will be comprised of individuals who have substantial expertise in national security and nuclear safety matters.

1A.3 Summary

(a). This Plan includes a robust set of mechanisms that provide defense in depth to assure that UNE and its licensee subsidiaries are governed through U.S. control over nuclear safety, security and reliability matters, so that no such entity either is or is expected in the future to be under FOCD within the meaning of 10 CFR 50.38 and Section 103.d of the Act. Under the terms of the UNE LLC Agreement, the ultimate decision making authority of UNE regarding nuclear safety, security and reliability matters has been delegated to a U.S. citizen CEO and/or the Security Subcommittee, which itself is controlled by independent U.S. citizen directors.

(b). Recognizing that day to day decision making is delegated to executive personnel, the Plan contemplates that a U.S. citizen CEO will assure U.S. control over matters that require U.S. control. The Plan includes a requirement that the CEO acknowledge a special duty to the U.S. government. In addition, the appointment of any successor CEO must be approved by the Security Subcommittee after the first pouring of safety-related concrete, and the U.S. citizen Chairman (prior to the first pouring of safety-related concrete), which provides additional assurance that the CEO will function as part of the team of U.S. citizens exercising a special duty to the U.S. government to assure compliance with respect to FOCD matters. Significantly, the CEO has access to the expert advice and resources of the NAC and has been given specific authority to

refer a matter to the Security Subcommittee, requiring that Security Subcommittee consider the matter in a Special Meeting. This assures that even though matters may be delegated to executive personnel, influence over delegated matters cannot be used to circumvent the requirement for U.S. control and the ultimate authority of the Security Subcommittee.

(c). Finally, the NAC will perform an ongoing monitoring function to assess FOCD issues and surface any potential concerns regarding FOCD matters. In addition, the expert resources of the NAC provide a pathway for continuous enhancement and improvement of the mechanisms to assure that any potential inappropriate FOCD is negated. This ongoing role provides further assurance that the required U.S. control of UNE and of the NRC licenses is maintained consistent with the provisions of 10 CFR 50.38 and Section 103.d of the Act.

1A.4 Implementing Documents

4.1 Calvert Cliff Nuclear Power Plant, Unit 3, COLA Part 1 – Administrative and Financial Information, Section 1.4

4.2 Calvert Cliff Nuclear Power Plant, Unit 3, COLA Part 2, FSAR, Section 1.4.1

4.3 Third Amended and Restated Limited Liability Company Agreement of UniStar Nuclear Energy, LLC, dated as of June 30, 2014

4.4 Certificate of Mark Finley}