# 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.


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## 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 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) including supplements 1 and 2. AREVA NP, the entity sponsoring the design certification application for the U.S. EPR, submitted the U.S. EPR design certification application, including the U.S. EPR FSAR, to the NRC on December 11, 2007 (AREVA, 2007). U.S. EPR FSAR Supplement 1 (AREVA, 2008a) was submitted to the NRC on February 7, 2008. U.S. EPR FSAR Supplement 2 (AREVA, 2008b) was submitted to the NRC on February 20, 2008.

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 ~~is~~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 includes 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:


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> 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 2,057 acres (832 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 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)~~}~~

In accordance with 10 CFR 52.79(a)(31) (CFR, 2008), the following provides an assessment of the potential hazards to the structures, systems, and components (SSCs) important to safety of operating units resulting from construction activities at a multi-unit site 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.


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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
- Construction of intake structures on the shore of the Chesapeake Bay within an embayment shared with 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. 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 missiles controls are examples of managerial controls that shall be established to provide this 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 Unit 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.}

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.


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## 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} |

## 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.


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#### 1.1.6.4 Numbering of Pages

Pages are numbered sequentially within each chapter. ~~Chapter 2 is an exception due to its size. In Chapter 2, the pages are sequential within each subsection.~~

#### 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. ~~that are not described in U.S. EPR FSAR Table 1.1-1.~~

#### 1.1.6.7 COL Information Items

The COL ~~i~~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, 2007.** S. Sloan letter to U.S. Nuclear Regulatory Commission Document Control Desk, Application for Standard Design Certification of the U.S. EPR (Project No. 733), dated December 11, 2007.

**AREVA, 2008a.** R. Gardner letter to U.S. Nuclear Regulatory Commission Document Control Desk, U.S. EPR Final Safety Analysis Report, Supplement 1, dated February 7, 2008.

**AREVA, 2008b.** R. Gardner letter to U.S. Nuclear Regulatory Commission Document Control Desk, U.S. EPR Final Safety Analysis Report, Supplement 2, dated February 20, 2008.

**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.}


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**Table 1.1-1—{Acronyms Used in this Document}**
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| 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 |
| 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 |
| CSR | Cyclic Stress Ratio |
| CTI | Cooling Tower Institute |
| CVSZ | Central Virginia Seismic Zone |
| D.C. | District of Columbia |
| D/Q | Deposition Factor |
| DAC | Derived Air Concentration |
| DC | Direct Current |
| DCPLNG | Dominion Cove Point Liquified 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 |


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**Table 1.1-1—{Acronyms Used in this Document}**
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| Acronym | Description |
|---|---|
| EPA | Environmental Protection Agency |
| 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 |
| FOS | Factor of Safety |
| FPE | Fire Protection Engineer |
| GB | Globe Valve |
| GSA | Geological Society of America |
| GT | Gate Valve |
| HF | High Frequency |
| HMR | Hydrometeorological Report |
| HO | Hydraulic Operated |
| HPS | Health Physics Society |
| 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 | Liquilified 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 |


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**Table 1.1-1—{Acronyms Used in this Document}**
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| Acronym | Description |
|---|---|
| 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 |
| 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 |
| 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 |


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

| 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 |
| 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 |
| STEL | Short-Term Exposure Limit |
| TEDE | Total Effective Dose Equivalent |
| TIP | Trial Implementation Project |
| TLD | Thermoluminescent Dosimeter |
| TNT | Trinitrotoluene |
| TOC | Top of Concrete |
| TRT | Test Review Team |
| 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 |
| 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 |


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

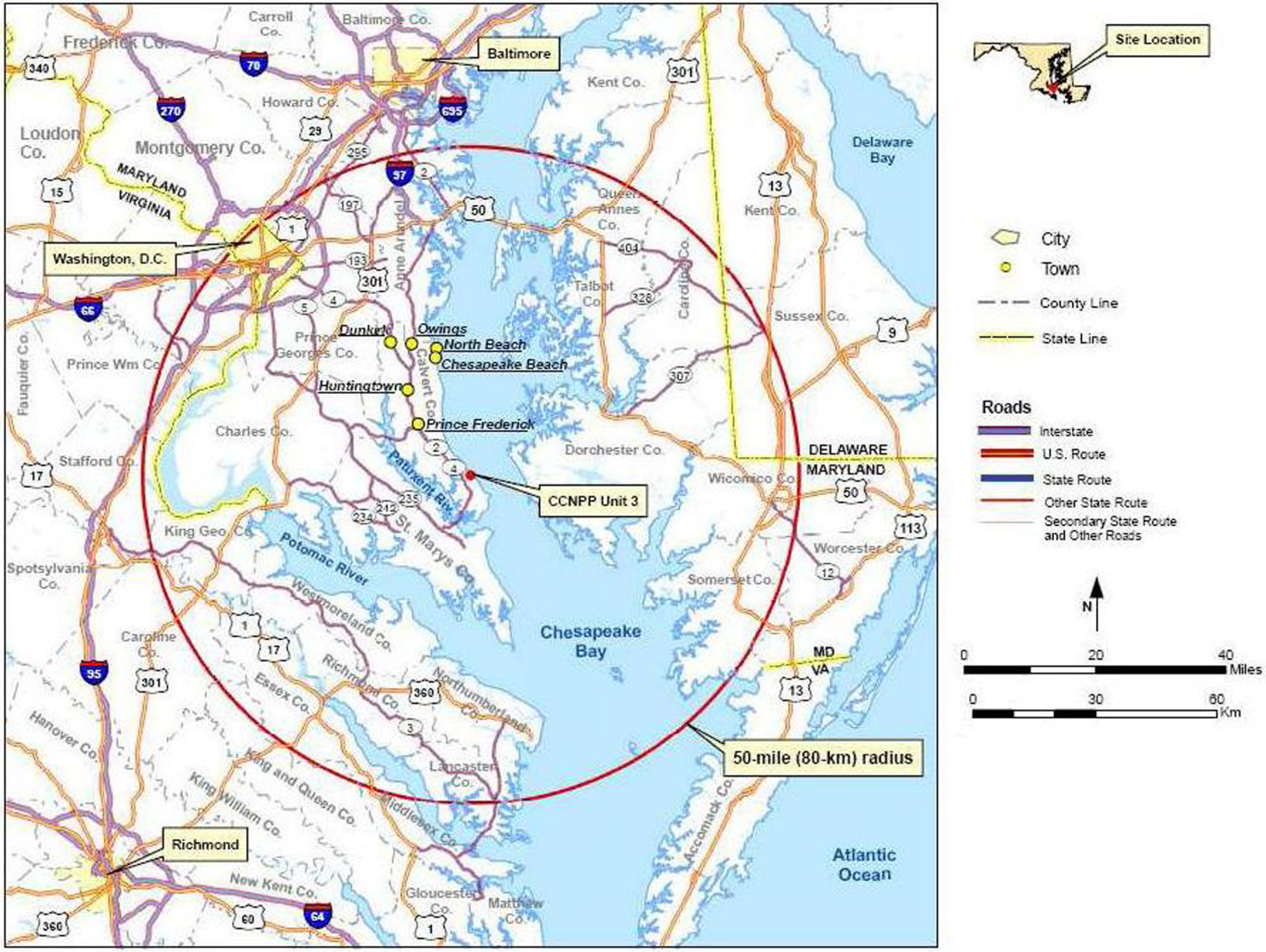



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**Figure 1.1-2—{10 mi (16 km) Surrounding Area}**

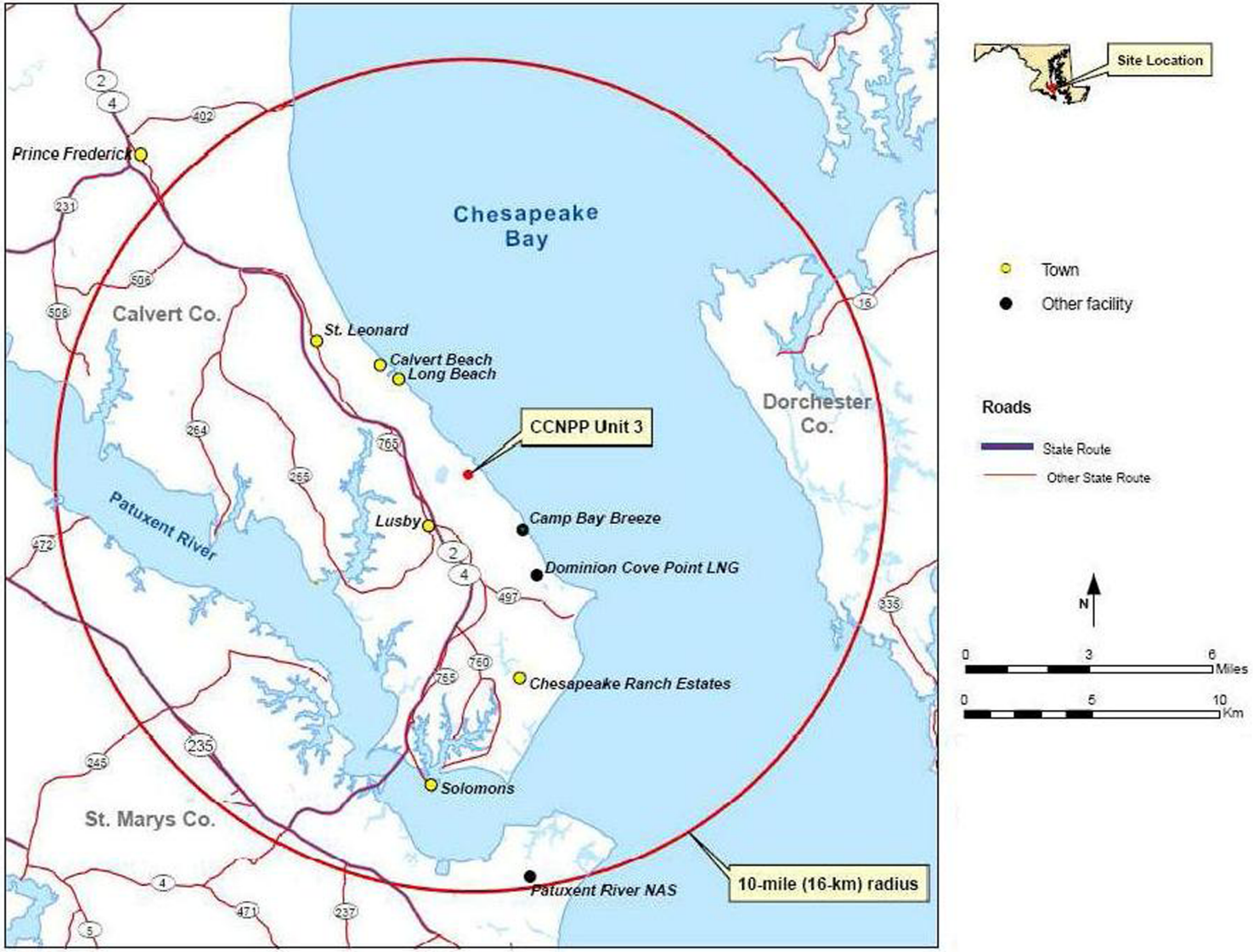



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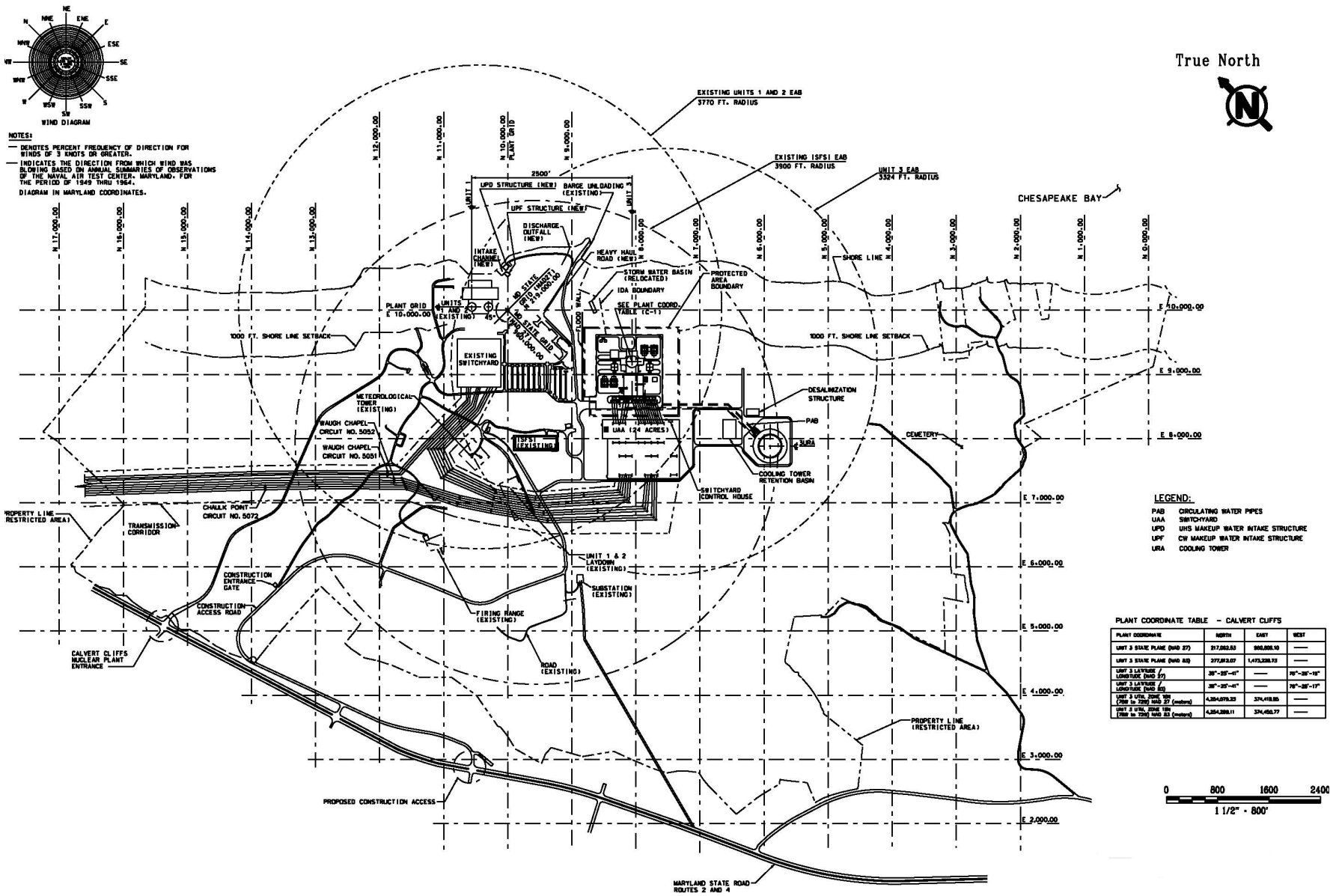
**Figure 1.1-3— {Site Area Map}**





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## 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 1.2-49. ]]

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 Section 10.1, 10.2, and 10.4.7. Figures in Section 1.2 of the U.S. EPR FSAR not identified as “Alternate” (i.e., Figures 1.2-28, 30, 32, 34, 36, 37, 40, 42, 43, 46, and 48) 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:


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{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 utili~~t~~zed. 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 1.2-3.]]

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.


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#### 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

The U.S. EPR FSAR includes the following conceptual design information in Section 1.2.3.5.2:

> [[Offsite power is provided from the switchyard to the onsite power systems through five three-winding auxiliary transformers. Two of the transformers are for safety-related power and three are for non-safety-related power. Two emergency auxiliary transformers provide the source for the onsite safety-related (Class 1E) buses of the emergency power supply system (EPSS). Each of these transformers will normally supply two of the four safety divisions, but each is sized to supply all four divisions in the event of a failure. Three normal auxiliary transformers provide power to the onsite non-safety buses of the normal power supply system (NPSS). These transformers are sized to supply all non-safety loads required for operation with only two of three transformers in operation. ]]

The above conceptual design information is addressed as follows:

{The U.S. EPR FSAR description provided above is applicable to the CCNPP Unit 3 Offsite Power System and is incorporated by reference.}

##### 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.


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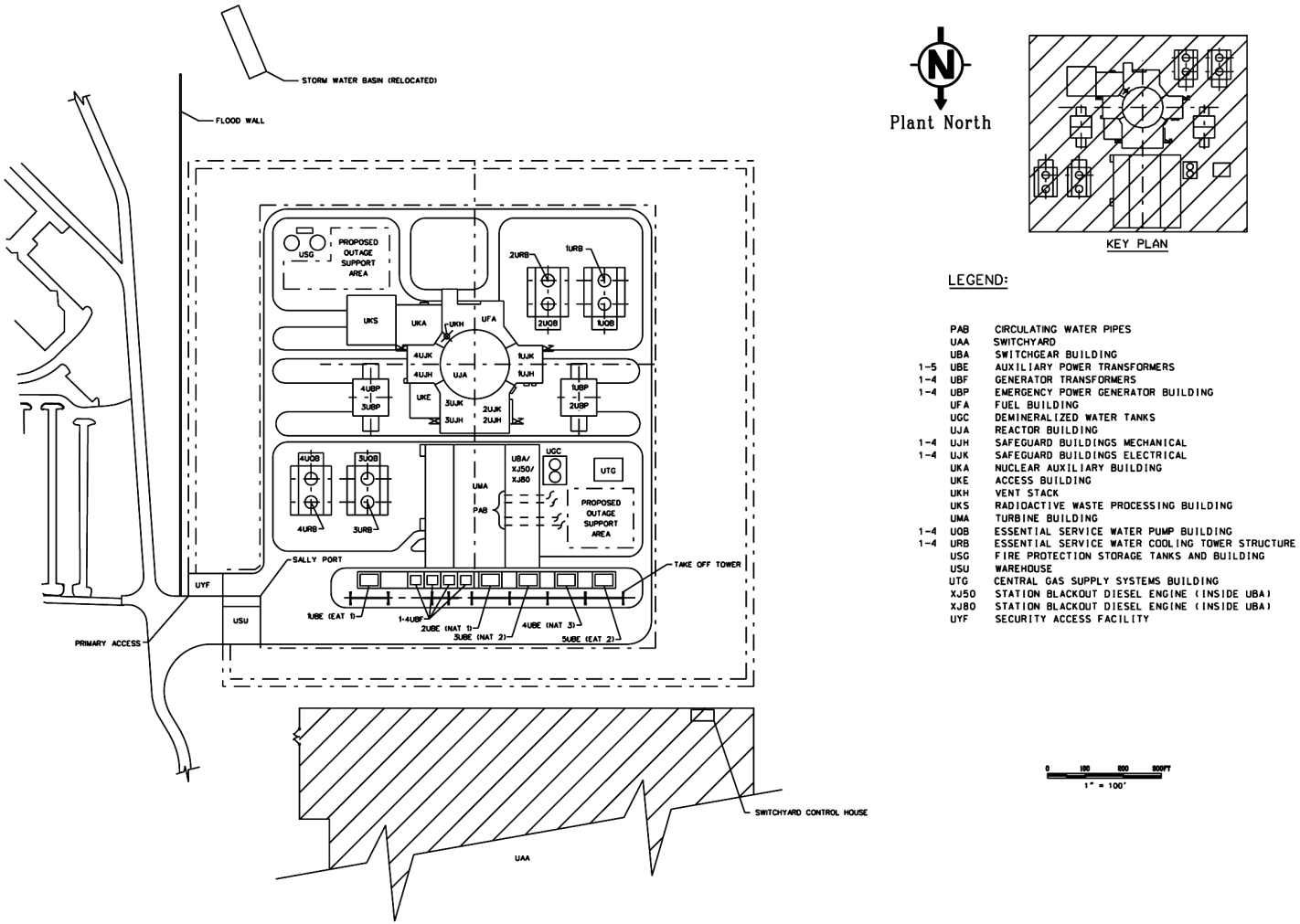
**Figure 1.2-1—{CCNPP Unit 3 Nuclear and Turbine Building Island Layout}**





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## 1.3 COMPARISONS WITH SIMILAR FACILITY DESIGNS

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


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## 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

{CalvertCliffs 3 Nuclear Project and UniStar Nuclear Operating Services are applying for a combined license for CCNPP Unit 3. The owner of the proposed project is Calvert Cliffs 3 Nuclear Project. The operator of the proposed project is UniStar Nuclear Operating Services. The contact with the NRC during the licensing process is UniStar Nuclear Holdings, LLC. UniStar Nuclear Holdings is a wholly owned subsidiary of Constellation Generation Group formed to prepare the COL application and be responsible to license the associated U.S. EPR facility.

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}

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 jointly by Constellation New Nuclear, LLC and by EDF Development, Inc. Constellation New Nuclear is a member (through Constellation Energy Nuclear Group, LLC) of Constellation Energy Group, Inc. EDF Development is an indirect subsidiary of (through EDF International, SA) of Èlecticitè de Franco, SA.

The principal offices of Calvert Cliffs 3 Nuclear Project are located in Baltimore, Maryland. Calvert Cliffs 3 Nuclear Project is organized under the laws of the State of Delaware pursuant to the Limited Liability Company Agreement of Calvert Cliffs 3 Nuclear Project, LLC dated March 10, 2008, by UniStar Project Holdings, LLC. Calvert Cliffs 3 Nuclear Project will be one of the licensees and wil own CCNPP Unit 3.

Constellation Energy Group is a holding company for several companies involved with electric and gas energy. Constellation Energy Group, through its subsidiaries, is a major generator of electric power and a leading supplier of competitive electricity, with a power generation portfolio of over 8,700 megawatts. The output of Constellation Energy Group's plants is sold by Constellation Energy Group's commodities business, Constellation Energy Commodities Group, Inc., to many of the nation's leading distribution utilities, energy companies, and cooperatives.}

#### 1.4.1.2 {UniStar Nuclear Operating Services

UniStar Nuclear Operating Services 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 are located in Baltimore, Maryland.

UniStar Nuclear Operating Services is organized under the laws of the State of Delaware pursuant to the Limited Liability Company Agreement of UniStar Nuclear Operating Services dated May 12, 2006, by Constellation Energy UniStar Holdings, LLC and, the prodeccessor to UniStar Nuclear Holdings, LLC.UniStar Nuclear Holdings, LLC. UniStar Nuclear Operating Services will be one of the licensees and will operate 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:


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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 ~~{CCNPP Unit 3}~~ U.S. EPR nuclear power plant resides with AREVA NP Inc. (AREVA NP) for the portions of the facility included in the design certification application. AREVA NP has headquarters in Lynchburg, Virginia, and major design organizations in Lynchburg, Virginia; Charlotte, North Carolina; and Marlborough, Massachusetts. AREVA NP is an AREVA and Siemens company. AREVA NP and its predecessor companies have designed light water reactors for over 40 years. As such, AREVA NP has extensive nuclear design experience in addition to maintaining fabrication facilities for fuel and major components in Europe and the United States. AREVA NP 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 NP which retains design responsibility for the U.S. EPR.

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

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


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## 1.5 REQUIREMENTS FOR FURTHER TECHNICAL INFORMATION

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


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## 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.


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## Table 1.6-1—{Reports Referenced}

| Report No. | Title/Revision | Date Submitted to the NRC | FSAR Section |
|---|---|---|---|
| UN-TR-08-001 | Spent and New Fuel Storage Analyses for U.S. EPR Topical Report | March 2008 | 9.1 |
| NEI 07-08 | Generic FSAR Template Guidance for Ensuring that Occupational Radiation Exposures Are As Low As Is Reasonably Achievable (ALARA), Revision 0 | September 2007 | 12.1.3 |
| NEI 07-03 | Generic FSAR Template Guidance for Radiation Protection Description, Revision 2 | October 2007 | 12.5 |
| NEI 06-13A | Template for an Industry Training Program Description, Revision 0 | October 2007 | 13.2 |
| {UN-TR-06-001-A | Quality Assurance Program Description, Revision 0 | April 2007 | 17.5} |
| NEI 07-02A | Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed Under 10 CFR Part 52, Revision 3 | March 2008 | 17.6 |


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## 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.


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

| FSAR Figure Number | Title |
|---|---|
| 8.2-2 | CCNPP Unit 3 500 kv Switchyard Single Line Diagram |
| 8.3-1 | CCNPP Unit 3 Emergency Power Supply System Single Line Drawing (three sheets) |
| 8.3-2 | CCNPP Unit 3 Normal Power Supply System Single Line Drawing (four sheets) |
| 8.3-3 | CCNPP Unit 3 Transformer 30BBT04 Distribution System Single Line Drawing |


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**Table 1.7-2—{Piping and Instrumentation Diagrams}**

| FSAR Figure Number | Title |
|---|---|
| 9.2-1 | Potable Water System |
| 9.2-2 | Sanitary Waste Water System |
| 9.2.-3 | Normal Makeup, Ultimate Heat Sink Makeup, Blowdown & Chemical Treatment |
| 9.2-4 | Raw Water & Desalinated Water Supply |
| 9.4-1 | Ultimate Heat Sink Makeup Water Intake Structure Ventilation System and UHS Electrical Building Ventilation System |
| 10.4-1 | Circulating Water System P& ID (Circulating Water Pump Building) |
| 10.4-2 | Circulating Water System P& ID (Turbine Building) |
| 10.4-5 | Circulating Water System P&ID (Cooling Tower) |
| 10.4-6 | Circulating Water System Makeup System P& ID |
| 10.4-9 | Circulating Water System P&ID (Blowdown Flowpath) |


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## 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 departures and~~/or~~ 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 (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 | FSAR 2.5.4 and 3.8.5 |
| Maximum Annual Average Atmpospheric Dispersion Factor | FSAR 2.3.5 |
| Accident Atmospheric Dispersion Factor from 0 - 2 Hours for the Low Population Zone | FSAR 2.3.4 and 15.0.3 |
| Maximum Ground Water Elevation | FSAR 2.4.12, 3.4.2, and 3.8.5 |
| ~~Technical Specifications (Setpoint Control Program Limiting Trip Setpoint Inequality Signs, Time Delays, Location of Limiting Trip Setpoint, and Incorporation of Site-Specific Data)~~ | ~~FSAR 16.0 and COLA Part 4~~ |

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


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## 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 $\chi$/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 parameters | 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 tornadoes or 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 duct banks, pipe ducts, and piping | U.S. EPR Interface | 3.8 |
| 6-1 | Toxic gas detectors for the main control room | U.S. EPR Interface | 6.4, 9.4.1 |
| 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 |
| 9-1 | New fuel and spent fuel storage racks | U.S. EPR Interface | 9.1.1, 9.1.2 |
| 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 |


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## Table 1.8-2—~~{~~FSAR Sections that Address COL Items~~}~~

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| 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 site-specific data to the design parameter data in Table 2.1-1. If the specific data for the site falls within the assumed design parameter data and characteristics in Table 2.1-1, then the U.S. EPR standard design is bounding for the site. For site-specific design parameter data or characteristics that are outside the bounds of the assumptions presented in Table 2.1-1, the COL applicant will confirm that the U.S. EPR design acceptably meets any additional requirements that may be imposed by the more limiting site specific design parameter data or characteristic, and that the design maintains conformance to the design commitments and acceptance criteria described in this FSAR. | 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 |


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## 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 design parameters in Table 2-1, 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 $\chi/Q$ values, based on site-specific meteorological data, are bounded by those specified in Table 2-1 at the EAB and LPZ and by Table 2.3-1 at the control room. For site-specific $\chi/Q$ values that exceed the bounding $\chi/Q$ 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 $\chi/Q$ values. | 2.3.4.2 |
| 2.3-7 | A COL applicant that references the U.S. EPR design will provide $\chi/Q$ values for each cumulative frequency distribution which exceeds the median value (50 percent of the time) as part of the assessment of the postulated impact of an accident on the environment. | 2.3.4.2.2 |
| 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 ($\chi/Q$ values) and deposition (D/Q values) for 16 radial sectors to a distance of 50 miles (80 km) from the plant as part of its environmental assessment. | 2.3.5 |
| 2.3-10 | A COL applicant that references the U.S. EPR design certification will describe the means for providing UHS makeup 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. | 2.3.1.2 |
| 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 seismically-induced 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-parameter 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. | 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 |
| 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 |


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## Table 1.8-2—~~{~~FSAR Sections that Address COL Items~~}~~

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| Item No. | Description | Section |
|---|---|---|
| 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 upstream 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 verify that the site specific seismic parameters are enveloped by the CSDRS (anchored at 0.3 g PGA) and the 10 generic soil profiles discussed in Sections 2.5.2 and 3.7.1 and summarized in Table 3.7.1-6. | 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. | 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 demonstrate that no capable faults exist at the site in accordance with the requirements of 10 CFR 100.23 and of 10 CFR 50, Appendix S. If non-capable surface faulting is present under foundations for safety-related structures, the COL applicant will demonstrate that the faults have no significant impact on the structural integrity of safety-related structures, systems, or components. | 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 |
| 2.5-7 | A COL applicant that references the U.S. EPR design certification will verify that the differential 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 |


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| Item No. | Description | Section |
|---|---|---|
| 2.5-9 | A COL applicant that references the U.S. EPR design certification will reconcile the site specific soil 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 underlying layers of site specific soil conditions beneath the foundation basemats. The classification of uniformity or non-uniformity will be established by a geotechnical engineer. | 2.5.4.10.3 |
| 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 applicable site-specific SSCs important to safety 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 and tornado design parameters and compare these to the standard plant criteria. If the site-specific wind and tornado parameters are not bounded, then the COL applicant will evaluate the design for site-specific wind 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 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 |
| 3.5-1 | 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 removed from containment prior to operation, moved to a location where it is not a potential hazard to SSCs important to safety, 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 x 10-4 for turbine-generators favorably oriented with respect to containment. | 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 hurricanes and extreme 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 |
| 3.6-1 | A COL applicant that references the U.S. EPR design certification will perform the pipe break hazards analysis and reconcile deviations in the as-built configuration to this analysis. | 3.6.1 |


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| Item No. | Description | Section |
|---|---|---|
| 3.6-2 | A COL applicant that references the U.S. EPR design certification will perform the pipe break hazards analysis and reconcile deviations in the as-built configuration to this analysis. | 3.6.2.1 |
| 3.6-3 | A COL applicant that references the U.S. EPR design certification will confirm that the design LBB analysis remains bounding for each piping system and provide a summary of the results of the actual as-built plant specific LBB analysis, including material properties of piping and welds, stress analyses, leakage detection capability, and degradation mechanisms. | 3.6.3 |
| 3.6-4 | A COL applicant that references the U.S. design certification will provide diagrams showing the final as-designed configurations, locations, and orientations of the pipe whip restraints in relation to break locations in each piping system. | 3.6.2.5.1 |
| 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 |
| 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 if a suitable location exists for the free-field acceleration sensor. The mounting location must be 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 |
| 3.8-1 | 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 requirements specified in Section 3.8.4.4.5 and those specified in AREVA NP Topical Report ANP-10264(NP), U.S. EPR Piping Analysis and Support Design, September 2006. | 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 soil parameters that are not within the envelope specified in Section 2.5.4.2. | 3.8.5.5 |


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| Item No. | Description | Section |
|---|---|---|
| 3.8-11 | A COL applicant that references the U.S. EPR design certification will evaluate and identify the need for the use of waterproofing membranes and epoxy coated rebar based on site-specific groundwater conditions. | 3.8.5.6.1 |
| 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 if any site-specific settlement monitoring requirements are required 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 |
| 3.9-1 | 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 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. | 3.9.3 |
| 3.9-3 | A COL applicant that references the U.S. EPR design certification will examine the feedwater line welds after hot functional testing prior to fuel loading and at the first refueling outage, in accordance with NRC Bulletin 79-13. A COL applicant that references the U.S. EPR design certification will report the results of inspections to the NRC, in accordance with NRC Bulletin 79-13. | 3.9.3.1.1 |
| 3.9-4 | As noted in ANP-10264(NP), A COL applicant that references the U.S. EPR design certification will confirm that thermal deflections do not create adverse conditions during hot functional testing. | 3.9.3.1.1 |
| 3.9-5 | As noted in ANP-10264(NP), 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 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 an NRC-approved 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 | A COL applicant that references the U.S. EPR design certification will provide a summary of the maximum total stress, deformation (where applicable), and cumulative usage factor values for each of the component operating conditions for ASME Code Class 1 components. For those values that differ from the allowable limits by less than 10 percent, the COL applicant will provide the contribution of each of the loading categories (e.g., seismic, pipe rupture, dead weight, pressure, and thermal) to the total stress for each maximum stress value identified in this range. | 3.9.3.1 |
| 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 |


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| Item No. | Description | Section |
|---|---|---|
| 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 |
| 3.10-1 | If experience data is used to establish equipment qualification, A COL applicant that references the U.S. EPR design certification will document the qualification methodology and supporting data. | 3.10.2 |
| 3.10-2 | A COL applicant that references the U.S. EPR design certification will create and maintain the SQDP file during the equipment selection and procurement phase. | 3.10.4 |
| 3.10-3 | 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 |
| 3.10-4 | 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 | A COL applicant that references the U.S. EPR design certification will maintain the equipment qualification test results and qualification status file during the equipment selection, procurement phase and throughout the installed life in the plant. | 3.11 |
| 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. | 3.12.4.2 |
| 3.12-2 | As indicated in Section 5.3 of topical report ANP-10264(NP), 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 5.1 of the topical report, the COL applicant will implement a benchmark program using models specifically selected for the U.S. EPR. | 3.12.4.3 |
| 3.13-1 | A COL applicant referencing the U.S. EPR design certification will submit the inservice inspection plan for ASME Code Class 1, Class 2, and Class 3 threaded fasteners, to the NRC prior to performing the first inspection. | 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 |
| 5.2-1 | A COL applicant that references the U.S. EPR design certification will identify subsequent ASME Code editions or addenda that may be used and will determine the consistency of the U.S. EPR design with construction practices (including inspection and examination methods) reflected within the subsequent code editions and addenda identified in the COL application. | 5.2.1.1 |
| 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 |
| 5.3-1 | 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 |
| 5.4-1 | 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 |


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| Item No. | Description | Section |
|---|---|---|
| 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 | If components cannot be procured with DBA-qualified coatings applied by the component manufacturer, A COL applicant that references the U.S. EPR design certification must do one of the following: procure the component as uncoated and apply a DBA-qualified coating system in accordance with 10 CFR 50 Appendix B, Criterion IX; confirm that the DBA-unqualified coating is removed and the component is recoated with DBA-qualified coatings in accordance with 10 CFR 50 Appendix B, Criterion IX; or add the quantity of DBA-unqualified coatings to a list that documents those DBA-unqualified coatings already existing within containment. | 6.1.2.3.2 |
| 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 |
| 6.4-1 | A COL applicant that references the U.S. EPR design certification will identify any Seismic Category I Class IE toxic gas sensors necessary for control room operator protection. | 6.4.6 |
| 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 and address their impact on control room habitability in accordance with RG 1.78. | 6.4.4 |
| 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 |
| 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 |


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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/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. | 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 |
| 8.3-1 | A COL applicant that references the U.S. EPR design certification will 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 |
| 8.4-1 | 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 position C.3.4 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 demonstrate that the design satisfies the criticality analysis requirements for the new and spent fuel storage racks, and describe the results of the analyses for normal and credible abnormal conditions, including a description of the methods used, approximations and assumptions made, and handling of design tolerances and uncertainties. | 9.1.1.3 |
| 9.1-3 | A COL applicant that references the U.S. EPR design certification will describe the new fuel storage racks, including a description of confirmatory structural dynamic and stress analyses | 9.1.2.2.1 |
| 9.1-4 | A COL applicant that references the U.S. EPR design certification will describe the spent fuel storage racks, including a description of confirmatory structural dynamic and stress analyses and thermal-hydraulic cooling analyses. | 9.1.2.2.2 |
| 9.2-1 | A COL applicant that references the U.S. EPR design certification will provide site specific information for the UHS make up. | 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 |
| 9.5-1 | 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 |


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## Table 1.8-2—~~{~~FSAR Sections that Address COL Items~~}~~

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| Item No. | Description | Section |
|---|---|---|
| 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 |
| 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, Section 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. | Table 9.5-1, Section C.6.2.6 |
| 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, Section C.7.6 |
| 10.0-1 | A COL applicant that references the U.S. EPR design certification will select Sections 10.1, 10.2 and 10.4.7 or 10.1A, 10.2A and 10.4.7A for inclusion in the COL FSAR as applicable to the chosen turbine-generator design option. | 10.0 |
| 10.2-1 | A COL applicant that references the U.S. EPR design certification will provide the site-specific turbine rotor inservice inspection program consistent with the recommendations of the manufacturer. | Not applicable. Alternate design not selected. |
| 10.2-2 | A COL applicant that references the U.S. EPR design certification will provide applicable material properties of the turbine rotor after the site specific turbine has been procured. | 10.2.3.1 |
| 10.2-3 | A COL applicant that references the U.S. EPR design certification will provide applicable turbine disk rotor specimen test data, load displacement data from the compact tension specimens and the fracture toughness properties after the site-specific turbine has been procured. | 10.2.3.2 |
| 10.2-4 | A COL applicant that references the U.S. EPR design certification, and selects the alternate turbine, will provide a list of material specifications for the alternate turbine-generator components. | Not applicable. Alternate design not selected. |
| 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 develop 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 within the chemical treatment system as determined by the site-specific water conditions. | 10.4.5.2.2 |


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## Table 1.8-2—~~{~~FSAR Sections that Address COL Items~~}~~

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| Item No. | Description | Section |
|---|---|---|
| 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 |
| 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 Part 61 licensed low level disposal site 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. | 11.4.3 |
| 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. | 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 |
| 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 |
| 12.5-1 | 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 72 and be consistent with the guidance in RGs 1.8, 8.2, 8.4, 8.5, 8.6, 8.8, 8.9, 8.10, 8.19, 8.15, 8.20, 8.26, 8.27, 8.28, 8.29, 8.32, 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 |
| 13.3-1 | 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 |
| 13.4-1 | 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 |


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## Table 1.8-2—~~{~~FSAR Sections that Address COL Items~~}~~

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| Item No. | Description | Section |
|---|---|---|
| 13.6-1 | A COL applicant that references the U.S. EPR design certification will provide a site-specific security assessment that addresses identification of vital equipment, development of target sets, vulnerability assessments, defensive analyses, design features to enhance security, the portions of the NRC orders to the current operating plants that impact U.S. EPR design, and the other security features of the U.S. EPR that establish the security system design. | 13.6 |
| 13.6-2 | A COL applicant that references the U.S. EPR design certification will provide a PSP to the NRC to fulfill the requirements of 10 CFR 52.79(a)(35). | 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 |
| 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 five guidance components: 1. The applicant should allow at least 9 months to conduct preoperational testing. 2. The applicant should allow at least 3 months to conduct startup testing, including fuel loading, low power tests, and power ascension tests. 3. Overlapping test program schedules (for multi-unit sites) should not result in significant divisions of responsibilities or dilutions of the staff provided to implement the test program. 4. 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 SSCs that are relied upon to prevent, limit, or mitigate the consequences of postulated accidents. 5. 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. | 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 information for the circulating water supply system. | 14.2.12 |
| 14.2-6 | The first COL applicant that references the U.S. EPR certified design will commit to review results from European predecessors concerning the new, unique, or novel EPR features (such as reactor internals (vibration measurement), natural circulation of the reactor coolant system, reactor coolant pump stand-still seal, pressurizer surge line (thermal stratification)) and propose supplemental testing if necessary. | 14.2.8.1 |
| 14.2-7 | A COL applicant that references the U.S. EPR design certification will provide site-specific test information for the cooling tower. | 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 |
| 16.0-1 | Brackets are used to identify information or parameters that are plant specific or are based on preliminary design information. A COL applicant that references the U.S. EPR design certification will 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 |


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## Table 1.8-2—~~{~~FSAR Sections that Address COL Items~~}~~

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| Item No. | Description | Section |
|---|---|---|
| 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 (SSC) 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 SSC 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 SSC 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 SSC 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 SSC from service can lead to a loss of Maintenance Rule functions, the program description will address how removing SSC 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 |
| 17.6-7 | A COL applicant that references the U.S. EPR design certification will describe the relationship and interface between 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 as described in the COL application, which includes establishing program elements through sequence and milestones and monitoring or tracking the performance and/or condition of SSC as they become operational. The Maintenance Rule Program will be implemented by the time that fuel load is authorized. | 17.6.7 |
| 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 |
| 18.12-1 | A COL applicant that references the U.S. EPR design certification will implement a human performance monitoring program similar to that which is described in this section. | 18.12 |
| 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 |


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**Table 1.8-2—~~{~~FSAR Sections that Address COL Items~~}~~**

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| Item No. | Description | Section |
|---|---|---|
| 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 or before fuel load. | 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 design-specific U.S. EPR PRA-based seismic margins assessment is bounding for their specific site. | 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 external event screening 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 |
| 19.1-9 | A COL applicant that references the U.S. EPR design certification will 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 HCLPF fragilities, and LPSD procedures. | 19.1.2.2 |


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## 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, and U.S. EPR Conformance with Standard Review Plan (NUREG-0800) Technical Report (ANP 2007).

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 guidance 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.


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### 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, 2007) 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 December 11, 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.** U.S. EPR Conformance with Standard Review Plan (NUREG-0800) Technical Report, ANP-10292, Revision 0, AREVA, December 2007.}


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## Table 1.9-1—{Conformance with Regulatory Guides}

Note: ~~{~~CCNPP Unit 3~~}~~ conforms to applicable Regulatory Guides with the following exceptions:
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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<br>FSAR 13.2.2<br>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.<br><br>The meteorological tower is at a different elevation than plant grade to assure the tower is on a level, open terrain. | FSAR 2.3.3.1.7, 2.3.1.2.2.1.3, and 2.3.3.2.7<br>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 |
| 1.39, R2 | Housekeeping Requirements for Water-cooled Nuclear Power Plants | Quality Assurance requirements for housekeeping 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 |
| 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 |


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**Table 1.9-1—{Conformance with Regulatory Guides}**

Note: {CCNPP Unit 3} conforms to applicable Regulatory Guides with the following exceptions:
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| RG / Rev | Description | Exception Descriptions | Reference |
|---|---|---|---|
| 1.132, R3 | 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 2.5.4.2.1.6 and 2.5.4.2.1.8 |
| 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 2.5.4.2.1.7 |
| 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.<br>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 |
| 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.<br>ANSI N13.5-1972 was reaffirmed in 1989.<br>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).<br>Sections C.4.b – C.4.d – Conformance is with the latest revision of NUREG-0041. | FSAR 12.5 |


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