

## 4.0 INTERFACE REQUIREMENTS

10 CFR 52.47(a)(25) requires the interface requirements to be met by those portions of the plant for which the application does not seek certification. 10 CFR 52.47(a)(26) requires justification that compliance with the interfaces requirements be verifiable through inspection, testing (either in the plant or elsewhere), or analysis. An applicant for a COL that references the Certified Design must provide design features or characteristics that comply with the interface requirements for the plant design and inspections, tests, analyses, and acceptance criteria (ITAAC) for the site-specific portion of the facility design, in accordance with 10 CFR 52.79(c).

The intent is that the interface requirements in the Final Safety Analysis Report (FSAR) define key, safety-significant design attributes and performance characteristics of the site-specific, out-of-scope portion of the plant which must be provided in order for the certified portions of the U.S. EPR standard design to comply with the design commitments in the FSAR.

This section provides the Tier 1 material for interface items. No Tier 1 information is provided for the conceptual design portions that are COL Applicant scope.

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**4.1****Site Specific Structures****Design Description**

Site specific structures that are not within the scope of the certified design will be designed for any facility which has adopted the U.S. EPR certified design. The site specific structures will meet the interface requirements defined below.

**Interface Requirements**

Certain design bases of the U. S. EPR are to be met by the COL Applicant in the design of the site specific structures.

Failure of any of the site specific structures not within the scope of the certified design shall not cause any of the Category 1 structures within the scope of the certified design to fail.

## 4.2 Fire Protection Storage Tanks and Building

### Design Description

Site specific structures that are not within the scope of the certified design will be designed for any facility which has adopted the U.S. EPR certified design. The site specific structures will meet the interface requirements defined below.

### Interface Requirements

Certain design bases of the U. S. EPR are to be met by the COL Applicant in the design of the site specific structures.

The COL Applicant will provide the design of the fire protection storage tanks and building. This building will house the fire protection system and fire pump with the storage tanks in close proximity to the pump building.

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**4.3****Switchgear Building****Design Description**

Site specific structures that are not within the scope of the certified design will be designed for any facility which has adopted the U.S. EPR certified design. The site specific structures will meet the interface requirements defined below.

**Interface Requirements**

Certain design bases of the U. S. EPR are to be met by the COL Applicant in the design of the site specific structures.

The COL Applicant will provide the design of the Switchgear Building. This building contains the power supply, the instrumentation and controls (I&C) for the Turbine Island and the balance of plant, and the SBO diesel generators; it is located adjacent to and contiguous with the Turbine Building and is physically separate from the NI.

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**4.4****Turbine Building****Design Description**

Site specific structures that are not within the scope of the certified design will be designed for any facility which has adopted the U.S. EPR certified design. The site specific structures will meet the interface requirements defined below.

**Interface Requirements**

Certain design bases of the U.S. are to be met by the COL Applicant in the design of the site specific structures.

The COL Applicant will provide the design of the Turbine 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. This building is oriented to minimize the effects of any potential turbine generated missiles.

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**4.5****Fuel Handling System****Design Description**

Site specific systems that are not within the scope of the certified design will be designed for any facility which has adopted the U.S. EPR certified design. The site specific systems will meet the interface requirements defined below.

**Interface Requirements**

Certain design bases of the U. S. EPR are to be met by the COL Applicant in the design of the site specific systems.

The COL Applicant will provide the design of the new fuel storage racks and the spent fuel storage racks. These racks identified as Seismic Category I and are designed, constructed and tested to ASME Code Section III, Division 1, Subsection NF. Materials for fuel storage racks shall satisfy their intended safety functional requirements with regards to fuel subcriticality. Spent fuel rack materials will be compatible with the pool storage environment. Spent fuel rack structural materials must be corrosion-resistant and compatible with the expected water chemistry of the spent fuel pool. The new fuel and spent fuel storage racks are located in the Fuel Building.

The COL Applicant will also 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. The COL Applicant will also describe the new fuel storage racks, including a description of confirmatory structural dynamic and stress analyses and the spent fuel storage racks, including a description of confirmatory structural dynamic and stress analyses and thermal-hydraulic cooling analyses.

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**4.6 Buried Piping and Pipe Ducts****Design Description**

Site specific systems that are not within the scope of the certified design will be designed for any facility which has adopted the U.S. EPR certified design. The site specific systems will meet the interface requirements defined below.

**Interface Requirements**

Certain design bases of the U. S. EPR are to be met by the COL Applicant in the design of the site specific systems.

The design of buried conduit and duct banks, and buried pipe and pipe ducts is site-specific. Buried Seismic Category I conduit, electrical duct banks, pipe, and pipe ducts will be analyzed and designed in accordance with the specific requirements of the systems.

The buried conduit and duct banks, and buried pipe and pipe ducts will be designed for the effects of soil overburden, surcharge, groundwater, flood, seismic soil interaction, and other effects of burial. Concrete components of buried items will be designed in accordance with ACI 349-2001, including the exceptions specified in RG 1.142. Steel components of buried items will be designed in accordance with ANSI/AISC N690-1994 (R2004), including Supplement 2.



**4.7**

**Buried Piping and Pipe Ducts for Service Water**

Interface requirements for the Buried Piping and Pipe Ducts for the service water system are provided in Section 2.7.11.





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**4.8 Fire Water Distribution System**

Interface requirements for the fire water distribution system are provided in Section 2.7.5.

**4.9****Lightning Protection and Grounding System**

Interface requirements for the lightning protection and grounding system are provided in Section 2.5.8.

**4.10 Offsite Power System**

Interface requirements for the offsite power system, including the switchyard, are provided in Section 2.5.4.

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**4.11 Power Transmission (Main Generator, Main Transformer, Protection & Synchronization)**

Interface requirements for the power transmission system, including the main transformer, protection & synchronization, are provided in Section 2.5.6.

## 4.12 Access Building

### Design Description

Site specific structures that are not within the scope of the certified design will be designed for any facility which has adopted the U.S. EPR certified design. The site specific structures will meet the interface requirements defined below.

### Interface Requirements

Certain design bases of the U.S. EPR are to be met by the COL Applicant in the design of the site specific structures.

The COL Applicant will provide the design of the Access Building. The Access Building controls access to the plants controlled areas and is independent from the NI.