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10 CFR 50.4

UniStar NUCLEAR

July 13, 2006

UN#06-006

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Subject: UniStar Nuclear, NRC Project No. 746
Response to Regulatory Issue Summary 2006-006, New Reactor Standardization Needed to Support the Design-Centered Licensing Review Approach

Reference: NRC Regulatory Issue Summary 2006-006, New Reactor Standardization Needed to Support the Design-Centered Licensing Review Approach, dated May 31, 2006

In the reference Regulatory Issue Summary (RIS), the Nuclear Regulatory Commission (NRC) indicated that it is developing its resource estimates and project plan for a Design-Centered Review Approach (DCRA) strategy. To support this effort, the NRC requested information regarding schedules and standardization plans from the RIS addresses. The RIS requested a response within 45 days of the date of the RIS, i.e., by July 17, 2006.

UniStar Nuclear supports and endorses the design-centered review approach proposed by the NRC. Responses to the specific bulleted items from the RIS are provided in Enclosure 1. Enclosure 2 provides the proposed U.S. Evolutionary Power Reactor (EPR) Combined License (i.e., COL) Application Standardization Matrix.

If you have any questions, please contact me at (410) 230-4892.

Respectfully,

R. M. Krich

Enclosures:

1. Response to NRC Regulatory Issue Summary 2006-006
2. Proposed U.S. EPR COL Application Standardization Matrix

cc: NRC Project Manager, U.S. EPR COL Application
NRC Project Manager, U.S. EPR Design Certification Application

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# ENCLOSURE 1

## Response to NRC Regulatory Issue Summary 2006-006

Enclosure 1
Response to NRC Regulatory Issue Summary 2006-006

Each of the information requests in NRC Regulatory Issue Summary (RIS) 2006-006 are addressed below. UniStar Nuclear is in the process of developing the first Combined License (i.e., COL) application that will reference the AREVA U.S. Evolutionary Power Reactor (EPR) standard design. It is expected that the first UniStar Nuclear COL application will be submitted while the AREVA EPR design certification application is undergoing NRC review.

Information Request #1:

Whether applicants for the four designs discussed in this RIS will be organized into DCWGs [Design-Centered Working Groups]; if so, the schedule for such organization and, if a single point of contact is designated for the DCWG, the contact's identity.

Response:

UniStar Nuclear is in the process of creating the U.S. EPR design-centered working group (DCWG). UniStar Nuclear intends to submit the first, i.e., reference plant, COL application for the U.S. EPR design no later than June 2008. This first COL application, with input from the U.S. EPR DCWG, will be developed in such a manner as to maximize standardization among future U.S. EPR COL applications, i.e., subsequent COL (S-COL) applications. As indicated in letter UN#06-004 from R. M. Krich (UniStar Nuclear) to the Document Control Desk (NRC), "NRC Project No. 746, Estimated Schedule Projections for Follow-On Evolutionary Power Reactor License Applications," dated June 8, 2006, UniStar Nuclear's schedule projections for the follow-on COL applications (i.e., S-COL applications) illustrate that significant compression of both the license application preparation and NRC review times can be achieved as a result of standardization by the applicant and the NRC's design-centered licensing review approach. The following individual has been identified as the point of contact for the U.S. EPR DCWG.

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Information Request #2:

If a design-centered program is followed for a particular design, which applicant referencing the design will be designated as the R-COL applicant. In addition, when will (month and year) each of the COL applications be submitted for review?

Response:

For the new reactors of the U.S. EPR design, the first submitted COL application will be designated as the reference COL (R-COL) application. As stated in our letter from Joe C. Turnage (Constellation Generation Group) to David B. Mathews (NRC), "Notification of Intent to Submit a Combined Construction and Operating License Application: Follow-

up to November 2, 2005 Meeting," dated November 4, 2005, the first COL application is currently scheduled for submittal by UniStar Nuclear in June 2008. More recently, letter UN#06-005 from R. M. Krich to (UniStar Nuclear) to the Document Control Desk (NRC), "NRC Project No. 746, Additional Information Related to Estimated Schedule Projections for Evolutionary Power Reactor License Applications," dated June 21, 2006, stated that the first U. S. EPR COL application could be submitted as early as the fourth quarter of 2007. To the maximum extent practicable, standard COL applications will be developed for the new reactors of the U.S. EPR design. The follow-on or subsequent COL (S-COL) applicants will use the standard U.S EPR COL application, modified only as necessary to reflect site-specific and applicant-specific differences. Projected schedules for submittal of U.S. EPR S-COL applications were previously provided in letter UN#06-004 from R. M. Krich (UniStar Nuclear) to Document Control Desk (NRC), "NRC Project No. 746, Estimated Schedule Projections for Follow-On Evolutionary Power Reactor License Applications," dated June 8, 2006. It should be noted that the R-COL application date is, however, dependent on the following assumptions.

- NRC Guidance of COL Application Content
  Guidance provided in Draft Guide (DG)-1145, "Combined License Application for Nuclear Power Plants (LWR Edition)," and its eventual final version must be timely, complete, accurate, and responsive to industry comments and concerns expressed to the NRC via public workshop dialog and related written comments provided to the NRC.

- Standard Review Plan (SRP) Acceptance Criteria
  It is recognized that NUREG-0800, "Standard Review Plan for Review of Safety Analysis Reports for Nuclear Power Plants," constitutes guidance to the NRC for the conduct of the licensing review. However, a clear understanding of final SRP acceptance criteria is essential to a quality, complete COL application. As a minimum, the COL application must evaluate the SRP in effect within 6 months of its submittal. In addition, as a practical matter, the SRP often contains detail and references to standards that are either helpful or essential to the efficient and effective development of COL application content. As such, the current COL application schedule presumes that the updated SRP acceptance criteria, applicable and critical to the COL application, when issued are fully consistent with the DG-1145 guidance, as informed by industry comment.

Changes to this current COL application submittal schedule (e.g., as a result of changes in the assumptions above) will be communicated promptly to the NRC.

Information Request #3:

Whether applicants implementing the DCRA intend to provide RAI responses within the typical 30-day period.

Response:

UniStar Nuclear would expect to provide most responses to requests for additional information (RAIs) within a 30-day period. However, longer periods may be necessary for RAIs requiring substantial new evaluation or analysis, consisting of a substantial

number of questions, or requiring significant consensus efforts (i.e., among applicants expected to refer to standardized content). When it is determined the typical 30-day response period cannot be met, the 30-day response will provide a response plan and schedule. Additionally, a typical 30-day period would be contingent on pre-request discussions between NRC and UniStar Nuclear representatives so that the information needs included within the RAIs are well understood (i.e., similar to the process utilized on the three original Early Site Permit (ESP) application reviews, the recent design certification application reviews, and the Louisiana Energy Services National Enrichment Facility License Application review).

Information Request #4:

To what degree standardization will be achieved, appropriately documented, and replicated in COL applications. Specifically, what portions of the R-COL application (chapter by chapter, section by section, subsection by subsection) will be standardized (i.e., replicated verbatim) in S-COL applications and what portions of the application are likely to be site-specific.

Response:

UniStar Nuclear supports and endorses the design-centered review approach proposed by the NRC. Standardization is expected to be substantial for the U.S. EPR COL applications. The exact scope of standardization is still under review. The current U.S. EPR standardization matrix (on a subsection-by-subsection basis) is considered preliminary and is provided in Enclosure 2. This document is subject to modifications as the development of actual COL application material progresses.

We expect that the first, i.e., reference plant, U.S. EPR COL application will identify standardized material so that the NRC is aware of the appropriate utilization of the "one issue, one review, one position" strategy. However, details of the method of identification for the standardized material have not yet been determined.

The first U.S. EPR COL application will incorporate standardized material to the fullest extent practical.

Information Request #5:

Whether, for each design-centered program, the vendor and applicants intend to submit pre-application topical reports for staff review. If so, how many? For each such report anticipated, please summarize the report scope and content and the proposed submittal schedule.

Response:

UniStar Nuclear does intend to submit pre-application submittals for NRC review. The intended near-term pre-application submittals, including submittal scope, content, and schedule, were identified in meetings with NRC representatives on March 24, 2005, January 10, 2006, and May 2, 2006, and in the following letters.

- Letter NRC:06:004 from R. L. Gardner (Framatome-ANP) to D. B. Matthews (NRC), "Proposed Plan for Phase 2 of the Pre-Application Review of the U.S. EPR," dated February 3, 2006.

- Letter UN#06-003 from R. M. Krich (UniStar Nuclear) to Director, Office of Nuclear Reactor Regulation, "NRC Project No. 746, Early Submittal of Sections of Combined License Application," dated May 18, 2006.

Information Request #6:

Whether any applicants intend to apply for an ESP [Early Site Permit] prior to submitting their COL applications. If so, when (month and year) would the proposed ESP be submitted to the NRC for review?

Response:

The first U.S. EPR COL applicant does not intend to apply for an Early Site Permit (ESP) prior to submitting the COL application.

ENCLOSURE 2

Preliminary U.S. EPR COL Application Standardization Matrix

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| | **General and Financial Requirements** | |
| 1.0 | General Information | S |
| 2.0 | Financial Qualifications | S |
| 3.0 | Decommissioning Funding | G/S |
| 4.0 | Foreign Ownership/Control | S |
| I | **FSAR** | |
| 1 | Introduction and General Description of the Plant | |
| 1.1 | Introduction | G/S |
| 1.1.1 | Type of License Requested | G/S |
| 1.1.2 | Number of Plant Units | S |
| 1.1.3 | Plant Location | S |
| 1.1.4 | Type of Nuclear Steam Supply System | G |
| 1.1.5 | Type of Containment | G |
| 1.1.6 | Power Output | G |
| 1.1.7 | Schedule | S |
| 1.1.8 | Format and Content | G |
| 1.2 | General Plant Description | G |
| 1.2.1 | Site Description | S |
| 1.2.2 | Plant Description | G/S |
| 1.3 | Comparisons with Similar Facility Designs | G |
| 1.4 | Identification of Agents and Contractors | S |
| 1.4.1 | Applicant - Program Manager | S |
| 1.4.2 | Other Contractors and Participants | S |
| 1.5 | Requirements for Further Technical Information, | G |
| 1.6 | Material incorporated by Reference | S |
| 1.7 | Drawings and Other Detailed Information | G |
| 1.7.1 | Electrical and Instrumentation and Control Drawings | G |
| 1.7.2 | Piping and Instrumentation Diagrams | G |
| 1.8 | Conformance with Regulatory Criteria | G |
| 1.8.1 | Regulatory Guides | G/S |
| 1.8.2 | Conformance with Standard Review Plan (NUREG-0800) | G |
| 1.8.3 | Three Mile Island Items | G |
| 1.8.4 | Unresolved Safety Issues and Generic Safety Issues | G/S |
| 1.8.5 | References | G |
| 1.9 | Interfaces for Standard Designs | G |
| 1.9.1 | Interfaces | S |
| 1.9.2 | Exceptions | S |
| 2 | Site Characteristics | S |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 2.1 | Geography and Demography | S |
| 2.1.1 | Site Location and Description | S |
| 2.1.2 | Exclusion Area Authority and Control | S |
| 2.1.3 | Population Distribution | S |
| 2.2 | Nearby Industrial, Transportation, and Military Facilities | S |
| 2.2.1 | Locations and Routes | S |
| 2.2.2 | Descriptions | S |
| 2.2.3 | Evaluation of Potential Accidents | S |
| 2.3 | Meteorology | S |
| 2.3.1 | Regional Climatology | S |
| 2.3.2 | Local Meteorology | S |
| 2.3.3 | Onsite Meteorological Measurements Program | S |
| 2.3.4 | Short-Term Diffusion Estimates | S |
| 2.3.5 | Long-Term Diffusion Estimates | S |
| 2.4 | Hydrologic Engineering | S |
| 2.4.1 | Hydrologic Description | S |
| 2.4.2 | Floods | S |
| 2.4.3 | Probable Maximum Flood (PMF) on Streams and Rivers | S |
| 2.4.4 | Potential Dam Failures | S |
| 2.4.5 | Probable Maximum Surge and Seiche Flooding | S |
| 2.4.6 | Probable Maximum Tsunami Flooding | S |
| 2.4.7 | Ice Effects | S |
| 2.4.8 | Cooling Water Canals and Reservoirs | S |
| 2.4.9 | Channel Diversions | S |
| 2.4.10 | Flooding Protection Requirements | G |
| 2.4.11 | Cooling Water Supply | S |
| 2.4.12 | Groundwater | S |
| 2.4.13 | Accidental Release of Liquid Effluents in Ground and Surface Water | S |
| 2.4.14 | Technical Specification and Emergency Operation Requirements | S |
| 2.5 | Geology, Seismology, and Geotechnical Engineering | S |
| 2.5.1 | Basic Geologic and Seismic Information | S |
| 2.5.2 | Vibratory Ground Motion | S |
| 2.5.3 | Surface Faulting | S |
| 2.5.4 | Stability of Subsurface Materials and Foundations | S |
| 2.5.5 | Stability of Slopes | S |
| 2.5.6 | Embankments and Dams | S |
| 3 | Design of Structures, Components, Equipment, and Systems | G |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 3.1 | Conformance with NRC General Design Criteria | G/S |
| 3.1.1 | Overall Requirements | G |
| 3.1.2 | Protection by Multiple Fission Product Barriers | G/S |
| 3.1.3 | Protection and Reactivity Control Systems | G |
| 3.1.4 | Fluid Systems | G |
| 3.1.5 | Reactor Containment | G |
| 3.1.6 | Fuel and Reactivity Control | G |
| 3.2 | Classification of Structures, Components, Equipment, and Systems | G |
| 3.2.1 | Seismic Classification | G |
| 3.2.2 | System Quality Group Classifications | G |
| 3.2.3 | Inspection Requirements | G |
| 3.2.4 | Application of Safety-Related Equipment and Seismic Classification System | G |
| 3.3 | Wind and Tornado Loadings | G |
| 3.3.1 | Wind Loadings | G |
| 3.3.2 | Tornado Loadings | G |
| 3.4 | Water Level (Flood) Design | S |
| 3.4.1 | Flood protection | S |
| 3.4.2 | Analytical and Test Procedures | S |
| 3.5 | Missile Protection | G |
| 3.5.1 | Missile Selection and Description | G/S |
| 3.5.2 | Structures, Systems, and Components To be Protected from Externally generated Missiles. | G |
| 3.5.3 | Barrier Design Procedures | G |
| 3.6 | Protection Against Dynamic Effects Associated with the Postulated Rupture of Piping | G |
| 3.6.1 | Postulated Piping Failures in Fluid Systems Inside and Outside of Containment | G |
| 3.6.2 | Determination of Break Locations and Dynamic Effects Associated with the Postulated Rupture of Piping | G |
| 3.6.3 | Leak-Before-Break Evaluation | G |
| 3.7 | Seismic Design | G |
| 3.7.1 | Seismic input | G |
| 3.7.2 | Seismic System Analysis | G |
| 3.7.3 | Seismic Subsystem Analysis | G |
| 3.7.4 | Seismic Instrumentation | G |
| 3.8 | Design of Category 1 Structures | G |
| 3.8.1 | Concrete Containment | G |
| 3.8.2 | Steel Containment | G |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 3.8.3 | Concrete and Steel Internal Structures of Steel or Concrete Containments | G |
| 3.8.4 | Other Seismic Category 1 Structures | G/S |
| 3.8.5 | Foundations | G |
| 3.8.6 | Shield Building | G |
| 3.8.7 | Core Melt Retention | G |
| 3.9 | Mechanical Systems and Components | G |
| 3.9.1 | Special Topics for Mechanical Components | G |
| 3.9.2 | Dynamic Testing and Analysis | G |
| 3.9.3 | ASME Code Class 1, 2 and 3 Components, Component Supports, and Core Support Structures | G |
| 3.9.4 | Control Rod Drive Systems | G |
| 3.9.5 | Reactor Pressure Vessel Internals | G |
| 3.9.6 | Inservice Testing of Pumps and Valves | G/S |
| 3.10 | Seismic and Dynamic Qualification of Mechanical and Electrical Equipment | G |
| 3.10.1 | Seismic and Dynamic Qualification Criteria | G |
| 3.10.2 | Methods and Procedures for Qualifying Electrical Equipment, Instrumentation, and Mechanical Components | G |
| 3.10.3 | Methods and Procedures of Analysis or Testing of Supports for Electrical Equipment, Instrumentation, and Mechanical Components | G |
| 3.11 | Environmental Qualification of Mechanical and Electrical Equipment | G |
| 3.11.1 | Equipment Identification and Environmental Conditions | G/S |
| 3.11.2 | Qualification Tests and Analyses | G |
| 3.11.3 | Qualification Test Results | G |
| 3.11.4 | Loss of Ventilation | G |
| 3.11.5 | Estimated Chemical and Radiation Environment | G/S |
| 4 | Reactor | G |
| 4.1 | Summary Description | G |
| 4.2 | Fuel System Design | G |
| 4.2.1 | Design Bases | G |
| 4.2.2 | Description and Design Drawings | G |
| 4.2.3 | Design Evaluation | G |
| 4.2.4 | Testing and Inspection Plan | G |
| 4.3 | Nuclear Design | G |
| 4.3.1 | Design Bases | G |
| 4.3.2 | Description | G |
| 4.3.3 | Analytical and Test Methods | G |
| 4.3.4 | Changes | G |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 4.4 | Thermal and Hydraulic Design | G |
| 4.4.1 | Design Bases | G |
| 4.4.2 | Description of Thermal and hydraulic Design of the Reactor Core | G |
| 4.4.3 | Description of Thermal and Hydraulic Design of the Reactor Coolant System | G |
| 4.4.4 | Evaluation | G |
| 4.4.5 | Testing and Verification | G |
| 4.4.6 | Instrumentation Requirements | G |
| 4.5 | Reactor Materials | G |
| 4.5.1 | Control Rod Drive System Structural Materials | G |
| 4.5.2 | Reactor Internal and Core Support Materials | G |
| 4.6 | Functional Design of Reactivity Control Systems | G |
| 4.6.1 | Information for CRDS | G |
| 4.6.2 | Evaluations of the CRDS | G |
| 4.6.3 | Testing and Verification of the CRDS | G |
| 4.6.4 | Information for Combined Performance of Reactivity Systems | G |
| 4.6.5 | Evaluations for Combined Performance | G |
| 5 | Reactor Coolant Systems and Connected Systems | G |
| 5.1 | Summary Description | G |
| 5.1.1 | Schematic Flow diagram | G |
| 5.1.2 | Piping and Instrumentation Diagram | G |
| 5.1.3 | Elevation Drawing | G |
| 5.2 | Integrity of Reactor Coolant Pressure Boundary | G |
| 5.2.1 | Compliance with Codes and Code Cases | G/S |
| 5.2.2 | Over pressurization Protection | G |
| 5.2.3 | Reactor Coolant Pressure Boundary Materials | G |
| 5.2.4 | Inservice Inspection and Testing of Reactor Coolant Pressure Boundary | G/S |
| 5.2.5 | Detection of Leakage through Reactor Coolant Pressure Boundary | G |
| 5.3 | Reactor Vessel | G |
| 5.3.1 | Reactor Vessel Materials | G |
| 5.3.2 | Pressure-Temperature Limits | G/S |
| 5.3.3 | Reactor Vessel Integrity | G |
| 5.4 | Component and Subsystem Design | G |
| 5.4.1 | Reactor Coolant Pumps | G |
| 5.4.2 | Steam Generators | G |
| 5.4.3 | Reactor Coolant System Piping | G |
| 5.4.4 | Main Steam Line Flow Restrictions | G |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 5.4.5 | Main Steam Line Isolation System | G |
| 5.4.6 | Reactor Core Isolation Cooling System (N/A BWR) | G |
| 5.4.7 | Residual Heat Removal System | G |
| 5.4.8 | Reactor Water Cleanup System (N/A BWR) | G |
| 5.4.9 | Main Steam Line and Feedwater Piping | G |
| 5.4.10 | Pressurizer | G |
| 5.4.11 | Pressurizer Relief Discharge System | G |
| 5.4.12 | Valves | G |
| 5.4.13 | Safety and Relief Valves | G |
| 5.4.14 | Component Supports | G |
| 5.4.15 | Insulation | G |
| 5.4.16 | RCS High Point Vents | G |
| 5.4.17 | RVLIS | G |
| 6 | Engineered Safety Features | G |
| 6.1 | Engineered Safety Feature Materials | G |
| 6.1.1 | Metallic Materials | G |
| 6.1.2 | Protective Coating Systems (Paints) Organic Materials | G |
| 6.1.3 | Post Accident Chemistry | G |
| 6.2 | Containment Systems | G |
| 6.2.1 | Containment Functional Design | G |
| 6.2.2 | Containment Heat Removal System | G |
| 6.2.3 | Secondary Containment Functional Design | G |
| 6.2.4 | Containment Isolation System | G |
| 6.2.5 | Combustible Gas Control in Containment | G |
| 6.2.6 | Annulus Ventilation System | G |
| 6.2.7 | Containment Ventilation System | G |
| 6.2.8 | Containment Filtered Vent System | G |
| 6.2.9 | Containment Leakage Testing | G |
| 6.3 | Emergency Core Cooling System | G |
| 6.3.1 | Design Bases | G |
| 6.3.2 | System Design | G |
| 6.3.3 | Performance Evaluation | G |
| 6.3.4 | Tests and Inspections | G |
| 6.3.5 | Instrumentation Requirements | G |
| 6.4 | Habitability Systems | G |
| 6.4.1 | Design Bases | G |
| 6.4.2 | System Design | G |
| 6.4.3 | System Operational Procedures | G |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 6.4.4 | Design Evaluations | G |
| 6.4.5 | Testing and Inspection | G |
| 6.4.6 | Instrumentation Requirements | G |
| 6.5 | Fission Product Removal and Control Systems | G |
| 6.5.1 | Engineered Safety Feature (ESF) Filter Systems | G |
| 6.5.2 | Containment Spray Systems | G |
| 6.5.3 | Fission Product Control Systems | G |
| 6.6 | Inservice Inspection of Class 2 and 3 Components | G/S |
| 6.6.1 | Components Subject to Examination | G |
| 6.6.2 | Accessibility | G |
| 6.6.3 | Examination Techniques and Procedures | G/S |
| 6.6.4 | Inspection Intervals | G/S |
| 6.6.5 | Examination Categories and Requirements | G/S |
| 6.6.6 | Evaluation and Examination Results | G/S |
| 6.6.7 | System Pressure Tests | G/S |
| 6.6.8 | Augmented Inservice Inspection to Protect Against Postulated Piping Failures | G/S |
| 6.7 | MSIV Leakage Isolation Control System (N/A, BWR) | G |
| 6.8 | Reactor Coolant Depressurization System | G |
| 6.9 | Extra Borating System | G |
| 6.9.1 | Design Bases | G |
| 6.9.2 | System Description | G |
| 6.9.3 | Design Evaluation | G |
| 6.9.4 | Tests and Inspections | G |
| 6.9.5 | Instrumentation Requirements | G |
| 6.10 | Core Melt Retention System | G |
| 6.10.1 | Design Bases | G |
| 6.10.2 | System Description | G |
| 6.10.3 | Design Evaluation | G |
| 6.10.4 | Tests and Inspections | G |
| 6.10.5 | Instrumentation Requirements | G |
| 6.11 | Severe Accident Heat Removal System | G |
| 7 | Instrumentation and Controls | G |
| 7.1 | Introduction | G |
| 7.1.1 | Instrumentation and Control Architecture | G |
| 7.1.2 | Protection System | G |
| 7.1.3 | Plant Control Systems | G |
| 7.1.4 | Identification of Safety Criteria | G |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 7.1.5 | Protective Functions | G |
| 7.2 | Reactor Trip System | G |
| 7.2.1 | Description | G |
| 7.2.2 | Analysis | G |
| 7.3 | Engineered Safety Feature Systems | G |
| 7.3.1 | Description | G |
| 7.3.2 | Analysis | G |
| 7.4 | Systems Required for Safe Shutdown | G |
| 7.4.1 | Description | G |
| 7.4.2 | Analysis | G |
| 7.5 | Information Systems Important to Safety | G |
| 7.5.1 | Introduction | G |
| 7.5.2 | Variable Classifications and Requirements | G |
| 7.5.3 | Description of Variables | G |
| 7.5.4 | Processing and Display Equipment | G |
| 7.6 | Interlock Systems Important to Safety | G |
| 7.6.1 | Description | G |
| 7.6.2 | Prevention of Over-Pressurization of Low-Pressure Systems | G |
| 7.6.3 | Availability of Engineered Safety Features | G |
| 7.7 | Control Systems | G |
| 7.7.1 | Description | G |
| 7.7.2 | Analysis | G |
| 7.8 | Diverse I&C Systems | G |
| 7.8.1 | Description | G |
| 7.8.2 | Analysis | G |
| 7.9 | Data Communication Systems | G |
| 7.9.1 | Description | G |
| 7.9.2 | Analysis | G |
| 8 | Electric Power | G |
| 8.1 | Introduction | G |
| 8.1.1 | Utility Grid Description | S |
| 8.1.2 | Onsite Power System Description | S |
| 8.1.3 | Safety-Related Loads | S |
| 8.1.4 | Design Basis | G |
| 8.2 | Offsite Power System | G |
| 8.2.1 | Description | G |
| 8.2.2 | Analysis | G |
| 8.3 | Onsite Power Systems | G |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 8.3.1 | AC Power Systems | G |
| 8.3.2 | DC Power Systems | G |
| 8.3.3 | Fire Protection for Cable Systems | G |
| 8.4 | Station Blackout | G |
| 9 | Auxiliary Systems | G |
| 9.1 | Fuel Storage and Handling | G |
| 9.1.1 | New Fuel Storage | G |
| 9.1.2 | Spent Fuel Storage | G/S |
| 9.1.3 | Spent Fuel Pool Cooling and Cleanup System | G |
| 9.1.4 | Fuel Handling System | G |
| 9.2 | Water Systems | G |
| 9.2.1 | Station Service Water System | G/S |
| 9.2.2 | Component Cooling Water System | G |
| 9.2.3 | Demineralized Water Makeup System | G |
| 9.2.4 | Potable and Sanitary Water Systems | S |
| 9.2.5 | Ultimate Heat Sink | S |
| 9.2.6 | Condensate Storage Facilities | S |
| 9.2.7 | Plant Drainage System | S |
| 9.2.8 | Safety Chilled Water System | G |
| 9.2.9 | Operational Chilled Water System | G |
| 9.2.10 | Closed Cooling Water System | G |
| 9.2.11 | Service Water System (Conventional) | G/S |
| 9.2.12 | Raw Water Supply System | S |
| 9.2.13 | Seal Water Supply System | G |
| 9.3 | Process Auxiliaries | G |
| 9.3.1 | Compressed Air Systems | G |
| 9.3.2 | Process Sampling System | G |
| 9.3.3 | Equipment and Floor Drainage System | G |
| 9.3.4 | Chemical and Volume Control System | G |
| 9.3.5 | SLC System (N/A, BWR) | G |
| 9.4 | Air Conditioning, Heating, Cooling and Ventilation | G |
| 9.4.1 | Control Room Area Ventilation System | G |
| 9.4.2 | Spent Fuel Pool Area Ventilation System | G |
| 9.4.3 | Auxiliary and Radwaste Area Ventilation System | G |
| 9.4.4 | Turbine Building Area Ventilation System | G |
| 9.4.5 | Engineered Safety Feature Ventilation System | G |
| 9.4.6 | Ventilation / AC System for Switchgear | G |
| 9.4.7 | Containment Ventilation System | G |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 9.4.8 | Radioactive Waste Building Ventilation System | G |
| 9.4.9 | Diesel Building Ventilation System | G |
| 9.4.10 | Station Black-out Diesel Building Ventilation System | G |
| 9.4.11 | Service Water Pump Building Ventilation System | G |
| 9.4.12 | Ventilation System for Circulating Water Pump Building | G/S |
| 9.4.13 | Smoke Confinement System of Nuclear Island | G |
| 9.4.14 | Access Building Ventilation System | G |
| 9.5 | Other Auxiliary Systems | G |
| 9.5.1 | Fire Protection Systems | S |
| 9.5.2 | Communication Systems | G/S |
| 9.5.3 | Lighting Systems | G/S |
| 9.5.4 | Diesel Generator Fuel Oil Storage and Transfer System | G |
| 9.5.5 | Diesel Generator Cooling Water System | G |
| 9.5.6 | Diesel Generator Starting System | G |
| 9.5.7 | Diesel Generator Lubrication System | G |
| 9.5.8 | Diesel Generator Combustion Air Intake and Exhaust System | G |
| 10 | Steam and Power Conversion System | G |
| 10.1 | Summary Description | G |
| 10.1.1 | General Description | G |
| 10.1.2 | Protective Features | G |
| 10.2 | Turbine-Generator | G |
| 10.2.1 | Design Bases | G |
| 10.2.2 | Description | G |
| 10.2.3 | Turbine Disk Integrity | G |
| 10.2.4 | Evaluation | G |
| 10.3 | Main Steam Supply System | G |
| 10.3.1 | Design Bases | G |
| 10.3.2 | Description | G |
| 10.3.3 | Evaluation | G |
| 10.3.4 | Inspection and Testing Requirements | G/S |
| 10.3.5 | Secondary Water Chemistry (PWR) | G |
| 10.3.6 | Steam and Feedwater Heater System Materials | G |
| 10.4 | Other Features of Steam and Power Conversion System | G |
| 10.4.1 | Main Condensers | G |
| 10.4.2 | Main Condenser Evacuation System | G |
| 10.4.3 | Turbine Gland Sealing System | G |
| 10.4.4 | Turbine Bypass System | G |
| 10.4.5 | Circulating Water System | S |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 10.4.6 | Condensate Cleanup System | G |
| 10.4.7 | Condensate and Feedwater Systems | G |
| 10.4.8 | Steam Generator Blowdown System | G |
| 10.4.9 | Emergency Feedwater System | G |
| 11 | Radioactive Waste Management | G |
| 11.1 | Source Terms | G |
| 11.1.1 | Design Basis Reactor Coolant Activity | G |
| 11.1.2 | Design Basis Secondary Coolant Activity | G |
| 11.1.3 | Realistic Reactor Coolant and Secondary Coolant Activity | G |
| 11.1.4 | Core Source Term | G |
| 11.1.5 | Process Leakage Sources | G |
| 11.2 | Liquid Waste Management Systems | G |
| 11.2.1 | Design Bases | G |
| 11.2.2 | System Description | G |
| 11.2.3 | Radioactive Releases | G |
| 11.2.4 | Inspection and Testing Requirements | G |
| 11.3 | Gaseous Waste Management System | G |
| 11.3.1 | Design Bases | G |
| 11.3.2 | System Description | G |
| 11.3.3 | Radioactive Releases | G |
| 11.3.4 | Inspection and Testing Requirements | G |
| 11.4 | Solid Waste Management System | G |
| 11.4.1 | Design Bases | G |
| 11.4.2 | System Description | G |
| 11.4.3 | Inspection and Testing Requirements | G |
| 11.5 | Process and Effluent Radiological Monitoring and Sampling Systems | G/S |
| 11.5.1 | Design Bases | G |
| 11.5.2 | System Description | G |
| 11.5.3 | Effluent Monitoring and Sampling | G/S |
| 11.5.4 | Process Monitoring and Sampling | G/S |
| 11.5.5 | Post Accident Radiation Monitoring | G |
| 12 | Radiation Protection | G |
| 12.1 | Ensuring that Occupational Radiation Exposures are As Low As Reasonably Achievable | G |
| 12.1.1 | Policy Considerations | G |
| 12.1.2 | Design Considerations | G |
| 12.1.3 | Operational Considerations | G |
| 12.2 | Radiation Sources | G |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
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| 12.2.1 | Contained Sources | G |
| 12.2.2 | Airborne Radioactive Material Sources | G |
| 12.3 | Radiation Protection Design Features | G |
| 12.3.1 | Facility Design Features | G |
| 12.3.2 | Shielding | G |
| 12.3.3 | Ventilation | G |
| 12.3.4 | Area Radiation and Airborne Radioactivity Monitoring Instrumentation | G |
| 12.4 | Dose Assessment | G |
| 12.4.1 | Occupational Radiation Exposure | G |
| 12.4.2 | Radiation Exposure at the Site Boundary | G |
| 12.5 | Operational Radiation Protection Program | G/S |
| 12.5.1 | Organization | S |
| 12.5.2 | Equipment, Instrumentation, and Facilities | G/S |
| 12.5.3 | Procedures | G/S |
| 13 | Conduct of Operations | G/S |
| 13.1 | Organizational Structure of the Applicant | S |
| 13.1.1 | Management and Technical Support Organization | S |
| 13.1.2 | Operating Organization | S |
| 13.1.3 | Qualification of Nuclear Power Plant Personnel | G/S |
| 13.2 | Training | G/S |
| 13.2.1 | Program Description | G/S |
| 13.2.2 | Replacement and Retraining | G/S |
| 13.2.3 | Applicable NRC Documents | G |
| 13.3 | Emergency Planning | G/S |
| 13.3.1 | Scope and Applicability | G/S |
| 13.3.2 | Summary of Emergency Plan | G/S |
| 13.3.3 | Emergency Conditions | G/S |
| 13.3.4 | Organizational Control of Radiation Emergency | S |
| 13.3.5 | Emergency Measures | S |
| 13.3.6 | Emergency Facilities | S |
| 13.3.7 | Maintaining Nuclear Emergency Preparedness | G/S |
| 13.3.8 | Recovery | G/S |
| 13.4 | Operational Review | G/S |
| 13.4.1 | Onsite Review | G/S |
| 13.4.2 | Independent Review Program | G/S |
| 13.4.3 | Audit Program | G/S |
| 13.5 | Plant Procedures | G/S |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 13.5.1 | Administrative Procedures | G/S |
| 13.5.2 | Operating, Emergency, Maintenance, and Other Procedures | G/S |
| 13.6 | Security Plan | G/S |
| 13.6.1 | Physical Security | G/S |
| 13.6.2 | Training and Qualification | G/S |
| 13.6.3 | Vehicle Control | G/S |
| 13.6.4 | Access Authorization | G/S |
| 13.6.5 | Fitness For Duty | G/S |
| 13.6.6 | Safeguards Contingency | G/S |
| 14 | Initial Test Program and ITAAC | G |
| 14.1 | Specific Information to be Included in Preliminary/Final Safety Analysis Reports (N/A) | G |
| 14.2 | Initial Plant Test Program | G/S |
| 14.2.1 | Summary of Test Program and Objectives | G |
| 14.2.2 | Organization and Staffing | G/S |
| 14.2.3 | Test Procedures | G/S |
| 14.2.4 | Conduct of Test Program | G/S |
| 14.2.5 | Review, Evaluation, and Approval of Test Results | G/S |
| 14.2.6 | Test Records | G/S |
| 14.2.7 | Conformance of Test Program with Regulatory Guides | G/S |
| 14.2.8 | Utilization of Reactor Operating and Testing Experience in the Development of Test Program | G/S |
| 14.2.9 | Trial Use of Plant Operating and Emergency Procedures | G/S |
| 14.2.10 | Initial Fuel Loading and Initial Criticality | G/S |
| 14.2.11 | Test Program Schedule | G/S |
| 14.2.12 | Individual Test Descriptions | G/S |
| 14.3 | Certified Design Material (CDM) | G |
| 14.3.1 | CDM Section 1.0, Introduction | G |
| 14.3.2 | CDM Section 2.0, System Based Design Descriptions and ITAAC | G |
| 14.3.3 | CDM Section 3.0, Non-System Based Design Descriptions and ITAAC | G |
| 14.3.4 | CDM Section 4.0, Interface Requirements | G |
| 14.3.5 | CDM Section 5.0, Site Parameters | G |
| 15 | Accident Analysis | G |
| 15.0.1 | Classification of Transients and Accidents | G |
| 15.0.2 | Initial Conditions and Assumptions | G |
| 15.0.3 | Computer Codes Used in Analysis | G |
| 15.1 | Increase in Heat Removal from the Primary System | G |
| 15.1.1 | Feedwater System Malfunctions that Result in a Decrease in | G |

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| | Feedwater Temperature | |
| 15.1.2 | Feedwater System Malfunctions that Result in an Increase in Feedwater Flow | G |
| 15.1.3 | Steam Pressure Regulator Malfunction or Failure that Results in Increasing Steam Flow | G |
| 15.1.4 | Inadvertent Opening of a Steam Generator Relief or Safety Valve | G |
| 15.1.5 | Steam System Piping Failure | G |
| 15.2 | Decrease in Heat Removal by the Secondary System | G |
| 15.2.1 | Steam Pressure Regulator Malfunction or Failure that Results in Decreasing Steam Flow | G |
| 15.2.2 | Loss of External Electrical Load | G |
| 15.2.3 | Turbine Trip (stop valve failure) | G |
| 15.2.4 | Inadvertent Closure of Main Steam Isolation Valves | G |
| 15.2.5 | Loss of Condenser Vacuum | G |
| 15.2.6 | Coincident loss of onsite and external (offsite) AC Power to the Station | G |
| 15.2.7 | Loss of Normal Feedwater Flow | G |
| 15.2.8 | Feedwater Pipe Break | G |
| 15.3 | Decrease in Reactor Coolant System Flow Rate | G |
| 15.3.1 | Single and Multiple Reactor Coolant Pump Trips | G |
| 15.3.2 | BWR Recirculation Loop Controller Malfunctions That Result in Decreasing Flow Rate (N/A, BWR) | G |
| 15.3.3 | Reactor Coolant Pump Shaft Seizure | G |
| 15.3.4 | Reactor Coolant Pump Shaft Break | G |
| 15.4 | Reactivity and Power Distribution Anomalies | G |
| 15.4.1 | Uncontrolled Rod Cluster Control Assembly Bank Withdrawal from a Subcritical or Low-Power Startup Condition | G |
| 15.4.2 | Uncontrolled Rod Cluster Control Assembly Bank Withdrawal at Power | G |
| 15.4.3 | Rod Cluster Control Assembly Misalignment (System Malfunction or Operator Error) | G |
| 15.4.4 | Startup of an Inactive Reactor Coolant Pump at an Incorrect Temperature | G |
| 15.4.5 | A Malfunction or Failure of the Flow Controller in a Boiling Water Reactor Loop that Results in an Increased Reactor Coolant Flow Rate (N/A, BWR) | G |
| 15.4.6 | Chemical and Volume Control System Malfunction that Results in a Decrease in the Boron Concentration in the Reactor Coolant | G |
| 15.4.7 | Inadvertent Loading and Operation of a Fuel Assembly in an Improper Position | G |
| 15.4.8 | Spectrum of Rod Cluster Control Assembly Ejection Accidents | G |
| 15.5 | Increase in Reactor Coolant Inventory | G |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 15.5.1 | Inadvertent Operation of the ECCS System During Power Operation | G |
| 15.5.2 | Chemical and Volume Control System Malfunction that Increases Reactor Coolant Inventory | G |
| 15.6 | Decrease in Reactor Coolant Inventory | G |
| 15.6.1 | Inadvertent Opening of a Pressurizer Safety or Relief Valve or Inadvertent Operation of the ADS | G |
| 15.6.2 | Failure of S. Small Lines Carrying Primary Coolant Outside Containment | G |
| 15.6.3 | Steam Generator Tube Failure | G |
| 15.6.4 | Spectrum of Boiling Water Reactor Steam System Piping Failures Outside Containment (N/A, BWR) | G |
| 15.6.5 | Loss-of-Coolant Accidents Resulting from a Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary | G |
| 15.7 | Radioactive Release from a Subsystem or Component | G |
| 15.7.1 | Radioactive Gas Waste System Leak or Failure | G |
| 15.7.2 | Radioactive Liquid Waste Management System Leak or Failure | G |
| 15.7.3 | Postulated Radioactive Releases Due to a Liquid Tank Failure | G/S |
| 15.7.4 | Design Basis Fuel Handling Accidents in the Containment and Spent Fuel Storage Buildings | G |
| 15.7.5 | Spent Fuel Cask Drop Accident | G |
| 15.8 | Anticipated Transients without Scram | G |
| 15.8.1 | General Background | G |
| 15.8.2 | Anticipated Transients without Scram | G |
| 15.8.3 | Conclusion | G |
| 16 | Technical Specifications | G/S |
| 16.1 | Use and Application | G |
| 16.2 | Safety Limits | G |
| 16.3 | LCO and SR Applicability | G |
| 16.3.1 | Reactivity Control Systems | G |
| 16.3.2 | Power Distribution Limits | G |
| 16.3.3 | Instrumentation | G |
| 16.3.4 | Reactor Coolant System | G |
| 16.3.5 | Emergency Core Cooling Systems | G |
| 16.3.6 | Containment Systems | G |
| 16.3.7 | Plant Systems | G/S |
| 16.3.8 | Electrical Power Systems | G/S |
| 16.3.9 | Refueling Operations | G |
| 16.4 | Design Features | G/S |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 16.5 | Administrative Controls | G/S |
| 17 | Quality Assurance and Reliability Assurance | G/S |
| 17.1 | Quality Assurance During Design and Construction | G/S |
| 17.2 | Quality Assurance During the Operations Phase | G/S |
| 17.3 | Quality Assurance during Design, Procurement, Fabrication, Inspection and/or Testing of Nuclear Power Plant Items and Services | G/S |
| 17.4 | Design Reliability Assurance Program | G |
| 17.4.1 | Introduction | G |
| 17.4.2 | Scope | G |
| 17.4.3 | Design Considerations | G |
| 17.4.4 | Relationship to Other Administrative Programs | G |
| 17.4.5 | Design Organization | G |
| 17.4.6 | Objective | G |
| 17.4.7 | D-RAP, Phase I | G |
| 17.4.8 | Glossary of Terms | G |
| 17.5 | Quality Assurance Program Description - Design Certification, Early Site Permit, and New License Applicants (Incorporation by Reference) | G/S |
| 17.6 | Description of Applicant's Program for Implementation of 10 CFR 50.65, Maintenance Rule | G/S |
| 18 | Human Factors Engineering | G |
| 18.1 | Overview | G |
| 18.2 | Human Factors Engineering Program Management | G |
| 18.2.1 | Human Factors Engineering Program Goals, Scope, Assumptions and Constraints | G |
| 18.2.2 | Human System Interface Design Team and Organization | G |
| 18.2.3 | Human Factors Engineering Processes and Procedures | G |
| 18.2.4 | Human Factors Engineering Issues Tracking | G |
| 18.2.5 | Human Factors Engineering Technical Program and Milestones | G/S |
| 18.3 | Operating Experience Review | G/S |
| 18.4 | Functional Requirements Analysis and Allocation | G |
| 18.5 | Task Analysis Implementation Plan | G |
| 18.5.1 | Task Analysis Scope | G |
| 18.5.2 | Task Analysis Implementation Plan | G |
| 18..5.3 | Job Design Factors | G |
| 18.6 | Staffing | S |
| 18.7 | Integration of Human Reliability Analysis with Human Factors Engineering | G |
| 18.8 | Human System Interface Design | G |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 18.8.1 | Implementation Plan for the Human System Interface Design | G |
| 18.8.2 | Safety Parameter Display System (SPDS) | G |
| 18.8.3 | Operation and Control Centers System | G |
| 18.8.4 | Human Factors Design for the Non-Human-System Interface Portion of the Plant | G |
| 18.9 | Procedure Development | G |
| 18.10 | Training Program Development | G |
| 18.11 | Human Interfaces Test Program | G |
| 18.12 | Inventory | G |
| 18.12.1 | Inventory of Displays, Alarms, and Controls | G |
| 18.12.2 | Minimum Inventory of Main Control Room Fixed Displays, Alarms, and Controls | G |
| 18.12.3 | Remote Shutdown Workstation Displays, Alarms, and Controls | G |
| 18.13 | Design Implementation | G |
| 18.14 | Human Performance Monitoring | G/S |
| 19 | PRA to Support COLA | G/S |
| 19.1 | Introduction-General Overview | G |
| 19.2 | Core Damage Evaluation | G |
| 19.2.1 | Methodology Overview | G |
| 19.2.2 | Internal Events | G |
| 19.2.3 | External Events | G/S |
| 19.2.4 | Conclusions and Insights Related to Core Damage Evaluation | G/S |
| 19.3 | Containment Performance and Radionuclide Release Assessment | G |
| 19.3.1 | Severe Accident Treatment | G |
| 19.3.2 | Containment Event Tree Analysis | G |
| 19.3.3 | Containment Ultimate Pressure Capacity and Conditional Containment Failure Probability | G |
| 19.3.4 | Quantification of Release Frequency and Source Terms | G |
| 19.3.5 | Importance Sensitivity, and Uncertainty Analyses | G |
| 19.3.6 | Interpretation of Results and Insights (Including Comparison with Goals) | G/S |
| 19.3.7 | Conclusions and Insights Related to Containment Performance Assessment | G/S |
| 19.4 | Offsite Consequence Evaluation | G |
| 19.4.1 | Methodology Overview | G |
| 19.4.2 | Interface with Containment Performance Assessment | G |
| 19.4.3 | Evaluation of Fission Product Source Terms | G |
| 19.4.4 | Dose Consequence Modeling | G/S |
| 19.4.5 | Quantification and Results | G/S |

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|---|---|---|
| 19.4.6 | Importance Sensitivity, and Uncertainty Analyses | G |
| 19.4.7 | Conclusions and Insights Related to Offsite Consequences Evaluation | G/S |
| 19.5 | Use of PRA in the Design Process | G |
| 19.6 | Risk Evaluation Conclusions | G/S |
| 19.7 | PRA Maintenance Program/Process | G |
| A | Generic Issues | G/S |
| B | Codes and Testing | G/S |
| C | Regulatory Treatment of Non-Safety Systems | G |
| **II** | **Supplemental Information** | |
| 1 | Risk Evaluation | G/S |
| 2 | Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) | G/S |
| 3 | Environmental Report | |
| 3.1 | Introduction | G |
| 3.1.1 | The Proposed Action | G/S |
| 3.1.2 | Project Description | G/S |
| 3.1.2.1 | Ownership and Applicant | S |
| 3.1.2.2 | Site Location | S |
| 3.1.2.3 | Reactor Information | G |
| 3.1.2.4 | Cooling System Information | G/S |
| 3.1.2.5 | Transmission System Information | S |
| 3.1.2.6 | Pre-application Public Involvement | S |
| 3.1.2.7 | Construction Start Date | S |
| 3.1.3 | Status of Reviews and Approvals | S |
| 3.1.4 | Methodology | G |
| 3.2 | Environmental Description | S |
| 3.2.1 | Site Location | S |
| 3.2.2 | Land | S |
| 3.2.2.1 | The Site and Vicinity | S |
| 3.2.2.1.1 | The Site | S |
| 3.2.2.1.2 | Vicinity | S |
| 3.2.2.2 | Transmission Corridors and Offsite Areas | S |
| 3.2.2.3 | The Region | S |
| 3.2.3 | Water | S |
| 3.2.3.1 | Hydrology | S |
| 3.2.3.2 | Water Use | S |
| 3.2.3.3 | Water Quality | S |
| 3.2.3.3.1 | Surface Water | S |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 3.2.3.3.2 | Groundwater | S |
| 3.2.4 | Ecology | S |
| 3.2.4.1 | Terrestrial Ecology | S |
| 3.2.4.1.1 | Site Habitats and Communities | S |
| 3.2.4.1.2 | Transmission Corridor Habitats and Communities | S |
| 3.2.4.2 | Aquatic Ecology | S |
| 3.2.4.2.1 | Surface Water (Chesapeake Bay) | S |
| 3.2.4.1.2 | Transmission Corridor Habitats and Communities | S |
| 3.2.5 | Socioeconomics | S |
| 3.2.5.1 | Demography | S |
| 3.2.5.2 | Community Characteristics | S |
| 3.2.5.2.1 | Economy | S |
| 3.2.5.2.2 | Transportation | S |
| 3.2.5.2.3 | Taxes | S |
| 3.2.5.2.4 | Land Use | S |
| 3.2.5.2.5 | Aesthetics and Recreation | S |
| 3.2.5.2.6 | Housing | S |
| 3.2.5.2.7 | Community Infrastructure and Public Services | S |
| 3.2.5.2.8 | Education | S |
| 3.2.5.3 | Historic Properties | S |
| 3.2.5.4 | Environmental Justice | S |
| 3.2.6 | Geology | S |
| 3.2.6.1 | Geological Conditions | S |
| 3.2.6.2 | Seismological Conditions | S |
| 3.2.6.3 | Geotechnical Conditions | S |
| 3.2.6.4 | Environmental Impact Evaluation | S |
| 3.2.7 | Meteorology, Air Quality, and Noise | S |
| 3.2.7.1 | General Climate | S |
| 3.2.7.2 | Regional Air Quality | S |
| 3.2.7.3 | Severe Weather | S |
| 3.2.7.4 | Local Meteorology | S |
| 3.2.7.5 | Short-Term Diffusion Estimates | S |
| 3.2.7.6 | Long-Term (Routine) Diffusion Estimates | S |
| 3.2.7.7 | Noise | S |
| 3.2.8 | Related Federal and other Project Activities | S |
| 3.2.9 | Existing Plant Parameters | G/S |
| 3.3 | Plant Description | G |
| 3.3.1 | External Appearance and Plant Layout | G |

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| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 3.3.2 | Reactor Power Conversion System | G |
| 3.3.3 | Plant Water Use - include Plant Water Use Diagram | G/S |
| 3.3.4 | Cooling System | G/S |
| 3.3.5 | Radioactive Waste Management System | G |
| 3.3.5.1 | Liquid Radioactive Waste Management System | G |
| 3.3.5.2 | Gaseous Radioactive Waste Management System | G |
| 3.3.5.3 | Solid Radioactive Waste Management System | G |
| 3.3.6 | Non-radioactive Waste Systems | G |
| 3.3.6.1 | Effluents containing Chemicals or Biocides | G/S |
| 3.3.6.2 | Sanitary System Effluents | S |
| 3.3.6.3 | Other Effluents | G/S |
| 3.3.7 | Power Transmission System | S |
| 3.3.7.1 | Switchyard Interfaces | S |
| 3.3.7.2 | Transmission System | S |
| 3.3.8 | Transportation of Radioactive Materials | G/S |
| 3.3.9 | Construction Activities | G |
| 3.3.10 | Workforce Characterization | G |
| 3.4 | Environmental Impacts of Construction | S |
| 3.4.1 | Land-Use Impacts | S |
| 3.4.1.1 | The Site and Vicinity | S |
| 3.4.1.1.1 | Site Preparation Activities | S |
| 3.4.1.1.2 | Construction Activities | G |
| 3.4.1.2 | Transmission and Offsite Areas | S |
| 3.4.1.3 | Historic properties and Cultural Resources | S |
| 3.4.2 | Water-Related Impacts | S |
| 3.4.2.1 | Hydrologic Alterations | S |
| 3.4.2.1.1 | Surface Water | S |
| 3.4.2.1.2 | Ground Water | S |
| 3.4.2.2 | Water Use Impacts | S |
| 3.4.2.3 | Water Quality Impacts | S |
| 3.4.3 | Ecological Impacts | S |
| 3.4.3.1 | Terrestrial Ecosystems | S |
| 3.4.3.1.1 | The Site and Vicinity | S |
| 3.4.3.1.2 | Transmission Corridors and Offsite Areas | S |
| 3.4.3.2 | Aquatic Ecosystems | S |
| 3.4.3.2.1 | The Site and Vicinity | S |
| 3.4.3.2.2 | Transmission Corridors | S |
| 3.4.4 | Socioeconomic Impacts | S |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 3.4.4.1 | Physical Impacts | S |
| 3.4.4.1.1 | Noise | S |
| 3.4.4.1.2 | Air | S |
| 3.4.4.1.3 | Traffic | S |
| 3.4.4.2 | Social and Economic Impacts | S |
| 3.4.4.2.1 | Economy | S |
| 3.4.4.2.2 | Traffic | S |
| 3.4.4.2.3 | Taxes | S |
| 3.4.4.2.4 | Off-site Land Use | S |
| 3.4.4.2.5 | Housing | S |
| 3.4.4.2.6 | Community Infrastructure and Public Services | S |
| 3.4.4.2.7 | Education | S |
| 3.4.4.3 | Environmental Justice | S |
| 3.4.5 | Radiation Exposure to Construction Workers | S |
| 3.4.6 | Measures and Controls to Limit Adverse Impacts during Construction | G/S |
| 3.4.7 | Non-radiological Health Impacts | S |
| 3.5 | Environmental Impacts of Station Operation | S |
| 3.5.1 | Land-Use Impacts | S |
| 3.5.1.1 | The Site and Vicinity | S |
| 3.5.1.2 | Transmission Corridors and Off-site Areas | S |
| 3.5.1.3 | Historic Properties | S |
| 3.5.2 | Water-related Impacts | S |
| 3.5.2.1 | Hydrologic Alterations and Plant Water Supply | S |
| 3.5.2.2 | Water Use Impacts | S |
| 3.5.2.3 | Water-Quality Impacts | S |
| 3.5.2.4 | Future Growth | S |
| 3.5.3 | Cooling System Impacts | S |
| 3.5.3.1 | Intake System | S |
| 3.5.3.1.1 | Hydrodynamic Descriptions and Physical Impacts | S |
| 3.5.3.1.2 | Aquatic Ecosystems | S |
| 3.5.3.2 | Discharge System | S |
| 3.5.3.2.1 | Thermal Discharge and Other Physical Impacts | S |
| 3.5.3.2.2 | Aquatic Ecosystems | S |
| 3.5.3.3 | Heat Dissipation Systems | S |
| 3.5.3.3.1 | Heat Dissipation to the Atmosphere | S |
| 3.5.3.3.2 | Terrestrial Ecosystems | S |
| 3.5.3.4 | Impacts to Members of the Public | S |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 3.5.4 | Radiological Impacts of Normal Operation | S |
| 3.5.5 | Environmental Impacts of Waste | S |
| 3.5.6 | Transmission System Impacts | S |
| 3.5.6.1 | Terrestrial Ecosystems | S |
| 3.5.6.2 | Aquatic Ecosystems | S |
| 3.5.6.3 | Impacts to Members of the Public | S |
| 3.5.7 | Uranium Fuel Cycle Impacts | G |
| 3.5.8 | Socioeconomic Impacts | S |
| 3.5.8.1 | Physical Impacts | S |
| 3.5.8.2 | Social and Economic Impacts | S |
| 3.5.8.3 | Environmental Justice | S |
| 3.5.9 | Decommissioning | G/S |
| 3.5.10 | Measures and Controls to Limit Adverse Impacts during Operation | G/S |
| 3.5.11 | Transportation of Radioactive Materials | G/S |
| 3.5.12 | Non-radiological Health impacts | G/S |
| 3.6 | Environmental Measurements and Monitoring Programs | S |
| 3.6.1 | Thermal Monitoring | S |
| 3.6.2 | Radiological Monitoring | S |
| 3.6.3 | Hydrological Monitoring | S |
| 3.6.4 | Meteorological Monitoring | S |
| 3.6.5 | Ecological Monitoring | S |
| 3.6.5.1 | Terrestrial Ecology | S |
| 3.6.5.2 | Aquatic Ecology | S |
| 3.6.6 | Chemical Monitoring | S |
| 3.6.7 | Summary of Monitoring Programs | S |
| 3.7 | Environmental Impacts of Postulated Accidents Involving Radioactive Materials | G/S |
| 3.7.1 | Design Basis Accidents | G |
| 3.7.2 | Severe Accidents | G |
| 3.7.3 | Severe Accident Mitigation Alternatives | G |
| 3.7.4 | Transportation Accidents | G/S |
| 3.8 | Need for Power | G/S |
| 3.9 | Alternatives to the Proposed Action | G/S |
| 3.9.1 | No-Action Alternative | G/S |
| 3.9.2 | Energy Alternatives | G/S |
| 3.9.3 | Alternative Sites | S |
| 3.9.4 | Alternative Plant and Transmission Systems | G/S |
| 3.1 | Environmental Consequences of the Proposed Action | S |

Enclosure 2
Proposed U.S. EPR COL Application Standardization Matrix

| Part/ Chapter/ Section/ Subsection | TITLE | Generic (G)/ Site-specific (S) [Note 1] |
|---|---|---|
| 3.10.1 | Unavoidable Adverse Environmental Impacts | G/S |
| 3.10.2 | Irreversible and Irretrievable Commitments of Resources | G/S |
| 3.10.3 | Relationship Between Short Term Uses and Long Term Productivity of the Human Environment | G/S |
| 3.10.4 | Benefit-Cost Balance | S |
| 3.10.5 | Cumulative Impacts | S |
| 4 | Site Redress Plan | G/S |
| 4.1 | Description of Site Preparation Activities | S |
| 4.2 | Site Redress Plan | G/S |
| 4.2.1 | Site Redress Plan Objective and Considerations | G/S |
| 4.2.2 | Description of Site Redress | G/S |
| 4.2.2.1 | Future Use of Constructed Facilities | G/S |
| 4.2.2.2 | Physical Restoration | G/S |
| 4.2.2.3 | Restoration of Sensitive Water Resource Facilities | G/S |
| 4.2.3 | NRC Notification Upon Completion | G |

Note 1: G = Generic COL application chapter, section, or subsection. This chapter, section, or subsection is expected to be standardized (i.e., replicated verbatim) in the applicable S-COL application chapter, section, or subsection.

S = Site-specific COL application chapter, section, or subsection.

G/S = Most of this COL application chapter, section, or subsection is expected to be generic and will be standardized in the applicable S-COL application chapter, section, or subsection. However, some site-specific information will be required to be included in this S-COL application chapter, section, or subsection.