

1.4 Application Codes and Standards

The ACP utilizes a number of the facilities that were originally constructed to support the GCEP and the GDP. The buildings/facilities were designed and constructed according to DOE requirements and/or nationally accepted codes and standards applicable at the time. Many of those codes and standards were earlier versions of current codes and standards that are utilized today for new construction. The codes and standards of record will be verified and documented during the ACP design verification process discussed in Section 11.1.6 of this license application. Any deviations from the codes and standards of record will be evaluated and documented in accordance with the Configuration Management Program as described in Section 11.1 of this license application. New buildings/facilities/processes will meet the codes and standards applicable at the time the facility is designed and constructed as stated in plant design criteria. Modifications to existing buildings and/or facilities will be evaluated to determine if there is a safety benefit from applying current codes and standards and justification will be documented if current codes and standards are not applied.

The following sub-sections list the various industry codes and standards that have been referenced in this license application. The extent to which the Licensee satisfies the requirements of each code or standard is identified individually in the sub-sections. In the context of this section, the terms provisions and guidance are intended to refer only to the explicit requirements of each code or standard.

To establish definitive guidance for the design of the ACP, the Licensee proposed that the license be conditioned as follows:

The Licensee will obtain prior NRC review and approval before deleting or modifying the commitment to any code or standard contained in Section 1.4 of the License Application.

~~The current design of the ACP does not include any items relied on for safety (IROFS) that use software, firmware, microcode, Programmable Logic Controllers, and/or any digital device, including hardware devices that implement data communication protocols.~~

1.4.1 American National Standards Institute/American Nuclear Society

- ANSI/ANS 3.1-1987, *Selection, Qualification, and Training of Personnel for Nuclear Power Plants*

The Licensee utilizes the provisions contained in 4.3.3, 4.4.5, and 4.5.3.2 of this standard to develop qualifications of radiation protection personnel.

For the reference to this standard, see Section 4.5.4 of this license application.

- ANSI/ANS 3.2-1994, *Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants*

1.4.8 Institute of Electrical and Electronics Engineers

Several of the Institute of Electrical and Electronics Engineers (IEEE) standards identified in this section include the term "Class 1E." The Licensee is taking exception to utilizing the term "Class 1E." The term utilized by the Licensee for items relied on for safety, per 10 CFR Part 70, is "IROFS." IROFS quality levels (i.e., QL-1 or QL-2) are established and defined in Section 2.0 of the QAPD. The IROFS, including their quality class, are based on the analyzed, credible conditions identified in the ISA. IROFS (and non-IROFS that may directly affect the safety function of an IROFS) will be designed, procured, maintained and documented in accordance with the requirements of the "Configuration Management Program" included in Chapter 11.0 of this license application.

- *ANSI/IEEE 336-2010/1985, ANSI/IEEE Standard Recommended Practice for Installation, Inspection, and Testing Requirements for Class 1E Power, Instrumentation, and Control Equipment at Nuclear Facilities*

The Licensee commits to periodic inspections and testing of items relied on for safety will be in accordance with Clause 7.

For the reference to this standard see Sections 2.6.4 and 2.6.8 of the ISA Summary for the ACP.

- *IEEE 338-1987 Standard Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Station Safety Systems*

The Licensee commits to utilizing IEEE 338 Sections 1 (Scope), 2 (Definitions), 4 (Basis), and 5 (Design Requirements); and portions of Sections 3 (References) and 6 (Testing Program Requirements).

The Licensee takes exception to portions of the contents of IEEE 338 Sections 3 and 6 and Annex A for the following reasons:

Section 3 The ACP operations procedures will govern plant operations in lieu of ANSI/ANS 3.2-1982.

Section 3 In Section 3 (References) the Licensee commits to only the applicable portions of the IEEE Standards 7-4.3.2 and IEEE 603.

Section 6.1 (11) The ACP operations procedures will govern plant operations in lieu of ANSI/ANS 3.2-1982.

Note - Annex A provides only "informative" references.

For the reference to this standard see Sections 2.6.4 and 2.6.7 of the ISA Summary for the ACP.

- IEEE 7-4.3.2-2003+1993, *IEEE Standard Criteria for Digital Computers in Safety Systems of Nuclear Power Generating Stations*

The Licensee commits to utilizing IEEE 7-4.3.2 Clauses 1 (Scope), 3 (Definitions) and 7 (Execute Features) and portions of Clauses 5 (Safety System Criteria), 6 (Sense and Command Features), and 8 (Power Source Requirements).

The Licensee takes exception to IEEE 7-4.3.2 Clauses 2 (References), 4 (Safety System Design Basis), and Annexes A through H. These areas are not considered to be applicable or necessary due to their nuclear reactor content and redundancy with other IEEE standards and the Licensee's ISA. Annexes A through H provide only "informative" details and references. The Licensee also takes exception to the contents of IEEE 7-4.3.2 Clause 5 for the following reasons:

Sections 5.3

and 5.3.1

The Licensee commits to ASME NQA-1-2008 with NQA-1a-2009 addenda Part I, Requirement 11 and Part II, Subpart 2.7 as defined in Section 1.4.3 of this license application.

Section 5.3.2 The Licensee does not intend to qualify existing commercial computers.

Section 5.15 Reliability analysis methods and calculations are as specified in the ISA for the ACP.

For the reference to this standard see Section 2.6.4 of the ISA Summary for the ACP.

- IEEE 308-2001, *Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations*

The Licensee commits to utilizing IEEE 308 Section 3 (Definitions) and portions of Sections 1 (Overview), 4 (Principle Design Criteria), 5 (Supplemental Design Criteria), 6 (Surveillance and Test Requirements), and 8 (Documentation).

The Licensee takes exception to IEEE 308 Sections 2 (References), and portions of Sections 1 (Overview), 4 (Principle Design Criteria), 5 (Supplemental Design Criteria), 6 (Surveillance and Test Requirements), and 8 (Documentation) for the following reasons:

Section 1

Figure 1 is not applicable to the ACP. The Licensee will provide reliable electrical power to all IROFS that require electrical power to function during postulated events analyzed in the ISA. Back-up power is required only as needed to provide the reliability of the IROFS as credited in the ISA. Note that IROFS that fail safe on loss of power do not require back-up power systems.

Section 2

The ACP does not commit to all of the standards listed in this section.