

EXHIBIT N INDUSTRY CODES AND STANDARDS

Table of Contents

Introduction.....	3
Codes and Standards	
ACI - American Concrete Institute	5
AISC - American Institute of Steel Construction	5
AISI - American Iron and Steel Institute	5
AMCA - Air Movement and Control Association, Inc.....	5
ANS – American Nuclear Society	6
ANSI – American National Standards Institute.....	7
API – American Petroleum Institute.....	9
ARI – Air Conditioning and Refrigeration Institute	9
ASCE – American Society of Civil Engineers	10
ASHRAE – American Society of Heating, Refrigeration, and Air- Conditioning Engineers	10
ASME – American Society of Mechanical Engineers.....	10
ASTM – American Society of Testing and Materials	14
AWS – American Welding Society	15
AWWA – American Water Works Association	15
CMAA – Crane Manufacturers Association of America.....	15
FEMA – Federal Emergency Management Agency	16
IEEE – Institute of Electrical and Electronics Engineers	16
ISA – Instrumentation, Systems and Automation Society.....	20
MIL – Military Standards and Specifications.....	20
NEMA – National Electrical Manufacturers Association	20
NFPA – National Fire Protection Association.....	20
SMACNA – Sheet Metal and Air Conditioning Contractors’ National Association.....	22
UBC – Uniform Building Code	22
UL – Underwriters Laboratories Inc.....	22

AP1000 Nuclear Power Plant Codes and Standards Introduction

This document provides the listing of industry codes and standards that are applicable to the AP1000 Nuclear Power Plant design (the “Industry Codes and Standards”). The attached listing of the Industry Codes and Standards is derived from the DCD. This list therefore is a listing of codes and standards that the AP1000 Nuclear Power Plant design is committed to by the licensing process. The revision or date of each code and standard is also included in the attached table. For codes and standards that were provided in the DCD without revision or date, the revision or date in effect, March 2002 (submittal date of the AP1000 Nuclear Power Plant design to NRC) was used. The revisions reflect the DCD licensing commitment. Changes to the standard or revision may require a licensing submittal by Owners. Contractor will notify Owners of any proposed changes to the listing of Industry Codes and Standards to ensure that they are reflected in future licensing submittals.

Except as provided below, regarding ASME application, the edition and addenda of the ASME code applied in the design and manufacture of each component is the edition and addenda established by the requirements of the DCD. The use of editions and addenda issued subsequent to the DCD is permitted, however any change to ASME code edition will require NRC approval. In the event the DCD does not specify the edition and addenda of the code applicable to an activity required under the Contract, the activity will be performed in compliance with the code edition and addenda required under 10 CFR 50.55a in effect at the time of the activity. The baseline used for the evaluations done to support this Design Control Document and the DCD is the 1998 Edition, 2000 Addenda, except as follows:

The 1989 Edition, 1989 Addenda is used for Articles NB-3200 (Design by Analysis), NB-3600, NC-3600, and ND-3600 (Piping Design) in lieu of later editions and addenda.

When later Editions and Addenda of ASME Code are used, Contractor shall perform ASME Code reconciliation per the applicable ASME Code section for all code related aspects of design, procurement and construction.

Guidance for ASME code year and addenda to use in mechanical equipment and valve specifications:**CASE 1: ASME Section III Safety Related Equipment in Support of the Design Certification**

If the principal construction code for the equipment is ASME Section III as defined in Table 3.2-3 of the DCD, then the year and addenda shall be in accordance with paragraphs 5.2.1.1 and 6.1.1 of the DCD (i.e., 1998 year with 2000 addenda), except as follows:

“The 1989 Edition, 1989 Addenda is used for Articles NB-3200 (Design by Analysis), NB-3600, NC-3600, and ND-3600 (Piping Design) in lieu of later editions and addenda.”

Any other ASME BP&V Code Sections listed within the equipment specification for this equipment (e.g., II, V, IX, and XI) shall have the same 1998 year and 2000 addenda.

In addition to AP1000 Nuclear Power Plant codes A, B, and C, the above applies to code D (non-safety equipment being built to ASME Section III as the principal construction code defined in Table 3.2-3 of the DCD).

CASE 2: Non-ASME Section III Equipment (Non-Safety Related Equipment)

If the equipment principal construction code is ASME but NOT Section III as defined in Table 3.2-3 in the DCD (e.g., ASME Section VIII for pressure tanks/vessels), then the ASME 2001 year and 2003 addenda shall be used, unless otherwise specified in the DCD. ASME Section III will NOT be included in the specifications and standards list in the equipment specification.

If any other ASME Sections are listed within the equipment specification (e.g., ASME Section IX for welding requirements), then the 2001 year with 2003 addenda shall be used for them as well.

Additional codes and standards may be applied to the final AP1000 Nuclear Power Plant design at the sole discretion of Contractor. These additional codes and standards will then be requirements for the AP1000 Nuclear Power Plant design, however they will not be required by licensing and therefore the date and application is subject to change as determined by Contractor in its sole discretion.

The attached table, Table 1, only lists industry codes and standards. Regulatory standards (Regulatory Guides, NUREGs, etc.) are not included in the attachment; these standards are referenced in the DCD.

Table 2 identifies codes and standards that are not included in the Licensing Basis but are pertinent to the Facility. Since they are not included as part of the Licensing Basis, revisions may be used as determined by Contractor in its sole discretion.

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
ACI - American Concrete Institute	
ACI 117, "Standard Specification for Tolerances for Concrete Construction and Materials," 1990	3.8
ACI 211.1, "Standard Practice for Selecting Proportions for Normal, Heavy Weight, and Mass Concrete," 1991	3.8
ACI 304R, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," 2000	3.8
ACI 318, "Building Code Requirements for Reinforced Concrete," 2002	2.5
ACI 349.3R, "Evaluation of Existing Nuclear Safety-Related Concrete Structures," 1996	3.8
ACI 349, "Code Requirements for Nuclear Safety Related Concrete Structures," 2001	1A, 3.8, 3H
AISC - American Institute of Steel Construction	
AISC N690, "Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities," 1994	3A, 3F, 3H
AISC S335, "Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design," 1989	3.3
Seismic Provisions for Structural Steel Buildings, American Institute of Steel Construction, April 1977 including Supplement 2, November 2000	3.7
AISI - American Iron and Steel Institute	
AISI, "Specification for the Design of Cold Formed Steel Structural Members," 1996 Edition and Supplement No. 1, July 30, 1999	3A, 3F

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
AMCA - Air Movement and Control Association, Inc.	
AMCA 210, "Laboratory Method of Testing Fans for Rotating Purposes," 1985	9.4
AMCA 211, "Certified Ratings Program Air Performance," 1987	9.4
AMCA 300, "Reverberant Room Method for Sound Testing of Fans," 1985	9.4
AMCA 500, "Test Method for Louvers, Dampers, and Shutters," 1989	9.4
ANS – American Nuclear Society	
ANS 5.1, "Decay Heat Power in Light Water Reactors," 1994	5.4
ANS 5.1, "Decay Heat Power in Light Water Reactor," 1979	1.9, 15.2
ANS 5.4, "American National Standard Method for Calculating the Fractional Release of Volatile Fission Products From Oxide Fuel," 1982	1A
ANS 6.1, "Guidelines on the Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants," 1989	12.3
ANS 6.4, "Guidelines on the Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants," 1997	1A, 12.3
ANS 15.8, "Nuclear Material Control Systems for Nuclear Power Plants," 1974	13
ANS 18.1, "Radioactive Source Term for Normal Operation of Light Water Reactors," 1999	1A, 11.1
ANS 51.1, "Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants," 1983	3.2, 3.9, 5.4, 9.3
ANS 55.6, "Liquid Radioactive Waste Processing Systems for Light Water Reactor Plants," 1993	11.2

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
ANS 56.2, "Containment Isolation Provisions for Fluid Systems," 1984	1A
ANS 56.11, "Design Criteria for Protection Against the Effects of Compartment Flooding in Light Water Reactor Plants," 1988	3.4
ANS 57.1, "Design Requirements for Light Water Reactor Fuel Handling Systems," 1992	9.1
ANS 57.2, "Design Requirements for Light Water Reactor Spent Fuel Storage Facilities at Nuclear Power Plants," 1983	4.3, 9.1
ANS 57.3, "Design Requirements for New Fuel Storage Facilities at LWR Plants," 1983	4.3
ANS 58.2, "Design Bases for Protection of Light Water Nuclear Power Plants Against Effects of Postulated Pipe Rupture," 1988	3.6
ANS 58.8, "Time Response Design Criteria for Nuclear Safety Related Operator Actions," 1984	1.9
ANS C-2, "National Electrical Safety Codes," 1997	8.2
ANSI – American National Standards Institute	
ANSI 16.1, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors," 1975	9.1
ANSI 56.5, "PWR and BWR Containment Spray System Design Criteria," 1979	1.9
ANSI 56.8, "Containment System Leakage Testing Requirements," 1994	6.2
ANSI 58.6, "Criteria for Remote Shutdown for Light Water Reactors," 1996	7.4
ANSI B16.34, "Valves – Flanged and Buttwelding End," 1996	3.2
ANSI B16.41, "Functional Operational Requirement for Power Operated Valves," 1983	1.9
ANSI B30.2, "Overhead and Gantry Cranes," 1990	9.1

Table 1
API1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
ANSI B30.9, “Slings,” 1996	9.1
ANSI B31.1, “Power Piping, ASME Code for Pressure Piping,” 1989	3.2, 3.6, 9.2
ANSI B96.1, “Welded Aluminum-Alloy Storage Tanks,” 1981	3.2
ANSI HFS-100, “American Standard for Human Factors Engineering of Visual Display Terminal Workstations,” 1988	18.8
ANSI N14.6, "Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or More,” 1993	3.9, 9.1
ANSI N16.1, “Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors,” 1975	9.1
ANSI N16.9, “Validation of Calculational Methods for Nuclear Criticality Safety,” 1975	9.1
ANSI N18.2, “Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants,” 1973	15.0
ANSI N18.2a, “Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants,” 1975	3.2
ANSI N101.6, “Atomic Industry Facility Design, Construction, and Operation Criteria,” 1972	1A
ANSI N210, “Design Objectives for Light Water Reactor Spent Fuel Storage Facilities at Nuclear Power Stations,” 1976	9.1
ANSI N237, “Source Term Specification,” 1976	1A
ANSI N271, “Containment Isolation Provisions for Fluid Systems,” 1976	1A
ANSI N278.1, “Self-Operated and Power-Operated Safety-Relief Valves Functional Specification Standard,” 1975	5.4
API – American Petroleum Institute	
API 610, “Centrifugal Pumps for General Refinery Services,” 1981	3.2

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
API-620, "Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks," Revision 1, April 1985	3.2
API-650, "Welded Steel Tanks for Oil Storage," Revision 1, February 1984	3.2
ARI 410, "Forced Circulation Air Cooling and Air Heating Coils," 1991	9.4
ARI – Air Conditioning and Refrigeration Institute	
ARI 620, "Self-Contained Humidifiers for Residential Applications," 1996	9.4
ASCE – American Society of Civil Engineers	
ASCE 4, "Seismic Analysis of Safety-Related Nuclear Structures and Commentary," 1989	3.7
ASCE 7, "Minimum Design Loads for Buildings and Other Structures," 1998	3.7
ASCE 8, "Specification for the Design of Cold Formed Stainless Steel Structural Members," 1990	6.2
ASCE Paper No. 3269 "Wind Forces on Structures" Transactions of the American Society of Civil Engineers, Vol. 126, Part II (1961).	3
ASHRAE – American Society of Heating, Refrigeration, and Air-Conditioning Engineers	
ASHRAE 33, "Methods of Testing for Rating Forced Circulation Air Cooling and Air Heating Coils," 1978	9.4
ASHRAE 52.1, "Gravimetric and Dust Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter," 1992	9.4

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
ASHRAE 62, “Ventilation for Acceptable Indoor Air Quality,” 1999	9.4
ASHRAE 62, “Ventilation for Acceptable Indoor Air Quality,” 1989	6.4
ASHRAE 126, “Method of Testing HVAC Air Ducts,” 2000	9.4
ASME – American Society of Mechanical Engineers	
ASME OM Code, “Code for Operation and Maintenance of Nuclear Power Plants,” 1995 Edition, 1996 Addenda	3.9
ASME/ANSI AG-1, “Code on Nuclear Air and Gas Treatment,” 1997	1A, 3.2, 3A, 9.4
ASME B16.34, “Valves – Flanged and Buttwelding End,” 1996	5.4
ASME B30.2, “Overhead & Gantry Cranes,” 1990	9.1
ASME B31.1, “Code for Power Piping,” 1989 Edition, 1989 Addenda	5.2
ASME Boiler and Pressure Vessel Code, Section II, “Metal Specifications,” 1989 Edition, 1989 Addenda, (Class 1, 2, 3 Piping and Components)	5.2, 5.4
ASME Boiler and Pressure Vessel Code, Section III, “Rules for Construction of Nuclear Power Plant Components,” (The baseline used for the evaluations done to support this safety analysis report and the Design Certification is the 1998 Edition, 2000 Addenda, except as follows: the 1989 Edition, 1989 Addenda is used for Articles NB-3200, NB-3600, NC-3600, and ND-3600 in lieu of later editions and addenda.), (Class 1, 2, 3 Piping and Components)	3.9, 5.2, 5.3, 5.4
Code Case N-4-11, “Special Type 403 Modified Forgings or Bars, Section III, Division 1, Class 1 and Class CS”	5.2

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
Code Case N-20-4, “SB-163 Nickel-Chromium-Iron Tubing (Alloys 600 and 690) and Nickel-Iron-Chromium Alloy 800 at a Specified Minimum Yield Strength of 40.0 ksi and Cold Worked Alloy 800 at Yield Strength of 47.0 ksi, Section III, Division 1, Class 1”	5.2
Code Case N-60-5, “Material for Core Support Structures, Section III, Division 1”	5.2
Code Case N-71-18, “Additional Material for Subsection NF, Class 1, 2, 3 and MC Component Supports Fabricated by Welding, Section III Division 1”	5.2
Code Case N-122-2, “Stress Indices for Integral Structural Attachments Section III, Division 1, Class 1,” 1994	5.2
Code Case N-249-14, “Additional Materials for Subsection NF, Class 1, 2, 3, and MC Supports Fabricated Without Welding, Section III, Division 1”	5.2
Code Case N-284-1, “Metal Containment Shell Buckling Design Methods, Section III, Division 1 Class MC”	5.2
Code Case N-318-5, “Procedure for Evaluation of the Design of Rectangular Cross Section Attachments on Class 2 or 3 Piping Section III, Division”	5.2
Code Case N-391-2, “Procedure for Evaluation of the Design of Hollow Circular Cross Section Welded Attachments on Class 1 Piping Section III, Division 1”	5.2
Code Case N-319-3, “Procedure for Evaluation of Stresses in Butt Welding Elbows in Class 1 Piping, Section III, Division 1”	5.2
Code Case N-392-3, “Procedure for Valuation of the Design of Hollow Circular Cross Section Welded Attachments on Class 2 and 3 Piping Section III, Division 1”	5.2

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AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
Code Case-N-474-2, “Design Stress Intensities and Yield Strength Values for UNS06690 With a Minimum Yield Strength of 35 ksi, Class 1 Components, Section III, Division 1”	5.2
ASME Boiler and Pressure Vessel Code, Section IV, “Non-destructive Examination,” 1998 Edition, 2000 Addenda, (Class 1, 2, 3 Piping and Components)	5.2
ASME Boiler and Pressure Vessel Code, Section V, “Non-destructive Examination,” 1998 Edition, 2000 Addenda, (Class 1, 2, 3 Piping and Components)	5.4
ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, “Pressure Vessels,” 1998 Edition, 2000 Addenda, (Class 1, 2, 3 Piping and Components)	5.2, 9.3
ASME Boiler and Pressure Vessel Code, Section IX, “Welding and Brazing Qualifications,” 1998 Edition, 2000 Addenda, (Class 1, 2, 3 Piping and Components)	5.2
Code Case 2142-1, “F-Number Grouping for Ni-Cr-Fe, Classification UNS N06052 Filler Metal, Section IX”	5.2
Code Case 2143-1, “F-Number Grouping for Ni-Cr-Fe, Classification UNS W86152 Welding Electrode, Section IX”	5.2
ASME Code Section XI (1998 Edition) and mandatory appendices. (Design provisions, in accordance with Section XI, Article IWA-1500, are incorporated in the design processes for Class 1 components), (Class 1, 2, 3 Piping and Components)	3.9, 5.2, 5.4
ASME Code Section XI (1996 Edition) Appendix G	5.3
ASME N509 (R1996), “Nuclear Power Plant Air Cleaning Units and Components,” 1989	1A, 3A, 9.4
ASME N510, “Testing of Nuclear Air Cleaning Systems,” 1989	1A, 9.4

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
ASME NOG-1, "Rules for Construction of Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder)," ASME Code, Section IV, Pt. HWL, 1998	9.1
ASME NQA-1, "Quality Management System," 1989 edition through NQA-1b-1991, Addenda (DCD identifies NQA-1 1b 1991 Addenda, however NRC has accepted NQA-1 through NQA-1c-1992, Addenda as acceptable via Reg Guide 1.28. NQA-1-1c-1992 is to be specified to be consistent with the ASME Section III Code and Addenda specified in the DCD.)	17.0
ASME Performance Test Code 19.11, 1970	10.4
ASTM – American Society of Testing and Materials	
ASTM A 580, "Specification for Stainless and Heat-resisting Steel Wire," 1990	4.2
ASTM A 609, "Standard Specification for Longitudinal Beam Ultrasonic Inspection of Carbon and Low Alloy Steel Castings," 1991	
ASTM A 615, "Deformed and Plain Billet Steel Bars for Concrete Reinforcement," 2001	3.8
ASTM A 706, "Low Alloy Steel Deformed Bars for Concrete Reinforcement," 2001	3.8
ASTM A 970, "Specification for Welded Headed Bars for Concrete Reinforcement," 1998	3.8
ASTM C 33, "Specification for Concrete Aggregates," 2002	3.8
ASTM C 94, "Specifications for Ready-Mixed Concrete," 2000	3.8
ASTM C 131, "Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine," 2001	3.8
ASTM C 150, "Specification for Portland Cement," 2002	3.8

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
ASTM C 260, "Air Entraining Admixtures for Concrete," 2001	3.8
ASTM C 311, "Sampling and Testing Fly Ash or Natural Pozzolans for Use as Mineral Admixture in Portland Cement Concrete," 2002	3.8
ASTM C 494, "Chemical Admixtures for Concrete," 1999	3.8
ASTM C 535, "Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine," 2001	3.8
ASTM C 618, "Fly Ash and Raw or Calcined Natural Pozzolans for Use in Portland Cement Concrete," 2001	3.8
ASTM D 512, "Chloride Ion in Industrial Water," 1999	3.8
ASTM E 142, "Methods for Controlling Quality of Radiographic Testing," 1986	4.2
ASTM E 165, "Practice for Liquid Penetrant Inspection Method," 1995	5.4
ASTM E 185, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels," 1982	5.3
ASTM E 741, "Standard Test Methods for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution," 2000	6.4, 9.4
AWWA – American Water Works Association	
AWWA D100, "Welded Steel Tanks for Water Storage," 1984	3.2

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
AWS – American Welding Society	
AWS D1.1 Structural Welding Code – 2000 - Steel	
Covers the design, welding and examination of welded structural steel 1/8" and thicker. It allows for both pre-qualified and non prequalified welding procedures.	3.8.3.2
AWS D 1.4-98 Reinforcing Steel Welding Code,	
CMAA – Crane Manufacturers Association of America	
CMAA Specifications, "Specification for Electric Overhead Traveling Cranes," 1999	9.1
FEMA – Federal Emergency Management Agency	
FEMA 356, "Prestandard and Commentary for the Seismic Rehabilitation of Buildings," 2000	3.7
IEEE – Institute of Electrical and Electronics Engineers	
IEEE Standard 7-4.3.2, "IEEE Standard Criteria for Digital Computers in Safety Systems of Nuclear Power Generating Stations," 1993	1A, 7.1
IEEE Standard 98, "IEEE Standard for the Preparation of Test Procedures for the Thermal Evaluation of Solid Electrical Insulating Materials," 1984	3D
IEEE Standard 100, "IEEE Standard Dictionary of Electrical and Electronic Terms," 1996	3D
IEEE Standard 141, "IEEE Recommended Practice for Electric Power Distribution for Industrial Plants," (IEEE Red Book) 1993	8.3
IEEE Standard 242, "IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems," (IEEE Buff Book) 1986	8.3
IEEE Standard 279, "IEEE Standard Criteria for Protection Systems for Nuclear Power Generating Stations," 1971	1A

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
IEEE Standard 281, "IEEE Standard Service Conditions for Power System Communication Equipment," 1984	9.5
IEEE Standard 308, "IEEE Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations," 1991	1A, 8.1, 8.3
IEEE Standard 317, "IEEE Standard for Electric Penetrations Assemblies in Containment Structures for Nuclear Power Generating Stations," 1983	1.9, 1A, 8.1, 8.3
IEEE Standard 323, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," 1974	1.9, 1A, 3.2, 8.1
IEEE Standard 338, "IEEE Standard Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Stations Safety Systems," 1987	1.9, 1A, 8.1
IEEE Standard 344, "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," 1987	3.2, 3F, 8.1
IEEE Standard 379, "IEEE Standard Application of the Single-Failure Criterion to Nuclear Power Generating Station Safety Systems," 2000	1A, 8.1
IEEE Standard 381, "IEEE Standard Criteria for Type Test of Class 1E Modules used in Nuclear Power Generating Stations," 1977	3D
IEEE Standard 382, "IEEE Standard for Qualification of Actuators for Power-Operated Valve Assemblies with Safety-Related Functions for Nuclear Power Plants," 1996	1A, 8.1
IEEE Standard 383, "IEEE Standard for Type Test of Class 1E Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations," 1974	8.1, 9.5
IEEE Standard 384, "IEEE Standard Criteria for Independence of Class 1E Equipment and Circuits," 1981	1A, 1.9, 8.1, 8.3

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
IEEE Standard 420, "IEEE Standard for the Design and Qualification of Class 1E Control Boards, Panels, and Racks Used in Nuclear Power Generating Stations," 1982	7.1
IEEE Standard 422, "Guide for the Design and Installation of Cable Systems in Power Generating Stations," 1986	8.3
IEEE Standard 450, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," 1995	8.1, 8.3
IEEE Standard 484, "IEEE Recommended Practice for Installation Design and Installation of Vented Lead-Acid Batteries for Stationary Applications," 1996	1A, 8.1
IEEE Standard 485, "IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications," 1997	8.3
IEEE Standard 494, "IEEE Standard Method for Identification of Documents Related to Class 1E Equipment and Systems for Nuclear Power Generating Stations," 1974	3D
IEEE Standard 535, "IEEE Standard for Qualification of Class 1E Lead Storage Batteries for Nuclear Power Generating Stations," 1986	1A
IEEE Standard 572, "IEEE Standard for Qualification of Class 1E Connection Assemblies for Nuclear Power Generating Stations," 1985	3D
IEEE Standard 603, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations," 1991	1A, 7.1
IEEE Standard 627, "IEEE Standard for Design Qualification of Safety System Equipment Used in Nuclear Power Generating Stations," 1980	7.1
IEEE Standard 649, "IEEE Standard for Qualifying Class 1E Motor Control Centers for Nuclear Power Generating Stations," 1991	3D
IEEE Standard 650, "IEEE Standard for Qualification of Class 1E Static Battery Chargers and Inverters for Nuclear Power Generating Stations," 1990	3D

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
IEEE Standard 665, "IEEE Guide for Generating Station Grounding," 1995	8.3
IEEE Standard 741, "IEEE Standard Criteria for the Protection of Class 1E Power Systems and Equipment in Nuclear Power Generating Stations," 1997	1A, 8.1, 8.3
IEEE Standard 828, "IEEE Standard for Software Configuration Management Plans," 1990	7.1
IEEE Standard 829, "IEEE Standard for Software Test Configuration," 1983	7.1
IEEE Standard 830, "Recommended Practice for Software Requirements Specifications," 1993	7.1
IEEE Standard 946, "IEEE Recommended Practice for the Design of DC Auxiliary Power Systems for Generating Stations," 1992	8.3
IEEE Standard 1012, "IEEE Standard for Software Verification and Validation Plans," 1986	7.1
IEEE Std 1023-2004, "IEEE Recommended Practice for the Application of Human Factors Engineering to Systems, Equipment and Facilities of Nuclear Power Generating Stations and Other Nuclear Facilities"	18.8
IEEE Standard 1028, "IEEE Standard for Software Reviews and Audits," 1988	7.1
IEEE Standard 1042, "IEEE Guide to Software Configuration Management," 1987	7.1
IEEE Standard 1050, "IEEE Guide for Instrumentation and Control Equipment Grounding in Generating Stations," 1996	8.3, 7.1
IEEE Standard 1074, "Standard for Developing Software Life Cycle Processes," 1995	7.1

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
IEEE Standard 1202, “IEEE Standard for Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies,” 1991	8.1, 1A, 9.5
IEEE Std 1289-1998, “IEEE Guide for the Application of Human Factors Engineering in the Design of Computer-Based Monitoring and Control Displays for Nuclear Power Generating Stations.”	18.8
IEEE Standard C37.98, “IEEE Standard for Seismic Testing of Relays,” 1987	3D
ISA – Instrumentation, Systems and Automation Society	
ISA S7.3, “Quality Standard for Instrument Air,” 1981	9.3
MIL – Military Standards and Specifications	
MIL-HDBK-759C, “Human Engineering Design Guidelines,” 1995	6.4
MIL-STD 1472E, “Human Engineering,” 1996	6.4
NEMA – National Electrical Manufacturers Association	
NEMA MG-1, “Motors and Generators,” Revision 1, 1998	3.2
NEMA Standard Publication No. VE 1-1998, “Metallic Cable Tray Systems”	3F
NFPA – National Fire Protection Association	
NFPA 10, “Standard for Portable Fire Extinguishers,” 1998	9.5
NFPA 13, “Standard for the Installation of Sprinkler Systems,” 1999	9.5
NFPA 14, “Standard for Installation of Standpipe, Private Hydrants, and Hose Systems,” 2000	9.5

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
NFPA 15, “Standard for Water Spray Fixed Systems for Fire Protection,” 2001	9.5
NFPA 20, “Standard for the Installation of Stationary Pumps for Fire Protection,” 1999	9.5
NFPA 22, “Standard for Water Tanks for Private Fire Protection,” 1998	9.5
NFPA 24, “Standard for Installation of Private Fire Service Mains and Fire Protection,” 1995	9.5
NFPA 30, “Flammable and Combustible Liquids Code,” 2000	9.5
NFPA 50A, “Standard for Gaseous Hydrogen Systems at Consumer Sites,” 1999	9.5
NFPA 50B, “Standard for Liquefied Hydrogen Systems at Consumer Sites,” 1999	9.5
NFPA 70, “National Electrical Code (NEC),” 1999	8.3, 9.5
NFPA 72, “National Fire Alarm Code,” 1999	9.5
NFPA 90A, “Installation of Air-Conditioning and Ventilation Systems,” 1999	9.4
NFPA 92A, “Recommended Practice for Smoke Control Systems,” 2000	9.4, 9A
NFPA 780, “Standard for the Installation of Lightning Protection Systems,” 2000	8.3, 9.5
NFPA 804, “Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants,” 2001	9.5
SMACNA – Sheet Metal and Air Conditioning Contractors’ National Association	
SMACNA, “HVAC Duct Construction Standards - Metal and Flexible,” Second Edition 1995	3A, 9.4

Table 1
AP1000 Codes and Standards (Licensing Basis)

<u>Title</u>	<u>DCD Section</u>
SMACNA, “HVAC Systems – Testing, Adjusting, and Balancing,” 1993	9.4
SMACNA, “Rectangular Industrial Duct Construction Standards,” 1980	9.4
SMACNA, “HVAC Duct Construction Standards - Metal and Flexible,” 1985	3.2
SMACNA, “Round Industrial Duct Construction Standard,” 1999	9.4
SMACNA, “HVAC Duct Leakage Test Manual,” 1985	9.4
UBC – Uniform Building Code	
UBC, “Uniform Building Code,” 1997	3.2
UL – Underwriters Laboratories Inc.	
UL 555, “Safety Fire Dampers,” 1999	9.4
UL 555S, “Leakage Rated Dampers for Use in Smoke Control Systems,” 1999	9.4
UL 586, “High-Efficiency, Particulate, Air-Filter Units,” 1996	9.4
UL 900, “Test Performance of Air-Filter Unit,” 1994	9.4
UL 1995, “Heating and Cooling Equipment,” 1995	9.4
UL 1996, “Electric Duct Heating,” 1996	9.4

Table 2**AP1000 Codes and Standards (not found in Licensing Basis)**

<u>Title</u>	<u>Reference</u>
ASME NQA-2 Quality Assurance Requirements for Nuclear Power Plants 1989 Edition, through NQA-1c-1992, Addenda	None
American Society for Nondestructive Testing SNT-TC-1A, "Recommended Practice for Non-Destructive Testing 1992 Edition.	None
CP-189 Qualification and Certification of Nondestructive Testing Personnel 1995 Edition	None