

**Comanche Peak Nuclear Power Plant, Units 3 & 4**  
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**Part 2, FSAR**

CHAPTER 14  
VERIFICATION PROGRAMS

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ACRONYMS AND ABBREVIATIONS

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ac	alternating current
COL	Combined License
COLA	Combined License Application
CPNPP	Comanche Peak Nuclear Power Plant
CRDM	control rod drive mechanism
CVCS	chemical and volume control system
DAS	diverse actuation system
dc	direct current
DCD	Design Control Document
ECCS	emergency core cooling system
ESF	engineered safety features
ESW	essential service water
ESWS	essential service water system
FSAR	Final Safety Analysis Report
FSS	fire protection water supply system
HVAC	heating, ventilation, and air conditioning
ITAAC	inspections, tests, analyses, and acceptance criteria
ITP	initial test program
LOOP	loss of offsite power
MCR	main control room
MFIV	main feedwater isolation valve
MHI	Mitsubishi Heavy Industries, Ltd
MNES	Mitsubishi Nuclear Energy Systems, Inc.
MSIV	main steam isolation valve
NDE	nondestructive examination
non-ESW	non-essential service water
NRC	U.S. Nuclear Regulatory Commission
PMWS	primary makeup water system
PWR	pressurized-water reactor
RCP	reactor coolant pump
RCS	reactor coolant system
RG	Regulatory Guide
RHRS	residual heat removal system
RTD	resistance temperature detector
SDV	safety depressurization valve
SFPCS	spent fuel pit cooling and purification system

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SIS                                      safety injection system

ACRONYMS AND ABBREVIATIONS (Continued)

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SORC	Station Operations Review Committee
SSC	structure, system, and component
UHS	ultimate heat sink

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**14.0 VERIFICATION PROGRAMS**

**14.1 SPECIFIC INFORMATION TO BE INCLUDED IN  
PRELIMINARY/FINAL SAFETY ANALYSIS REPORT**

This section of the referenced Design Control Document (DCD) is incorporated by reference with no departures or supplements.

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**14.2 INITIAL PLANT TEST PROGRAM**

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

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**14.2.2 Organization and Staffing**

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CP COL 14.2(2) Replace the last sentence of the second paragraph in **DCD Subsection 14.2.2** with the following.

The site-specific organization, organizational titles, organization responsibilities, and reporting relationships are consistent with US-APWR Test Program Description Technical Report, MUAP-08009 (**Reference 14.2-29**) with the following reconciliations.

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Replace the fourth bullet in Section 3.4 of MUAP-08009 with the following.

- Mitsubishi Heavy Industries, Ltd. (MHI) and/or Mitsubishi Nuclear Energy Systems, Inc (MNES) (for preoperational testing performed on the nuclear steam support system and associated auxiliary systems)
- 

Replace the second paragraph in Section 3.5 of MUAP-08009 with the following.

The test review group functions as a subcommittee of the Station Operations Review Committee (SORC) defined in Subsection 13.1.1.2.1 for initial startup testing matters. The test review group is charged with reviewing initial startup test activities and advising the SORC on the disposition of those items reviewed. The SORC may perform the test review group functions in lieu of the test review group. The primary function of the test review group is the review and approval of initial startup program test procedures, procedure revisions, and test results.

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Replace the fourth bullet of the third paragraph in Section 3.5 of MUAP-08009 with the following.

- MHI and/or MNES
-

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Replace the first sentence in Section 8.2 of MUAP-08009 with the following.

Test procedures are, at a minimum, reviewed by MHI or MNES engineering, Testing, Operations, Quality Assurance, Maintenance, and Licensing.

Add the following to the end of Section 11.0 of MUAP-08009.

Test personnel comply with the education, training, qualification, and experience requirements contained in ANSI/ANS-3.1 as endorsed and amended by RG 1.8 as they relate to the duties described in ANSI/ANS-3.1 and **FSAR Table 14.2-203**.

Add the following to the end of Section 11.1 of MUAP-08009.

In addition, individuals who:

- develop or review testing, operating, and emergency procedures,
- evaluate test deficiencies, propose or review the resolution to test deficiencies, or
- evaluate test results for acceptability

are qualified in accordance with ANSI/ANS-3.1 as endorsed and amended by RG 1.8. This includes architect-engineer personnel, other contract/vendor staff, and the site organization supporting preoperational and startup testing. Qualification requirements for architect-engineering personnel are consistent with engineering support positions defined in ANSI/ANS-3.1 (i.e., Section 4.4.10 for supervision and Section 4.6.1 for system engineers).

Acceptable qualification of non-supervisory test engineers follow the guidance provided in ASME NQA-1-1994, Appendix 2A-1, Nonmandatory Guidance on the Qualifications of Inspection and Test Personnel.

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### **14.2.3 Test Procedures**

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STD COL 14.2(12) Add the following sentence at the end of **DCD Subsection 14.2.3**.

Approved test procedures for satisfying testing requirements of Section 14.2 are made available to the NRC approximately 60 days prior to their intended use.

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**14.2.8.1      Preoperational and/or Startup Testing for Unique or First-of-a-Kind Principal Design Features**

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STD COL 14.2(11) Replace the last sentence of the second paragraph in **DCD Subsection 14.2.8.1** with the following.

First-plant-only and prototype tests are either performed in accordance with **Subsection 14.2.8** or a justification is provided prior to initial fuel loading that the results of the First-plant-only tests and prototype test are applicable to a subsequent plant and are not required to be repeated.

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**14.2.8.2.1      Natural Circulation Testing**

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STD COL 14.2(11) Add the following text at the end of **DCD Subsection 14.2.8.2.1**.

Natural circulation test is performed in accordance with **Subsection 14.2.12.2.3.9** or a justification is provided based on **Subsection 14.2.8.2.1** prior to initial fuel load that the results of the US-APWR prototype test are applicable to a subsequent plant and are not required to be repeated.

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**14.2.9      Trial Testing of Plant Operating and Emergency Procedures**

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CP COL 14.2(7) Replace the last paragraph in **DCD Subsection 14.2.9** with the following.

A schedule for the development of plant procedures required for use during preoperational testing will be provided to the U.S. Nuclear Regulatory Commission (NRC) 12 months prior to the start of the corresponding preoperational tests. A schedule for the development of plant procedures required for use during startup testing is provided to the NRC 12 months prior to the start of fuel loading. The schedules provide sufficient detail to assure that the procedures required to support testing are available for test procedure preparation, review and performance.

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**14.2.11      Test Program Schedule**

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- CP COL 14.2(7) Replace the first and second sentences of the last paragraph in **DCD Subsection 14.2.11** with the following.

An event-based schedule for conducting each major phase of the test program for the Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4, relative to the start of fuel loading, will be provided to the NRC six months prior to the start of preoperational testing. The schedule will be periodically updated to reflect actual progress. Schedule preparation will include an assessment of overlapping test program schedules between CPNPP Units 3 and 4 and provide assurance that CPNPP Unit 3 will be given priority during the period when testing and plant staff personnel will be working on both units. Periodic reviews of the schedules for CPNPP Units 3 and 4 will ensure that overlapping test program schedules do not result in significant divisions of responsibilities or dilutions of the staff implementing the test program.

- STD COL 14.2(7) Replace the third sentence of the last paragraph in **DCD Subsection 14.2.11** with the following.

Preoperational tests which satisfy inspections, tests, analyses, and acceptance criteria (ITAAC) test requirements, and ITAAC test requirements which can be incorporated into preoperational tests, are correlated in **Table 14.2-202**. This correlation is used to assure that ITAAC test requirements are included in the development of preoperational testing procedures.

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#### **14.2.12 Individual Test Descriptions**

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- CP COL 14.2(10) Replace the first sentence of the last paragraph in **DCD Subsection 14.2.12** with the following.

Testing outside the scope of the certified design is addressed in **Subsections 14.2.12.1.113**, and **14.2.12.1.114**. Additional testing for the Fire Protection System Preoperational Test is identified in **Subsection 14.2.12.1.90**. **Table 14.2-201** shows the comprehensive list for the new added subsections.

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##### **14.2.12.1 Preoperational Tests**

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- CP COL 14.2(10) Replace the sentence in **DCD Subsection 14.2.12.1.83.B.7** with the following.

The condenser or existing waste water management Pond C or LWMS is available to receive discharge from the SG blowdown sampling system.

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STD COL 14.2(10) Add new item after item C.7 in **DCD Subsection 14.2.12.1.90** as follows.

8. Verify that local offsite fire departments utilize hose threads or adapters capable of connecting with onsite hydrants, hose couplings, and standpipe risers.

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Replace **DCD Subsections 14.2.12.1.113** and **14.2.12.1.114** with the following.

STD COL 14.2(10) **14.2.12.1.113 Ultimate Heat Sink (UHS) System Preoperational Test**

A. Objectives

1. To demonstrate operation of the UHS cooling towers and associated fans, essential service water (ESW) pumps, UHS transfer pumps, and associated valves.
2. To demonstrate that the ESW pumps and the UHS transfer pumps have adequate NPSH and maintain design flow rates without vortex formation with the basin at minimum level (end of the 30-day emergency period).
3. To demonstrate the operation of the UHS basin water level and temperature sensors, logic, and associated control functions; water chemistry monitors, logic, and associated control functions; ESW pump start logic, interlocks, and associated control functions; ESW pump discharge strainer isolation and backwash valves and valve logic; associated makeup and blowdown equipment.
4. To demonstrate the absence of any significant water hammer during ESW pump and UHS transfer pump starts and stops with voids in the spray headers or nozzles.
5. To demonstrate the ability of the UHS, in conjunction with the ESWS, CCWS, and RHRS, to cool down the RCS.
6. To demonstrate that simultaneous operation of ESW pumps and UHS transfer pumps will not result in vortices that would interfere with each other.

B. Prerequisites

1. Required construction testing is completed.
2. Component testing and instrument calibration is completed.
3. Test instrumentation is available and calibrated.

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4. Required support systems are available.
5. Required system flushing/cleaning is completed.
6. Required electrical power supplies and control circuits are energized and operational.
7. Makeup water to the UHS basins is available.
8. CS/RHRS, CCWS, and ESWS are available during hot functional testing.

**C. Test Method**

1. System component control and interlock circuits and alarms are verified, including cooling tower fan logic, basin water level sensors, temperature sensors, makeup water control, basin process chemical sensors, blowdown control valves and ESWS return line drain valves.
2. The performance of each ESWS pump and UHS transfer pump are monitored as basin water level is decreased to the minimum water level (end of the 30 day emergency period) and with various amounts of voiding in the spray headers and nozzles.
3. Basin water level and chemistry controls are monitored during continuous operations in the water level and chemistry control mode using the ESWS blowdown feature.
4. The capability of the ESWS to provide water to the FSS is demonstrated by opening the isolation valves and obtaining a total flow of at least 150 gpm to the hose stations located in the R/B and ESWS pump house while maintaining required ESWS flows and pressures.
5. UHS performance data is monitored during RCS cooldown in conjunction with hot functional testing.
6. ESWS pump and UHS transfer pump in the same basin are operated simultaneously. The performance of each ESWS pump and UHS transfer pump are monitored as basin water level is decreased to the minimum water level (end of the 30 day emergency period) during simultaneous operation of two pumps.

**D. Acceptance Criteria**

1. With the basin at minimum level (end of the 30 day emergency period), each ESWS pump and UHS transfer pump has adequate NPSH and maintain design flow rates without vortex formation.

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2. The UHS fans operate as discussed in Subsection 9.2.5, including speed and direction.
3. ESW pumps, UHS transfer pumps, associated motor-operated valves operate from their associated Class 1E buses as discussed in **Subsections 9.2.1 and 9.2.5**.
4. The UHS basin water level and temperature sensors, logic, and associated control functions; water chemistry monitors, logic, and associated control functions; ESW pump start logic, interlocks, and associated control functions; ESW pump discharge strainer isolation and backwash valves and valve logic; associated makeup and blowdown equipment operate as discussed in **Subsections 9.2.1 and 9.2.5**.
5. ESWS maintains required flows and pressures while water is provided to the FSS as described in **Subsection 9.2.1.3**.
6. Significant water hammer does not occur during ESW pump and UHS transfer pump starts and stops with voids in the spray headers or nozzles.
7. The UHS is capable of cooling down the RCS as discussed in Subsections 9.2.1 and 9.2.5.
8. With the basin at minimum level (end of 30 day emergency period), significant vibration or cavitation is not observed with each ESW pump and UHS transfer pump during two-pump operation whether vortex exists or not.

STD COL  
14.2(10)

**14.2.12.1.114 UHS ESW Pump House Ventilation System Preoperational Test**

**A. Objectives**

1. To demonstrate operation of the UHS ESW pump house ventilation system.

**B. Prerequisites**

1. Required construction testing is completed.
2. Component testing and instrument calibration are completed.
3. Test instrumentation is available and calibrated.
4. Required support systems are available.

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**C. Test Method**

1. Simulate interlock signals for each exhaust fan and unit heater and verify operation and annunciation.
2. Verify that alarms and status indications are functional.
3. Verify design airflow.
4. Verify position of the backdraft dampers with the ventilation system operating and not operating.

**D. Acceptance Criteria**

1. UHS ESW pump house ventilation system operates on the proper signal (see **Subsection 9.4.5**).
2. All alarms annunciate properly.
3. The backdraft dampers are closed with no airflow and open with airflow under normal and emergency conditions.

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**14.2.13 Combined License Information**

Replace the content of **DCD Subsection 14.2.13** with the following.

**14.2(1)** Deleted from the DCD.

CP COL 14.2(2) **14.2(2)** Organization and staffing

This COL item is addressed in **Subsection 14.2.2**.

**14.2(3)** Deleted from the DCD.

**14.2(4)** Deleted from the DCD.

**14.2(5)** Deleted from the DCD.

**14.2(6)** Deleted from the DCD.

CP COL 14.2(7) **14.2(7)** Initial test program schedule and cross-reference of test abstracts with  
STD COL 14.2(7) ITAAC

This COL item is addressed in **Subsections 14.2.9, 14.2.11 and Table 14.2-202**

**14.2(8)** Deleted from the DCD.

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**14.2(9)** Deleted from the DCD.

CP COL 14.2(10) **14.2(10)** Site-specific test abstracts  
STD COL 14.2(10)

This COL item is addressed in Subsections 14.2.12, 14.2.12.1, 14.2.12.1.83, 14.2.12.1.90, 14.2.12.1.113, and 14.2.12.1.114, Table 14.2-201, and Appendix 14A.

STD COL 14.2(11) **14.2(11)** First-plant only tests and prototype test

This COL item is addressed in Subsections 14.2.8.1 and 14.2.8.2.1.

STD COL 14.2(12) **14.2(12)** Approved Test procedures

This COL item is addressed in Subsection 14.2.3

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**Table 14.2-201**

**Comprehensive Listing of Additional Tests**

	<b>Section</b>	<b>Test</b>
STD COL 14.2(10)	14.2.12.1.90.C.8	Local Fire Department Hose Thread Compatibility Test
STD COL 14.2(10)	14.2.12.1.113	Ultimate Heat Sink (UHS) Preoperational Test
STD COL 14.2(10)	14.2.12.1.114	UHS ESW Pump House Ventilation System Preoperational Test

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CP COL 14.2(7)

**Table 14.2-202 (Sheet 1 of 6)**

**Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements**

<b>Test Description</b>	<b>Tier 2 Section</b>	<b>Tier 1 Section</b>
Reactor coolant system (RCS) Hot Functional	14.2.12.1.1	2.4.2
Pressurizer Pressure and Water Level Control	14.2.12.1.2	(2.5.5)
Reactor coolant pump (RCP) Initial Operation	14.2.12.1.3	2.4.2
Pressurizer Safety Depressurization Valve (SDV)	14.2.12.1.4	2.4.2
Pressurizer Relief Tank	14.2.12.1.5	-
RCS	14.2.12.1.6	2.4.2
Reactor Internals Vibration	14.2.12.1.7	2.4.1
RCS Cold Hydrostatic	14.2.12.1.8	2.4.1, 2.4.2
Reactor Control, Rod Control, and Rod Position Indication	14.2.12.1.9	(2.5.5)
Control rod drive mechanism (CRDM) Motor Generator Set	14.2.12.1.10	-
CRDM Initial Timing	14.2.12.1.11	-
Chemical and Volume Control System (CVCS) – Boric Acid Blending	14.2.12.1.12	(2.4.6)
CVCS – Charging and Seal Water	14.2.12.1.13	2.4.6
CVCS – Letdown	14.2.12.1.14	2.4.6
RCS Lithium Addition and Distribution	14.2.12.1.15	-
Primary Makeup Water System (PMWS)	14.2.12.1.16	-
Reactor Trip System and engineered safety features (ESF) System Response Time	14.2.12.1.17	2.5.1
Reactor Trip System and ESF System Logic	14.2.12.1.18	2.5.1, 2.7.1.1
Resistance Temperature Detectors (RTDs)/Thermocouple Cross-Calibration	14.2.12.1.19	-



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**Table 14.2-202 (Sheet 2 of 6)**

**Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements**

<b>Test Description</b>	<b>Tier 2 Section</b>	<b>Tier 1 Section</b>
Diverse Actuation System (DAS) Actuation	14.2.12.1.20	2.5.3
Main Steam Supply System	14.2.12.1.21	2.7.1.2
Residual Heat Removal System (RHRS)	14.2.12.1.22	2.4.5
Main Steam Isolation Valve (MSIV), Main Feedwater Isolation Valve (MFIV), and Main Steam Check Valve	14.2.12.1.23	2.7.1.2, 2.7.1.9
Motor-Driven Emergency Feedwater System	14.2.12.1.24	2.7.1.11
Turbine-Driven Emergency Feedwater System	14.2.12.1.25	2.7.1.11
Extraction Steam	14.2.12.1.26	2.7.1.1
Turbine - Generator (T/G)	14.2.12.1.27	2.7.1.1
Condensate System	14.2.12.1.28	-
Feedwater System	14.2.12.1.29	2.7.1.9
Feedwater Heater and Drain Systems	14.2.12.1.30	-
Condensate Polishing System	14.2.12.1.31	-
Main Condenser Evacuation System	14.2.12.1.32	-
Circulating Water System	14.2.12.1.33	-
Essential Service Water System (ESWS)	14.2.12.1.34	2.7.3.1
Main and Unit Auxiliary Transformers	14.2.12.1.35	2.6.1
Reserve Auxiliary Transformers	14.2.12.1.36	(2.6.1)
Non-Class 1E Alternating Current (ac) Distribution	14.2.12.1.37	(2.6.1)
6.9 kV Class 1E System	14.2.12.1.38	2.6.1
480 V Class 1E Switchgear	14.2.12.1.39	2.6.1
480 V Class 1E Motor Control Center	14.2.12.1.40	2.6.1
120 V ac Class 1E	14.2.12.1.41	2.6.3

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**Table 14.2-202 (Sheet 3 of 6)**

**Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements**

<b>Test Description</b>	<b>Tier 2 Section</b>	<b>Tier 1 Section</b>
Emergency Lighting System	14.2.12.1.42	2.6.6
Normal Lighting System	14.2.12.1.43	-
Class 1E Gas Turbine Generator	14.2.12.1.44	2.6.4
Class 1E Bus Load Sequence	14.2.12.1.45	2.4.1, 2.4.2, 2.4.4, 2.4.5, 2.4.6, 2.6.1, 2.6.3, 2.6.4, 2.7.1.2, 2.7.1.9, 2.7.1.10, 2.7.1.11, 2.7.3.1, 2.7.3.3, 2.7.3.5, 2.7.5.1, 2.7.5.2, 2.7.5.4, 2.7.6.3, 2.7.6.6, 2.7.6.7, 2.7.6.13, 2.11.2, 2.11.3
Alternate ac Power Sources for Station Black Out	14.2.12.1.46	2.6.5
125 V Direct Current (dc) Class 1E	14.2.12.1.47	2.4.1, 2.4.2, 2.4.4, 2.4.5, 2.4.6, 2.6.2, 2.6.3, 2.7.1.2, 2.7.1.9, 2.7.1.10, 2.7.1.11, 2.7.3.1, 2.7.3.3, 2.7.3.5, 2.7.5.1, 2.7.5.2, 2.7.5.4, 2.7.6.3, 2.7.6.6, 2.7.6.7, 2.7.6.13, 2.11.2, 2.11.3
125 V DC Class 1E Minimum Load Voltage Verification	14.2.12.1.48	2.6.2
125 V DC non-Class 1E	14.2.12.1.49	-
Dynamic State Vibration Monitoring of Safety Related and High-Energy Piping	14.2.12.1.50	-
Steady State Vibration Monitoring of Safety Related and High-Energy Piping	14.2.12.1.51	-
Thermal Expansion Testing	14.2.12.1.52	-
Class 1E Gas Turbine Generator Sequence – Loss of Offsite Power (LOOP) Sequence and LOOP Sequence with Emergency Core Cooling System (ECCS) Actuation Signal	14.2.12.1.53	2.6.4

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**Table 14.2-202 (Sheet 4 of 6)**

**Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements**

<b>Test Description</b>	<b>Tier 2 Section</b>	<b>Tier 1 Section</b>
Safety Injection System (SIS)	14.2.12.1.54	2.4.4
ECCS Actuation and Containment Isolation Logic	14.2.12.1.55	2.4.4, 2.11.2
Safety Injection Check Valve	14.2.12.1.56	2.4.4
Safety Injection Accumulator	14.2.12.1.57	2.4.4
Containment Spray System	14.2.12.1.58	2.11.3
Refueling Water Storage System	14.2.12.1.59	-
Essential Chilled Water System	14.2.12.1.60	2.7.3.5
Containment Structural Integrity	14.2.12.1.61	2.2
Containment Local Leak Rate	14.2.12.1.62	2.2, 2.11.2
Containment Integrated Leak Rate	14.2.12.1.63	2.2
Containment Hydrogen Monitoring and Control System	14.2.12.1.64	2.11.4
CRDM Cooling System	14.2.12.1.65	(2.7.5.3)
Reactor Cavity Cooling System	14.2.12.1.66	(2.7.5.3)
Containment High Volume Purge System	14.2.12.1.67	2.8, (2.7.5.3)
Containment Low Volume Purge System	14.2.12.1.68	2.8, (2.7.5.3)
Containment Fan Cooler System	14.2.12.1.69	(2.7.5.3)
Annulus Emergency Exhaust System	14.2.12.1.70	2.7.5.2
RCS Leak Rate	14.2.12.1.71	-
Loose Parts Monitoring System	14.2.12.1.72	-
Seismic Monitoring System	14.2.12.1.73	-
Incore Instrumentation System	14.2.12.1.74	-
Nuclear Instrumentation System	14.2.12.1.75	2.4.1 2.5.1
Remote Shutdown	14.2.12.1.76	2.5.2
Miscellaneous Leakage Detection System	14.2.12.1.77	2.7.6.8
Process and Effluent Radiological Monitoring System, Area Radiation Monitoring System and Airborne Radioactivity Monitoring System	14.2.12.1.78	2.7.6.6, 2.7.6.13

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**Table 14.2-202 (Sheet 5 of 6)**

**Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements**

<b>Test Description</b>	<b>Tier 2 Section</b>	<b>Tier 1 Section</b>
High-Efficiency Particulate Air Filters and Charcoal Adsorbers	14.2.12.1.79	2.7.5.1, 2.7.5.2
Liquid Waste Management System	14.2.12.1.80	2.4.7, 2.7.4.1, 2.7.6.8
Gaseous Waste Management System	14.2.12.1.81	2.7.4.2
Solid Waste Management System	14.2.12.1.82	(2.7.4.3)
Steam Generator Blowdown System	14.2.12.1.83	2.7.1.10
Sampling System	14.2.12.1.84	2.7.6.7
Spent Fuel Pit Cooling and Purification System (SFPCS)	14.2.12.1.85	2.7.6.3
Fuel Handling System	14.2.12.1.86	2.7.6.4
Component Cooling Water System	14.2.12.1.87	2.7.3.3
Turbine Component Cooling Water System	14.2.12.1.88	-
Secondary Side Chemical Injection System	14.2.12.1.89	-
Fire Protection System	14.2.12.1.90	2.7.6.9
Instrument Air System	14.2.12.1.91	-
Station Service Air System	14.2.12.1.92	-
Boron Recycle System	14.2.12.1.93	-
Offsite Communication System	14.2.12.1.94	2.7.6.10
Inplant Communication System	14.2.12.1.95	2.7.6.10
Safeguard Component Area Heating, Ventilation, and Air Conditioning (HVAC) System	14.2.12.1.96	2.7.5.2
Emergency Feedwater Pump Area HVAC System	14.2.12.1.97	2.7.5.2
Class 1E Electrical Room HVAC System	14.2.12.1.98	2.7.5.2
Auxiliary Building HVAC System	14.2.12.1.99	2.7.5.4, 2.8
Main Steam/Feedwater Piping Area HVAC System	14.2.12.1.100	2.7.5.4
Main Control Room (MCR) HVAC System (including MCR Habitability)	14.2.12.1.101	2.7.5.1
Non-Class 1E Electrical Room HVAC System	14.2.12.1.102	2.7.5.4
Technical Support Center HVAC System	14.2.12.1.103	2.7.5.4
Non-Essential Chilled Water System	14.2.12.1.104	(2.7.3.6)

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**Table 14.2-202 (Sheet 6 of 6)**

**Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements**

<b>Test Description</b>	<b>Tier 2 Section</b>	<b>Tier 1 Section</b>
Vessel Servicing	14.2.12.1.105	2.7.6.5
Safety-Related Component Area HVAC System	14.2.12.1.106	2.7.5.2
Pressurizer Heater and Spray Capability and Continuous Spray Flow Verification	14.2.12.1.107	2.4.2
Non-Essential Service Water (non-ESW) System	14.2.12.1.108	-
Condensate Storage Facilities System	14.2.12.1.108	-
Turbine Building Area Ventilation System (General Mechanical Area)	14.2.12.1.110	-
Turbine Building Area Ventilation System (Electric Equipment Area)	14.2.12.1.111	-
UHS System Preoperational Test	14.2.12.1.113 <sup>(1)</sup>	A.1 <sup>(2)</sup>
UHS ESW Pump House Ventilation System Preoperational Test	14.2.12.1.114 <sup>(1)</sup>	A.1 <sup>(2)</sup>
RCPB Leak Detection Systems Preoperational Test	14.2.12.1.115	2.4.7
Equipment and Floor Drainage System Preoperational Test	14.2.12.1.116	2.7.6.8
Compressed Gas System Preoperational Test	14.2.12.1.117	-
Pressurizer Surge Line HFT Performance Test	14.2.12.1.119	-

**Notes**

General Note: Tier 1 sections in parentheses indicate inspection activities.

1. COLA FSAR

2. COLA Part 10

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CP SUP 14.2(1)

**Table 14.2-203**

**Comparison with the Qualification Requirements of the  
Staffing in ANS-3.1**

<b>CPNPP Units 3 and 4 Position in Table 13.1-201</b>	<b>Position Title in MUAP-08009</b>	<b>Function Position (ANSI/ANS-3.1-1993 section)</b>
Startup Manager	Test Manager	Startup Test Engineer (4.4.12)
(Not specified.)	Installation Test Manager	Preoperational Test Engineer (4.4.11)
(Not specified.)	Preoperational and Acceptance Test Manager	Preoperational Test Engineer (4.4.11)
(Not specified.)	Operations Startup Manager	Senior Operator (4.4.2)
(Not specified.)	Startup Test Manager	Startup Test Engineer (4.4.12)
(Not specified.)	Test Program Manager	Startup Test Engineer (4.4.12)
Preoperational Test Engineer (supervisory)	Test Engineer	Preoperational Test Engineer (4.4.11)
Startup Test Engineer (supervisory)	Test Engineer	Startup Test Engineer (4.4.12)
Preoperational Test Engineer (nonsupervisory)	Test Engineer	See Note 1.
Startup Test Engineer (nonsupervisory)	Test Engineer	See Note 1.

Note 1: Qualifications are established by ASME NQA-1-1994 edition, Appendix 2A-1, for Level II personnel.

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**14.3        INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE  
              CRITERIA**

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

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**14.3.4.3        ITAAC for Piping Systems and Components**

---

STD COL 14.3(4) Replace the last sentence of the last paragraph of **DCD Subsection 14.3.4.3** with the following:

The COL licensee shall submit ITAAC schedule information to the NRC in accordance with 10 CFR 52.99, which includes a schedule for closing Design Acceptance Criteria. The Design Acceptance Criteria closure process described in DCD Appendix 14B will be utilized to close the Design Acceptance Criteria ITAAC for piping systems and components. The stress analysis, environmental fatigue analysis, LBB analysis and pipe break hazard analysis for the piping systems and components will be completed on a system-by-system basis or a component basis, as applicable, in order to support closure of the Design Acceptance Criteria ITAAC. Information will be made available for NRC review, inspection, and audit on a system-by-system basis or a component basis.

STD SUP 14.3(1) Add the following paragraph after the last paragraph in DCD Subsection 14.3.4.3.

The selection criteria and methodology provided in Section 14.3.4.3 of the referenced DCD are utilized as the site-specific selection criteria and methodology for ITAAC of site-specific piping systems and components. ITAAC for the pipe hazard analysis of the site-specific portion of the piping systems and components are provided in Part 10 of the COLA.

---

**14.3.4.6        ITAAC for Electrical Systems**

---

STD COL 14.3(1) Add the following paragraph after the last paragraph in **DCD Subsection 14.3.4.6**.

The ITAAC for the site-specific interfaces in the electrical systems are developed to correspond to Section 3.2 of Tier 1 of the referenced DCD. The site-specific interfaces are with the offsite power system. The ITAAC for the interface requirement with the offsite power system are provided in **Part 10** of the COLA.

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**14.3.4.7      ITAAC for Plant Systems**

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STD COL 14.3(1) Replace the last paragraph in **DCD Subsection 14.3.4.7** with the following.

The selection criteria and methodology provided in Section 14.3 of the referenced DCD are utilized as the site-specific selection criteria and methodology for ITAAC for site-specific systems. In general, the ITAAC for site-specific systems are developed to correspond to the interface requirements in Tier 1 of the referenced DCD. For those site-specific systems that do not have a safety function sufficiently significant to meet the selection criteria for ITAAC, the system is identified with the designation "No entry for this system". ITAAC for the site-specific portion of the plant systems are provided in Part 10 of the Combined License Application (COLA).

---

**14.3.4.10      ITAAC for Emergency Planning**

---

STD COL 14.3(2) Replace the last paragraph in **DCD Subsection 14.3.4.10** with the following.

The selection criteria and methodology provided in Section 14.3 of the referenced DCD are utilized as the site-specific selection criteria and methodology for the facility's emergency planning ITAAC. The ITAAC conform to the guidance in this subsection, as modified to reflect the design and site-specific emergency planning program requirements. The ITAAC for the facility's emergency planning are provided in **Part 10** of the COLA.

---

**14.3.4.12      ITAAC for Physical Security Hardware**

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CP COL 14.3(3) Replace the last paragraph in **DCD Subsection 14.3.4.12** with the following.

The selection criteria and methodology provided in Section 14.3 of the referenced DCD are utilized as the site-specific selection criteria and methodology for site-specific physical security hardware ITAAC not addressed in the DCD. The ITAAC conform to the guidance in this subsection and are consistent with the applicable generic physical security ITAAC in SRP 14.3.12 (Reference 14.3-16) developed by the NRC in coordination with the Nuclear Energy Institute. The site-specific physical security hardware ITAAC are provided in **Part 10** of the COLA. Physical security ITAAC test abstracts supporting the site-specific physical



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security ITAAC are provided in Comanche Peak Units 3 and 4 Physical Security Hardware ITAAC Abstracts (Reference 14.3-201).

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**14.3.6 Combined License Information**

Replace the content of **DCD Subsection 14.3.6** with the following.

STD COL 14.3(1) **14.3(1)** *ITAAC for site-specific systems*

CP COL 14.3(1)

*This COL item is addressed in Subsections 14.3.4.6 and 14.3.4.7.*

STD COL 14.3(2) **14.3(2)** *ITAAC for emergency planning*

*This COL item is addressed in Subsection 14.3.4.10.*

CP COL 14.3(3) **14.3(3)** *ITAAC For Physical Security Hardware*

*This COL item is addressed in Subsection 14.3.4.12.*

STD COL 14.3(4) **14.3(4)** *Design Acceptance Criteria ITAAC for Piping Systems and Components*

*This COL item is addressed in Subsection 14.3.4.3.*

**14.3.7 References**

14.3-201 "Comanche Peak Units 3 and 4 Physical Security Hardware ITAAC Abstracts," Revision 1, April 2011.

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**APPENDIX 14A**

**COMPARISON OF RG 1.68 APPENDIX A VERSUS  
US-APWR TEST ABSTRACTS**

**Comanche Peak Nuclear Power Plant, Units 3 & 4  
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**APPENDIX 14A**

**COMPARISON OF RG 1.68 APPENDIX A VERSUS  
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**APPENDIX 14A      COMPARISON OF RG 1.68 APPENDIX A VERSUS  
US-APWR TEST ABSTRACTS**

This appendix of the referenced DCD is incorporated by reference with the following departures and/or supplements.

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STD COL 14.2(10) Add the following text after the last sentence.

The added test abstracts in the Final Safety Analysis Report (FSAR) are correlated to Regulatory Guide (RG) 1.68 Appendix A in **Table 14A-201**.

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**Table 14A-201**

**Conformance Matrix of RG 1.68 Appendix A Guidance versus  
Added Test Abstracts in the FSAR**

	<b>RG 1.68 Appendix A</b>	<b>Section Number</b>	<b>Typical Test</b>
STD COL 14.2(10)	1.h.(7)	14.2.12.1.114	UHS ESW Pump House Ventilation System Preoperational Test
STD COL 14.2(10)	1.h.(10)	14.2.12.1.113	Ultimate Heat Sink (UHS) System Preoperational Test
STD COL 14.2(10)	1.k.(2), 1.k(3)	Not applicable.	Personnel Monitors and Radiation Survey Instruments - tested as part of the Radiation Protection Program described in Section 12.5
STD COL 14.2(10)	1.n.(14) (a)	14.2.12.1.114	UHS ESW Pump House Ventilation System Preoperational Test

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**APPENDIX 14B**

**DESIGN ACCEPTANCE CRITERIA ITAAC CLOSURE PROCESS**

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**APPENDIX 14B**

**DESIGN ACCEPTANCE CRITERIA ITAAC CLOSURE PROCESS**

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**APPENDIX 14B      DESIGN ACCEPTANCE CRITERIA ITAAC CLOSURE  
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This appendix of the referenced DCD is incorporated by reference with no departures or supplements.