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NUCLEAR ENERGY

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December 19, 2008

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

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Response to Request for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3
Follow-up Response to RAIs 14 and 15, Questions 14-02-1, 14.02-2, 14.02-3, and 14.02-4

References:
1) John Rycyna (NRC) to George Wrobel (UniStar), Calvert Cliffs Unit 3 COLA RAIs Nos. 14.02-1, 14.02-2, 14.02-3, 14.02-4, and 14.02-5, FSAR Ch 14.02, Initial Plant Test Program, dated September 30, 2008 (RAI Sets 14, 15, and 16)

2) UniStar Letter UN#08-057 from Greg Gibson (UniStar Nuclear) to U.S. Nuclear Regulatory Commission "Submittal of Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3 – FSAR Chapter 14," dated October 31, 2008

The purpose of this letter is to provide follow-up responses to the requests for additional information (RAIs) identified in Reference 1. The follow-up responses address the site-specific testing described in Section 14.2 of the Final Safety Analysis Report, as submitted in Part 2 of the Calvert Cliffs Nuclear Power Plant (CCNPP), Unit 3 Combined License Application (COLA).

The enclosures provide our response to RAIs 14 and 15, Questions 14.02-1, 14.02-2, 14.02-3, and 14.02-4, which include revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate this change in a future revision of the COLA. There are no new regulatory commitments in this correspondence.

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NRO

If there are any questions regarding this transmittal, please contact me at (410) 470-4205 or Mr. George Wrobel at (585) 771-3535.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 19, 2008

Greg Gibson

Enclosure: Follow-up Response to RAIs 14 and 15, Questions 14.02-1, 14.02-2, 14.02-3, and 14.02-4

cc: U.S. NRC Region I
U.S. NRC Resident Inspector, Calvert Cliffs Nuclear Power Plant, Units 1 and 2
NRC Environmental Project Manager, U.S. EPR Combined License Application
NRC Project Manager, U.S. EPR Combined License Application
NRC Project Manager, U.S. EPR Design Certification Application (w/o enclosure)

Enclosure

Follow-up Response to RAIs 14 and 15, Questions 14.02-1, 14.02-2, 14.02-3, and 14.02-4

RAI No. 14.02-1

U.S. EPR COL Item 14.2.12.7.11 states that a COL applicant that references the U.S. EPR design certification will provide site-specific information for testing of the circulating water supply system. This test is listed as a Phase I preoperational test. U.S. EPR COL Item 14.2.21.6 states that a COL applicant that references the U.S. EPR design certification will provide site-specific information for testing of the cooling tower. That test is listed as a Phase IV power ascension test. Section 14.2.14.7 of the Calvert Cliffs Unit 3 COL combines these tests into the Circulating Water Supply System Test. Please specify the timing (preoperational vs. power ascension) of testing conducted under Section 14.2.14.7, explain how the objectives of the two tests in the EPR design certification are being met, verify that both COL Item 14.2.12.7.11 and COL Item 14.2.21.6 are being satisfied through this test abstract, and update your COL application accordingly.

Response:

U.S EPR Final Safety Analysis Report (FSAR) Section 14.2.12.7.11 includes testing requirements for the Circulating Water Supply System while FSAR Section 14.2.12.21.6 includes the testing requirements for Cooling Tower Acceptance. Currently CCNPP Unit 3 FSAR Section 14.2.14.7 includes testing of the Circulating Water Supply System as well as the Cooling Tower Acceptance. The CCNPP3 COLA testing requirements will be divided into two tests consistent with the U.S EPR FSAR taking into account the site specific design.

FSAR Impact:

The CCNPP Unit 3 FSAR will be updated to incorporate the response to this RAI in a future COLA revision. The Circulating Water Supply System testing requirements will be included in FSAR Section 14.2.14.7 and the Cooling Tower Acceptance testing requirements will be included in FSAR Section 14.2.14.10. The FSAR page markups are included in the FSAR page markups associated with RAI 14.02-3.

RAI No. 14.02-2

Table 14.2-1 of the U.S. EPR Design Certification application identifies testing of the Raw Water Supply System as a COL test. Please identify the test abstract that addresses testing of the Raw Water Supply System or confirm that it will be tested, and describe how it will be tested as part of the Desalinization Plant testing in Section 14.2.14.1 of the CCNPP3 COL.

Response:

U.S EPR Final Safety Analysis Report (FSAR) Table 14.2-1 identifies Test #43 as the test of the Raw Water Supply System (RWSS). The table also indicates the test will be described in the COLA since the RWSS is a site specific design. Test #43 is described in U.S EPR FSAR Section 14.2.12.5.1. This test does not apply to CCNP Unit 3. The intent of CCNPP Unit 3 FSAR Section 14.2.14.1, Desalinization Plant, is to specify all testing requirements of the CCNPP Unit 3 RWSS as described in CCNPP Unit 3 FSAR Section 9.2.9. The title of CCNPP Unit 3 FSAR Section 14.2.14.1 will be revised to be Raw Water Supply System and the testing described in this section will cover the raw water piping, the desalinization plant, the desalinated water storage tank, the desalinated water transfer pumps, and the desalinated water distribution piping and valves.

FSAR Impact:

The CCNPP Unit 3 FSAR will be updated to incorporate the response to this RAI in a future COLA revision, as shown in the FSAR page markups associated with RAI 14.02-3.

RAI No. 14.02-3

SRP 14.2.II.SRP Acceptance Criteria.5.B states that test abstracts for the initial test program should include acceptance criteria in sufficient detail to establish the functional adequacy of the SSCs and design features tested. SRP 14.2, "Technical Rationale," further states that an objective of the ITP is to verify that SSCs are capable of performing their safety functions as specified in the design and as assumed/credited in safety analyses. RG 1.68 C.4., "Procedures," states that each test procedure should included acceptance criteria that account for the uncertainties used in transient and accident analysis.

In its review of Subsection 14.2.14 of the CCNPP3 COL, the staff noted that Section 3, "Test Method," of each test abstract includes a comprehensive list of activities that are needed to ensure functional adequacy of SSCs under test. The staff also noted that Section 5, "Acceptance Criteria," of each test abstract contains pointers to design information in other FSAR chapters. However, some test abstracts also include acceptance criteria under the test method section. The acceptance criteria section of the test abstracts do not provide explicit values, prescribed limits, or measurable parameters to allow for the determination that the SSCs under test are capable of performing their safety function.

The staff requests that UniStar Nuclear review all the test abstracts in Section 14.2.14 to ensure that test method and acceptance criteria information are included in the appropriate sections. In addition, the staff requests that UniStar revise the acceptance criteria section of the test abstracts to include sufficient detail to establish the functional adequacy of the SSCs.

Response:

UniStar has reviewed all the test abstacts in Section 14.2.14 to ensure that test method and acceptance criteria information are included in the appropriate sections. The acceptance criteria section of the test abstracts will be revised to include sufficient detail to establish the functional adequacy of the SSCs.

FSAR Impact:

The CCNPP Unit 3 FSAR will be updated to incorporate the response to this RAI question in a future COLA revision as shown in the following FSAR page markup.

14.2.14.1 Raw Water Supply System ~~Desalination Plant~~

1. OBJECTIVE

   a. To demonstrate the ability of the Raw Water Supply System and the desalinization plant to ~~process raw water and~~ provide a reliable supply for the demineralized water, fire protection, essential service water normal makeup and potable water systems, under normal plant operating conditions.

2. PREREQUISITES

   a. Construction activities on the Raw Water Supply System (RWSS) have been completed.

b. RWSS instrumentation has been calibrated and is functional for performance of the following test.

c. Support system required for operation of the RWSS is complete and functional.

d. The RWSS intake is being maintained at the water level specified in the design documents.

e. The RWSS flow balance has been performed.

~~a~~f. Construction activities on the desalinization plant have been completed.

~~e~~g. Desalinization plant instrumentation is complete and functional and has been calibrated.

~~d~~h. Support systems required for operation of the desalinization plant are complete and functional.

~~e~~i. Test instrumentation is available and calibrated.

~~f~~j. The desalinization plant flow balance has been completed.

3. TEST METHOD

a. Verify desalinization plant component manual control from all locations is per design requirements.

b. Verify automatic controls function at design setpoints.

c. Verify desalinization plant pumps and components (e.g., filters, reverse osmosis devices, needle valves, etc) meet individual design requirements.

d. Verify system flow and output quality meets design specifications.

e. Verify the desalinization plant provides design rated flow to all systems that are supplied by the desalinated water transfer pumps.

f. Verify standby desalinated water transfer pumps start on low discharge pressure or a trip of the running pump.

g. Verify desalinated water transfer pumps trip on low desalinated water tank level.

4. DATA REQUIRED

a. Pump operating data.

b. Setpoints at which alarms and interlocks occur.

5. ACCEPTANCE CRITERIA

   a. The desalinization plant components can be manually controlled from all locations per design requirements.

   b. The automatic controls function such that system performance meets or exceeds the design requirements.

   c. The individual design requirements for the desalination plant pumps and equipment (e.g., filters, reverse osmosis devices, automatic valves, etc) have been met.

   d. The RWSS and desalination systems design specifications for system flow and output quality have been met.

   e. The desalinization plant provides design rated flow to all systems that are supplied by the desalinated water pumps.

   f. The standby desalinated water transfer pumps start on low discharge pressure or a trip of the running pump.

   g. The desalinated water transfer pumps trip on low desalinated water tank level.

   h. The desalinization plant operates as described in Section 9.2.9.

   i. The desalinization plant output water quality is in compliance with design specifications.

   ~~a. The desalinization plant operates as described in Section 9.2.11.~~

   ~~b. The desalinization plant output water quality is in compliance with design specifications.~~

14.2.14.2 Ultimate Heat Sink (UHS) Makeup Water System

1. OBJECTIVES

   a. To demonstrate the ability of the UHS Makeup Water System to supply makeup water as designed.

   b. To establish baseline performance data for future equipment surveillance and ISI.

2. PREREQUISITES

   a. Construction activities on the UHS Makeup Water System, including the test bypass line, have been completed and the system is functional.

   b. Construction activities on the ESW blowdown lines from the safety-related blowdown isolation MOVs to the retention basin have been completed, and the lines are isolable from the ESWS and functional.

c. Hydrostatic/leak testing of the UHS Makeup Water System, including the test bypass line, has been completed with satisfactory results.

d. UHS Makeup Water System instrumentation is functional and has been calibrated.

e. Support systems required for operation of the UHS Makeup Water System are complete and functional.

f. Test instrumentation available and calibrated.

3. TEST METHOD

a. Verify that each UHS Makeup Water System division can be operated from the main control room and the remote shutdown panel.

b. Verify safety-related automatic valves (MOVs, SOVs, AOVs) respond as designed to accident signal.

c. Verify valve position indication.

d. Verify position response of valves to loss of motive power.

e. Verify each discharge strainer operates as designed.

f. Verify flow through the SAQ room cooler in each room of both the UHS Makeup Water Intake Structure and UHS Electrical Building.

g. Verify alarms, interlocks, display instrumentation, and status lights function as designed.

h. Verify head versus flow characteristics for each UHS Makeup Water System pump at design conditions.

i. Verify valve performance data, where required.

4. DATA REQUIRED

a. Record alarm, interlocks, and control setpoints.

b. Record pump head versus flow and operating data.

c. Record valve performance parameters (e.g., stroke time, developed thrust) for baseline diagnostic testing data.

d. Record valve position upon loss of motive power and valve position indication data.

5. ACCEPTANCE CRITERIA

   a. Each UHS Makeup Water System division can be operated, as designed, from the main control room and the remote shutdown panel.

   b. The safety–related automatic valves (MOVs, SOVs, AOV,s) respond to the designated accident signal, as designed.

   c. The valve position indications properly indicate actual valve position.

   d. The position response of valves to loss of motive power is correct.

   e. The discharge strainers perform as designed.

   f. The flow through the SAQ room cooler in each room of both the UHS Makeup Water Intake Structure and UHS Electrical Building is per system design criteria.

   g. The alarms, interlocks, display instrumentation, and status lights function as designed.

   h. The head versus flow characteristics for each UHS Makeup Water System pump at design conditions has been met.

   i. The valves meet performance data where required.

   j. The UHS Makeup Water System operates per design and as described in Section 9.2.5.

   ~~a. The UHS Makeup Water System operates per design and as described in Section 9.2.1~~

14.2.14.3 Essential Service Water Blowdown System

1. OBJECTIVES

   a. To demonstrate the ability of the essential service water (ESW) blowdown system, including the alternate blowdown path, to provide blowdown flow for control of ESW chemistry as designed.

   b. To establish baseline performance data for future equipment surveillance and ISI.

2. PREREQUISITES

   a. Construction activities on the ESW blowdown system have been completed and the system is functional.

   b. Hydrostatic/leak testing of the ESW blowdown system has been completed with satisfactory results.

   c. Construction activities on and initial testing of the main ESW system have been completed.

   d. ESW blowdown system instrumentation is functional and has been calibrated.

e. Support systems required for operation of the ESW blowdown system are complete and functional.

f. ESW system is operating in its normal configuration.

g. Test instrumentation available and calibrated.

3. TEST METHOD

a. Verify that each ESW blowdown system division can be operated from the main control room and the remote shutdown panel.

b. Verify that each ESW blowdown system division's MOVs close automatically in response to an emergency signal.

c. Verify that the ESW blowdown system operates at the rated flow and design conditions.

d. Verify alarms, interlocks, display instrumentation, and status lights function as designed.

e. Verify valve performance data, where required.

f. Verify valve position indication.

4. DATA REQUIRED

a. Record alarm, interlocks, and control setpoints.

b. Record flow data.

c. Record MOV performance parameters (e.g., stroke time, developed thrust) for baseline diagnostic testing data.

5. ACCEPTANCE CRITERIA

a. Each ESW blowdown system division can be operated, as designed, from the main control room and the remote shutdown panel.

b. Each ESW blowdown system division MOV's close automatically in response to an emergency signal.

c. The ESW blowdown system operates at the rated flow and design conditions.

d. The alarms, interlocks, display instrumentation, and status lights function as designed.

e. The valves meet performance data where required.

f. The valve position indications properly indicate actual valve position.

g. The ESW blowdown system operates per design and as described in Section 9.2.5.

a. ~~The ESW blowdown system operates per design and as described in Section 9.2.1.~~

14.2.14.4 Essential Service Water Chemical Treatment System

1. OBJECTIVES

   a. To demonstrate the ability of the ESW chemical treatment system to provide treatment of ESW as designed.

   b. To establish baseline performance data for future equipment surveillance.

2. PREREQUISITES

   a. Construction activities on the ESW chemical treatment system have been completed and the system is functional.

   b. Hydrostatic/leak testing of the ESW chemical treatment system has been completed with satisfactory results.

   c. ESW chemical treatment system instrumentation is functional and has been calibrated.

   d. Support systems required for operation of the ESW chemical treatment system are complete and functional.

   e. Test instrumentation available and calibrated.

3. TEST METHOD

   a. Verify that each ESW division's chemical treatment system can be operated from the main control room and/or locally, as designed.

   b. Verify safety-related automatic valves (MOVs, SOVs, AOVs) respond as designed to accident signal.

   c. Verify alarms, interlocks, display instrumentation, and status lights function as designed.

   d. Verify valve position indication.

   e. Verify position response of valves to loss of motive power.

   f. Verify each ESW division's chemical treatment system provides the required chemistry conditions at the emergency makeup pump inlet, in the emergency makeup line, and in the ESW cooling tower, over the full range of operating variables.

   g. Verify valve performance data, where required.

4. DATA REQUIRED

   a. Record alarm, interlocks, and control setpoints.

   b. Record chemical flows and ESW chemistry data.

   c. Record valve performance parameters (e.g., stroke time, developed thrust) for baseline diagnostic testing data.

   d. Record valve position upon loss of motive power and valve position indication data.

5. ACCEPTANCE CRITERIA

   a. Each ESW division's chemical treatment system can be operated, as designed, from the main control room and or locally as designed.

   b. The safety-related automatic valves (MOVs, SOVs, AOV,s) respond to designated accident signal, as designed.

   c. The alarms, interlocks, display instrumentation, and status lights function as designed.

   d. The valve position indications properly indicate actual valve position.

   e. The position response of valves to loss of motive power is per design.

   f. Each ESW division's chemical treatment system provides the required chemistry conditions at the emergency makeup pump inlet, in the emergency makeup line, and in the ESW cooling tower, over the full range of operating variables.

   g. The valves meet performance data where required.

   h. The ESW chemical treatment system operates per design and as described in Section 9.2.5.

   ~~a. The ESW Chemical treatment system operates per design and as described in Section 9.2.1.~~

14.2.14.5 Waste Water Treatment Plant

1. OBJECTIVE

   a. To demonstrate the Waste Water Treatment Plant's ability to discharge treated liquid effluent safely to the environment and to process dewatered solids for offsite disposal, as designed and in accordance with local and state requirements.

2. PREREQUISITES

   a. Construction activities on the Waste Water Treatment Plant have been completed.

b. Sanitary waste water treatment system instrumentation is complete and functional and has been calibrated.

c. Support systems required for operation of the Waste Water Treatment Plant are complete and functional.

d. Test instrumentation available and calibrated.

3. TEST METHOD

a. Verify manual and automatic control of components per design requirements.

b. Verify alarm setpoints, valve position indications, and parameter displays.

c. Verify mechanical, chemical, and biological treatment components operate per design requirements.

d. Verify Waste Water Treatment Plant flows meet design specifications for both normal and maximum loading conditions.

e. Verify sanitary water treatment in accordance with local, state and federal requirements, for both normal and maximum loading conditions.

f. Verify biochemical oxygen demand is within design requirements.

g. Verify total suspended solids is within design requirements.

h. Verify moisture content of dewatered sludge is within design requirements.

4. DATA REQUIRED

a. Pump operating data.

b. Setpoints at which alarms and interlocks occur.

c. Effluent chemical, biological and moisture characteristics.

5. ACCEPTANCE CRITERIA

a. Manual and automatic control of components are per design requirements.

b. The alarm setpoints, valve position indications, and parameter displays are per design.

c. The mechanical, chemical, and biological treatment components operate per design requirements.

d. The Waste Water Treatment Plant flows meet design specifications for both normal and maximum loading conditions.

e. The sanitary water treatment system is in accordance with local, state and federal requirements for both normal and maximum loading conditions.

f. The biochemical oxygen demand is within design requirements.

g. The total suspended solids are within design requirements.

h. The moisture content of dewatered sludge is within design requirements.

~~a~~i. The Waste Water Treatment Plant operates per design requirements and as described in Section 9.2.4.

14.2.14.6 Fire Water Supply

1. OBJECTIVES

   a. To demonstrate the ability of the Fire Water Supply system to provide reliable supply of fire water to hydrants, hose stations and sprinkler systems throughout the plant.

   b. To establish baseline performance of the Fire Water Supply System.

2. PREREQUISITES

   a. Construction activities on the Fire Water Supply system have been completed.

   b. Fire Water Supply system instrumentation is complete and functional and has been calibrated.

   c. Support systems required for operation of the Fire Water Supply system are complete and functional.

   d. Test instrumentation available and calibrated.

3. TEST METHOD

   a. Verify manual control of Fire Water Supply system components from all locations as designed.

   b. Verify Fire Water Supply system pump and system flow meet design specifications.

   c. Verify the head and flow characteristics of the fire water pumps, and the operation of all auxiliaries.

   d. Verify control logic.

   e. Verify automatic operation of pre-action valves.

   f. Verify the Fire Water Supply system provides design rated flow to all discharge points.

g. Verify Fire Water Supply system jockey pump starts on low (lower setpoint) discharge header pressure.

h. Verify Fire Water Supply system jockey pump stops on normal (upper setpoint) discharge header pressure.

i. Verify Fire Water Supply system electric motor driven pump starts on low discharge header pressure.

j. Verify standby Fire Water Supply system diesel engine driven pump 1 starts on discharge header low pressure, or trip or failure to start of the running pump.

k. Verify standby Fire Water Supply system diesel engine driven pump 2 starts on discharge header low pressure, or trip or failure to start of the running pump.

l. Verify alarms, indicating instruments, and status lights function as designed.

4. DATA REQUIRED

a. Pump operating data.

b. Setpoints at which alarms and interlocks occur.

c. Flow rates at discharge points/points of supply.

5. ACCEPTANCE CRITERIA

a. The ability to manually control Fire Water Supply system components from various locations is as designed.

b. The Fire Water Supply system pump and system flow meet design specifications.

c. The head and flow characteristics of the fire water pumps, and the operation of all auxiliaries are per design.

d. The system control logic functions per design.

e. The automatic operation of pre-action valves is per system design.

f. The Fire Water Supply system provides design rated flow to all discharge points.

g. The Fire Water Supply system jockey pump starts on low (lower setpoint) discharge header pressure.

h. The Fire Water Supply system jockey pump stops on normal (upper setpoint) discharge header pressure.

i. The Fire Water Supply system electric motor driven pump starts on low discharge header pressure.

j. The Standby Fire Water Supply system diesel engine pump 1 starts on discharge header low pressure, or trip or failure to start of the running pump.

k. The Standby Fire Water Supply system diesel engine pump 2 starts on discharge header low pressure, or trip or failure to start of the running pump.

l. The alarms, indicating instruments, and status lights function as designed.

~~a~~m. The Fire Water Supply system operates per design requirements and as described in Section 9.5.1.

14.2.14.7 Circulating Water Supply System

1. OBJECTIVES

   a. To demonstrate the ability of the Circulating Water System, including circulating water makeup, blowdown, chemical treatment, and the {main cooling tower}, to provide continuous cooling to the main condensers as designed.

   b. To provide baseline operating data.

2. PREREQUISITES

   a. Construction activities on the Circulating Water System have been completed.

   b. Construction activities on the {main cooling tower} have been completed.

   c. Construction activities on circulating water makeup have been completed.

   d. Construction activities on circulating water chemical treatment have been completed.

   e. Construction activities on circulating water blowdown have been completed.

   f. Circulating Water System, including makeup, chemical treatment and {main cooling tower}, is complete and functional.

   g. Circulating Water System instrumentation is complete and functional and has been calibrated.

   h. Support systems required for operation of the Circulating Water System are complete and functional.

   i. Test instrumentation available and calibrated.

   j. Alarm functions verified for operability and limits.

k. The Circulating Water System flow balance has been completed.

l. The Circulating Water Supply System has been pressure tested to confirm system integrity.

m. Relief valve (if any) setpoints have been verified.

n. Test shall be performed before power ascension.

n. ~~Cooling tower performance testing requirements comply with Cooling Tower Institute (CTI) standards.~~

3. TEST METHOD

a. Verify Circulating Water System component manual control from all locations.

b. Verify automatic controls function at design setpoints.

c. Verify MOV operation and performance.

d. Verify standby circulating water makeup pump starts on low circulating water makeup header pressure.

e. Verify circulating water pumps' discharge head and system flow meet design requirements.

f. Verify auxiliary cooling water pumps' discharge head and auxiliary cooling water flow (with circulating water pumps off) meet design requirements.

g. Verify circulating water makeup pumps' discharge head and makeup flow meet design requirements.

h. Verify circulating water blowdown operates at rated flow and design conditions.

i. Verify chemical treatment provides required circulating water chemistry conditions in cooling tower piping and tower basin.

j. ~~Verify {cooling tower} performance using CTI's ATC-105, "Acceptance Test Code for Water-Cooling Towers", or equal.~~

4. DATA REQUIRED

a. Record of start, trip and alarm setpoints.

b. Record of circulating water pumps' head versus flow and operating data.

c. Record of auxiliary cooling pumps' head versus flow and operating data.

d. Record of circulating water makeup pumps' head versus flow and operating data.

e. Valve performance data, where required.

f. Flow data to basins of the {cooling tower}.

5. ACCEPTANCE CRITERIA

a. The ability to manually control the Circulating Water System from various locations is as per the design.

b. The automatic controls function such that system performance meets or exceeds the design requirements.

c. The MOV operation and performance is per design requirements.

d. The standby circulating water makeup pump starts on low circulating water header pressure.

e. The circulating water makeup pumps' discharge head and system flow meets or exceeds design requirements.

f. The auxiliary cooling water pumps' discharge head and auxiliary cooling water flow (with circulating water pumps off) meets or exceeds design requirements.

g. The circulating water makeup pumps' discharge head and makeup flow meets or exceeds design requirements.

h. The circulating water blowdown operates at rated flow and design conditions.

i. Chemical treatment provides circulating water chemistry conditions in cooling tower piping and tower basin per the design.

~~a~~j. The Circulating Water System operates as described in Section 10.4.5.

14.2.14.8 UHS Makeup Water Intake Structure Ventilation System

1. OBJECTIVES

a. To demonstrate the ability of the UHS Makeup Water Intake Structure Ventilation System to provide cooling and heating sufficient to maintain necessary operating environment for the UHS makeup water pumps and related equipment.

b. To establish baseline operating data for future equipment surveillance and ISI.

2. PREREQUISITES

a. Construction activities on the UHS Makeup Water Intake Structure Ventilation System have been completed.

b. UHS Makeup Water Intake Structure Ventilation System instrumentation is complete and functional and has been calibrated.

c. Support systems required for operation of the UHS Makeup Water Intake Structure Ventilation System are complete and functional.

d. The UHS Makeup Water Intake Structure is in its final configuration (doors and access points installed and wall, ceiling, and floor penetrations in their design condition).

e. Test instrumentation available and calibrated.

f. The UHS Makeup Water Intake Structure Ventilation System flow balance has been completed.

3. TEST METHOD

a. Verify control logic and interlock functions for each division.

b. Verify alarms, displays, indications and status lights both locally and in the main control room for each division.

c. Verify operation of dampers and damper controls per design requirements.

d. Verify operation of the ~~exhaust~~ fan units and dampers per design requirements.

e. Verify each division's air flow (both heating and cooling) meets design specifications.

f. Verify that room temperatures in the pump room in each division can be maintained within the design range under design ambient (heating load and cooling load) conditions.

4. DATA REQUIRED

a. Fan operating data.

b. Setpoints at which alarms and interlocks occur.

c. Unit heater operating data.

d. Powered damper operating data.

e. Air flow measurements in ducts.

f. Air flow measurements in inlets and outlets.

g. Temperatures of each division's pump room.

5. ACCEPTANCE CRITERIA

   a. The control logic and interlocks function per design.

   b. The alarms, displays, indications and status lights, both locally and in the main control room, for each division operate as designed.

   c. The operation of dampers and damper controls are as per design requirements.

   d. The operation of the fan units and dampers are as per the design requirements.

   e. Each division's air flow (both heating and cooling) meet design specifications.

   f. The room temperatures in the pump room in each division can be maintained within the design range of 41°F and < 104°F under design ambient (heating load and cooling load) conditions.

   g. The UHS Makeup Water Intake Structure Ventilation System operates per design requirements and as described in Section 9.4.15.

   ~~a. The UHS Makeup Water Intake Structure Ventilation System operates per design requirements and as described in Section 9.4.11.~~

14.2.14.9 UHS Electrical Building Ventilation System

1. OBJECTIVES

   a. To demonstrate the ability of the UHS Electrical Building Ventilation System to provide cooling and heating sufficient to maintain necessary operating environment for the electrical divisions supporting the UHS Makeup Water System.

   b. To establish baseline operating data for future equipment surveillance and ISI.

2. PREREQUISITES

   a. Construction activities on the UHS Electrical Building Ventilation System have been completed.

   b. UHS Electrical Building Ventilation System instrumentation is complete and functional and has been calibrated.

   c. Support systems required for operation of the UHS Electrical Building Ventilation System are complete and functional.

   d. The UHS Electrical Building is in its final configuration (doors and access points installed and wall, ceiling, and floor penetrations in their design condition).

   e. Test instrumentation available and calibrated.

f. The UHS Electrical Building Ventilation System flow balance has been completed.

3. TEST METHOD

a. Verify control logic and interlock functions for each division.

b. Verify alarms, displays, indications and status lights both locally and in the main control room for each division.

c. Verify operation of dampers and damper controls per design requirements.

d. Verify operation of the ~~exhaust~~ fan units and dampers per design requirements.

e. Verify each division's air flow (both heating and cooling) meets design specifications.

f. Verify that room temperatures in the electrical equipment room in each division can be maintained within the design range under design ambient (heating load and cooling load) conditions.

4. DATA REQUIRED

a. Fan operating data.

b. Setpoints at which alarms and interlocks occur.

c. Unit heater operating data.

d. Powered damper operating data.

e. Air flow measurements in ducts.

f. Air flow measurements in inlets and outlets.

g. Temperatures of each division's electrical equipment room.

5. ACCEPTANCE CRITERIA

a. The control logic and interlock functions for each division are as designed.

b. The alarms, displays, indications and status lights both locally and in the main control room for each division operate as designed.

c. The operation of dampers and damper controls are as per design requirements.

d. The operation of the fan units and dampers are as per the design requirements.

e. Each division's air flow (both heating and cooling) meet design specifications.

f. The room temperatures in the electrical equipment room in each division can be maintained within the design range of >41 °F and < 104 °F under design ambient (heating load and cooling load) conditions.

g. The UHS Electrical Building Ventilation System operates per design requirements and as described in Section 9.4.15.

~~a. The UHS Electrical Building Ventilation System operates per design requirements and as described in Section 9.4.11.~~

14.2.14.10 Cooling Tower Acceptance

1. OBJECTIVES

   a. To demonstrate the Cooling Tower is capable of rejecting the design heat load.

2. PREREQUISITES

   a. Construction activities are complete.

   b. Circulating Water System flow balance has been performed.

   e. Permanently installed instrumentation is functional and calibrated. Test instrumentation is available and calibrated.

   f. Plant output is at approximately rated power.

3. TEST METHOD

   a. Perform a measurement of the cooling tower performance using Cooling Tower Institute (CTI) standards.

4. DATA REQUIRED

   a. Cooling water temperature and flows.

5. ACCEPTANCE CRITERIA

   a. The cooling tower performance meets manufacturers design as described in Section 10.4.5.

RAI No. 14.02-4

As stated in Regulatory Guide (RG) 1.68, testing should include verification of redundancy and electrical independence. Appendix A to RG 1.68 provides a representative list of SSCs that should undergo preoperational testing. For many systems including but not limited to the circulating water system, cooling towers, cooling water systems, raw water system and service water system, and fire protection systems Appendix A to RG 1.68 states that tests should be conducted to verify redundancy and electrical independence of these SSCs.

The staff notes that a number of test abstracts in Section 14.2.14 of the CCNP3 COL do not provide for verification of redundancy and electrical independence, as recommended by RG 1.68. Consistent with this guidance, the staff requests that UniStar revise the applicable test abstracts under Section 14.2.14 to include verification of redundancy and electrical independence of affected SSCs or explain why such verification is not necessary.

Response:

The U.S. EPR FSAR Section 14.2.12.12.17 is the Integrated Engineered Safety Features/Loss of Power (Test # 153). This test has been incorporated by reference in the CCNPP Unit 3 COLA. This test includes acceptance criteria that states, Electrical redundancy, independence, and load group assignments are as designed." This test will ensure the electrical redundancy, independence, and load group assignments of the SSCs covered within the scope of the US EPR and CCNPP Unit 3 site-specific SSCs including the Ultimate Heat Sink Makeup System (CCNPP Unit 3 FSAR 14.2.14.2), UHS Makeup Water Intake Structure Ventilation System (CCNPP Unit 3 FSAR 14.2.14.8), and UHS Electrical Building Ventilation System (CCNPP Unit 3 FSAR 14.2.14.9).

The Raw Water Supply System (CCNPP Unit 3 FSAR Section 14.2.14.1), Essential Service Water Blowdown System (CCNPP Unit 3 FSAR Section 14.2.14.3), Essential Service Water Chemical Treatment System (CCNPP Unit 3 FSAR Section 14.2.14.4), Waste Water Treatment Plant (CCNPP Unit 3 FSAR Section 14.2.14.5), Fire Water Supply (CCNPP Unit 3 FSAR Section 14.2.14.6), and the Circulating Water Supply System (CCNPP Unit 3 FSAR Section 14.2.14.7) are not safety related and therefore are not included in the redundancy and electrical independence verifications.

FSAR Impact:

None