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UniStar
NUCLEAR ENERGY

10 CFR 50.4
10 CFR 52.79

July 29, 2011

UN#11-213

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,
RAI 279, Ultimate Heat Sink

Reference:
1) Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "Final RAI 279 SBPA 2618," email dated January 21, 2011

2) UniStar Nuclear Energy Letter UN#11-197, from Greg Gibson to Document Control Desk, U.S. NRC, Submittal of Response to RAI No. 279, Ultimate Heat Sink, dated June 30, 2011

The purpose of this letter is to respond to the request for additional information (RAI) identified in the NRC e-mail correspondence to UniStar Nuclear Energy, dated January 21, 2011 (Reference 1). RAI 279 addresses the Ultimate Heat Sink, as discussed in Section 9.2.5 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Calvert Cliffs Nuclear Power Plant, Unit 3 Combined License Application (COLA), Revision 7.

Reference 2 provided a response date of July 29, 2011, for RAI Questions 09.02.05-4, 09.02.05-7, 09.02.05-11, 09.02.05-16, and 09.02.05-17.

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NRO

The Enclosure provides our response to RAI No. 279 Questions 09.02.05-4, 09.02.05-11, 09.02.05-16, and 09.02.05-17, and includes revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate these changes into a future revision of the COLA.

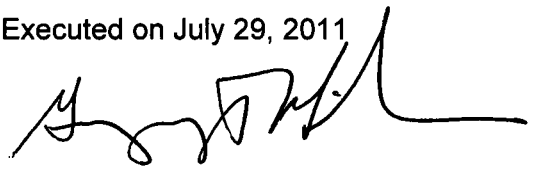
UniStar Nuclear Energy requires additional time to finalize the response to RAI 279 Question 09.02.05-7. The response to Question 09.02.05-7 will be provided by August 19, 2011.

There are no regulatory commitments identified in this letter. This letter does not contain any proprietary or sensitive information.

If there are any questions regarding this transmittal, please contact me at (410) 470-4205, or Mr. Wayne A. Massie at (410) 470-5503.

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

Executed on July 29, 2011



Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI No. 279, Questions 09.02.05-4, 09.02.05-11, 09.02.05-16, and 09.02.05-17, Ultimate Heat Sink, Calvert Cliffs Nuclear Power Plant, Unit 3

cc: Surinder Arora, NRC Project Manager, U.S. EPR Projects Branch
Laura Quinn, NRC Environmental Project Manager, U.S. EPR COL Application
Getachew Tesfaye, NRC Project Manager, U.S. EPR DC Application
Charles Casto, Deputy Regional Administrator, NRC Region II
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2
U.S. NRC Region I Office

Enclosure
Response to NRC Request for Additional Information RAI No. 279,
Questions 09.02.05-4, 09.02.05-11, 09.02.05-16, and 09.02.05-17,
Ultimate Heat Sink,
Calvert Cliffs Nuclear Power Plant, Unit 3

RAI No. 279

NRC Question 09.02.05-4

The ultimate heat sink (UHS) must be able to withstand natural phenomena without the loss of function in accordance with General Design Criteria (GDC) 2 requirements. U.S. Evolutionary Power Reactor (EPR) Final Safety Analysis Report (FSAR) Section 3.5.2, "Structures, Systems, and Components (SSCs) to be Protected from Externally Generated Missiles," states that the essential service water system (ESWS) building including underground piping cables and instrumentation between the ESWS building and other safety related SSCs are missile protected and meet the recommendations in Regulatory Guide (RG) 1.27, "Ultimate Heat Sink for Nuclear Power Plants." CCNPP Unit 3, FSAR Section 3.5.2 states that there are no departures or supplements. Since the UHS makeup water intake structure is outside the scope of the U.S. EPR design certification and includes safety related components to support the UHS from 72 hours to 30 days post accident the applicant needs to revise the CCNPP FSAR to demonstrate that the structure is missile protected In addition, the applicant needs to revise the CCNPP FSAR to demonstrate that the safety related underground piping system which includes the test bypass, blowdown, alternate blowdown, normal makeup and associated motor operated valves (MOVS) are missile protected.

Response to NRC Question 09.02.05-4 Part 1- Missile Protection for UHS MWIS:

The UHS makeup water intake structure (UHS MWIS) is designed and built for protection against natural phenomena and potential resulting missile hazards as stated in CCNPP Unit 3 COLA FSAR Subsection 9.2.5.5. FSAR Section 3.5.2 will be revised as shown in the COLA Impact section of this response to address the UHS makeup water system buried components.

Response to NRC Question 09.02.05-4 Part 2- Missile Protection for UHS MWS Underground Piping:

The site-specific UHS makeup system components such as pumps, traveling screens, screen wash pumps and motor operated valves (MOVs) are located inside the UHS MWIS. The UHS MWIS is designed and built for protection against natural phenomena and potential resulting missile hazards as stated in CCNPP Unit 3 COLA FSAR Subsection 9.2.5.5. FSAR Subsection 9.2.5.5 will be supplemented as shown in the COLA Impact section of this response to address the UHS makeup water system buried components.

The UHS makeup water system buried components, including underground piping, cables, and instrumentation from the UHS makeup water intake structure to the essential service water pump building are buried at a sufficient depth to withstand the effects of any postulated missile hazards.

Emergency blowdown piping located outside the essential service water building is a safety-related path as described in the response to U.S. EPR FSAR RAI 345[1], Question 09.02.01-42 (a) and therefore designed to withstand natural phenomena without the loss of function in accordance with General Design Criteria (GDC) 2 requirements.

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[1] Areva Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 9, dated November 4, 2010 (ADAMS Accession No. ML103090066).

The test bypass MOV is located inside the essential service water building, which is designed and built for protection from postulated missile hazards. Since the test bypass piping outside the essential service water building is non safety-related, this piping is not designed to withstand natural phenomena.

The underground piping system consisting of piping from normal/alternate blowdown system and normal makeup system outside the essential service water building is non safety-related and therefore the piping is not designed to withstand natural phenomena.

COLA Impact

FSAR Subsection 3.5.2, "Structures, Systems, and Components to Be Protected From Externally Generated Missiles" will be revised as follows:

3.5.2 Structures, Systems, and Components to Be Protected From Externally Generated Missiles

{~~No departures or supplements~~The UHS makeup water system buried components, including underground piping, cables, and instrumentation from the UHS makeup water intake structure to the essential service water pump building are buried at a sufficient depth to withstand the effects of postulated missile hazards.}

FSAR Subsection 9.2.5.5, "Safety Evaluation" will be supplemented to add the following bullet:

9.2.5.5 Safety Evaluation

...

- Has seismically qualified and installed (buried) piping runs from the UHS Makeup Water Intake Structure to the individual ESWS cooling tower basins.

- As described in FSAR Section 3.5.2, the UHS makeup water system buried components, including underground piping, cables, and instrumentation from the UHS makeup water intake structure to the essential service water pump building are buried at a sufficient depth to withstand the effects of postulated missile hazards.

- Is treated to meet specified limits on system water chemistry in order to prevent potentially detrimental fouling of stagnant piping sections and surfaces.

...

RAI No. 279

NRC Question 09.02.05-11

The essential service water system (ESWS) and ultimate heat sink (UHS) must be capable of removing heat from SSCs important to safety during normal operating and accident conditions over the life of the plant in accordance with GDC 44 requirements. The staff reviewed FSAR Section 9.2.5.7, "Instrumentation Applications," which states that for the UHS makeup water system valve limits switches, pressure, temperature and differential pressures sensors are provided for local and remote displays. The staff's review of this section concluded that important instruments (system monitoring parameters) for monitoring a safety related system were not specifically stated and some instruments were missing, such as piping system flow instruments, strainer differential pressures, screen wash flow, travelling screen differential pressures, radiation monitors, and intake structure water level. Instrument locations were not shown on Figure 9.2-3 and any automatic closure valves which close on an accident signal or valves that automatically open were not graphically shown with a symbol of the logic signals. The applicant should show these missing instruments on the FSAR drawings related to FSAR Section 9.2.5. In addition, the applicant should determine if this safety related system should be controlled or monitored at the remote shutdown panel.

Response

The safety-related portions of UHS Makeup Water System have instruments for monitoring the system. CCNPP Unit 3 COLA Revision 7, FSAR Figure 9.2-3 is a conceptual figure to provide information on the interfaces of the UHS Makeup Water System with the Essential Service Water System. The UHS Makeup Water System P&ID is shown in CCNPP Unit 3 COLA Revision 7, FSAR Figure 9.2-9, "UHS Makeup Water System." CCNPP Unit 3 COLA FSAR Figure 9.2-9 depicts the instrumentation and controls for monitoring the safety-related portions of the UHS Makeup Water System, such as flow, strainer differential pressures, and intake structure water level.

The UHS Makeup Water traveling screen wash system components are classified as NS-AQ, and are designed as Seismic Category II, but are not credited for mitigation of a Design Basis Accident. However, the screen wash system spray nozzles, spray nozzle header, alternate connection and motor operated isolation valve are designed to withstand design basis seismic loads in order to permit manual operation actions for cleaning of the screen panels. Associated instrumentation alerting operators of the need to clean the traveling screens to support operation and manual operator action is classified as safety-related.

The radiation monitors for the ESWS are described in the response to U.S. EPR Design Certification Application RAI 345, Question 09.02.01-39[2]. Radiation monitoring of the ESWS/UHS system is discussed as part of the Response to RAI 279, Question 09.02.05-16 (this enclosure).

U.S. EPR FSAR Tier 2 Subsection 9.2.1.7, "Instrumentation Requirements" of the ESWS describes the interface of the UHS Makeup Water System and the automatic alignment of the ESWS emergency makeup water isolation valve upon receipt of an accident signal. The portion

[2] Areva Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 9, dated November 4, 2010 (ADAMS Accession No. ML103090066).

of the makeup water system that is located inside each ESW Pump Building at the UHS cooling tower basin is shown in U.S. EPR FSAR Figure 9.2.5-1. The UHS Makeup Water System valve and component logic signals are not shown on CCNPP Unit 3 COLA, FSAR Figures 9.2-3 and 9.2-9, which is consistent with the level of detail for the figures of systems in the U.S. EPR FSAR. The descriptions of automation features and alarms for UHS Makeup Water System valves, pumps and other components will be added to CCNPP Unit 3 COLA FSAR Subsection 9.2.5.7 and new FSAR Table 9.2-2 "UHS Makeup Water System Alarm Summary," as part of the response to RAI 279, Question 09.02.05-7 (part c). The logic associated with automatic valve operations due to an accident signal will also be described as part of the response to RAI 279, Question 09.02.05-7 (part c).

The safety-related portions of the UHS Makeup Water system are controlled and monitored from the Main Control Room and the Remote Shutdown Station for pressure, flow, differential pressure, pump status and valve position. CCNPP Unit 3 FSAR Table 9.2-2, "UHS Makeup Water System Alarm Summary" will be added as part of the response to RAI 279, Question 09.02.05-7 (part c).

COLA Impact

COLA FSAR Subsection 9.2.5.2.3 will be revised as described below:

9.2.5.2.3 UHS Makeup Water System

...
Instrumentation and controls are provided in the main control room (MCR) and remote shutdown station (RSS) for monitoring and controlling individual components and system function. Switchgear and electrical equipment supplying power to the ~~each train's~~ pump and MOVs of each train are located in its associated ~~pump~~ UHS Makeup Water pump room and UHS Makeup Water transformer room.
...

RAI No. 279

NRC Question 09.02.05-16

Means must be provided for monitoring effluent discharge paths and the plant environs for radioactivity that may be released in accordance with GDC 64 requirements. Also, 10 CFR 52.79(a)(45) and 10 CFR 20.1406 require COL applicants to describe how facility design and procedures for operation will minimize contamination of the facility and the environment.

According to Standard Review Plan (SRP) Section 9.2.1, the staff must verify that provisions are provided to detect and control leakage of radioactive contamination into and out of the ESWS, which is part of the UHS and the UHS blowdown. The UHS blowdown is a release point to the environment from the ESWS. The design is considered to be acceptable by the staff if the UHS/ESWS drawings show that radiation monitors at components that are susceptible to leakage, and if the components that are susceptible to leakage can be isolated. However, the staff noted that FSAR Section 9.2.5 does not include radiation monitors in the system design and the NRC regulations in this regard have not been addressed. Therefore, additional information needs to be included in Tier 2 FSAR Section 9.2.5 to address this issue.

Response

The response to U.S. EPR Design Certification Application RAI 345, Question 09.02.01-39[3] Supplement 12, indicates that four separate radiation monitors will be installed, one for each of the four Essential Service Water System (ESWS) trains, located downstream of the Component Cooling Water System (CCWS) heat exchanger. Also, a radiation monitor will be installed in the dedicated train, downstream of the dedicated CCWS heat exchanger in the ESWS. The ESWS radiation monitors are shown in the markup of U.S. EPR FSAR Figure 9.2.1-1 (Revision 3 – Interim) attached to the response to U.S. EPR Design Certification Application RAI 345, Question 09.02.01-39[3].

Additional radiation monitors are not required in the site-specific portion of the UHS blowdown line from the discharge of the ESWS pump to comply with NRC regulatory requirements of GDC 64, 10 CFR 52.79(a)(45) and 10 CFR 20.1406.

COLA Impact

COLA FSAR Subsection 9.2.5.7 will be revised as described below:

9.2.5.7 Instrumentation Applications

Instrumentation is applied to the ESWS Normal Makeup Water System, UHS Makeup Water System and blowdown, to the extent necessary to monitor essential component conditions and verify real time system performance. This includes limit switches that provide remote position indication for valves. It also includes pressure, temperature and differential pressure sensors that provide local and remote display of system pressure, temperature and flow. In addition, temperature and amperage sensors can be used for indirect flow indication and direct indication

[3] Areva Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 12, dated February 15, 2011 (ADAMS Accession No. ML110460698).

of component status. Radiation monitors in the ESWS will detect a potential radiation leak and provide an alarm in the main control room for operator action.

...

RAI No. 279

NRC Question 09.02.05-17

According to Standard Review Plan (SRP) 9.2.5, the overall arrangement of the ultimate heat sink (UHS) needs to comply with GDC 44. The staff reviewed the inspection, tests, analysis, and acceptance criteria (ITAAC) information provided in the CCNPP Unit 3 application, Part 10, Table 2.4-9 and Table 2.4-24, to confirm completeness and consistency with the plant design basis as described in CCNPP Unit 3 FSAR Section 9.2.5. The staff found that the ITAAC information is incomplete, inconsistent, inaccurate, or that clarification is needed with respect to the following considerations:

- Table 2.4-9, item 2 does not specifically state to inspect the buried piping system for the UHS makeup water system for proper pipe sizes.
- Table 2.4-9, item 8 does not specifically state to inspect the buried piping system for the for the rubber liner as stated in Table 2.4-24, item 14, SA-106 grade B with a rubber liner or ASME SB-675 stainless steel. The buried piping coating material was not specified and the specific type of inspection was not identified.
- Table 2.4-24 does not specifically state to inspect ASME pipe supports for the UHS makeup water system.
- Table 2.4-24, item 5 does not specifically state to inspect check valves.
- Table 2.4-24, item 16 states to test the min-flow recirculation valve opens in the event the pump discharge valves fails to open. This design feature is not described in FSAR Section 9.2.5 and the valve is not shown on Figure 9.2-3 as a valve with logic controls or labeled as min-flow recirculation valve.
- Table 2.4-24, item 16 states that the pump discharge valves opens on a pump start. This design feature is not described in FSAR Section 9.2.5 and the valve is not shown on Figure 9.2-3 as a valve with logic controls.
- Table 2.4-24 does not specifically state that all valves that receive a logic signal to close/open are tested.
- Table 2.4-24 does not specifically state that the screen wash system and travelling screens are tested.
- Table 2.4-24 does not specifically state that displays and controls are present in the main control room and remote shutdown panel.

Response

NRC issued RAI 279, Question 09.02.05-17 (dated 01-21-2011) based on the review of Calvert Cliffs Nuclear Power Plant Unit 3 (CCNPP Unit 3) COLA Revision 6, FSAR Section 9.2.5. On December 20, 2011, UniStar submitted to the NRC CCNPP Unit 3 COLA Revision 7, which included revision to COLA Part 10 (ITAAC). Revision 7 of COLA Part 10 Appendix B "Tables 2.4-9 and 2.4-24", have been renumbered respectively as "Tables 2.4-8 and 2.4- 22". The RAI Question 09.02.05-17 response is therefore based on Revision 7 of COLA Part 10 Appendix B Tables 2.4-8 and 2.4-22.

Response to Question 09.02.05-17, Bullet-1 (Inspection of Pipe Size):

COLA Revision 7, Part 10 Appendix B Table 2.4-8 (COLA Revision 6, Part 10 Appendix B Table 2.4-9) does not specifically commit to inspect the buried piping system for the UHS Makeup Water System for proper pipe sizes. The Makeup Water System is a safety-related ASME Code

Section III Class 3 system that is designed and installed according to the applicable quality assurance requirements. The underground pipe sizes and other design features are verified during the installation process and documented by quality assurance records. Additionally, COLA Revision 7, Part 10 Appendix B Table 2.4-22 ITAAC Item 17 commits to perform testing and analysis to verify that each division of the UHS Makeup Water System provides greater than or equal to 300 gallons per minute of makeup water. Successful completion of this ITAAC assures the capability of the system to provide the necessary makeup water flow, and that the installed pipe sizes are sufficient to meet the system performance requirements.

Response to Question 09.02.05-17, Bullet-2 (Buried Piping Coating Material/Inspection):

COLA Revision 6 Part 10 Appendix B Table 2.4-9 ITAAC Item 8 which addressed 'protective waterproof wrapping or coating' was deleted in COLA Revision 7 in response to RAI 118[4], Question 14.03.02-2, Item G, Part 3. As part of the response to RAI 279, Question 09.02.05-7, COLA Revision 7 Part 10 Appendix B Table 2.4-22 ITAAC Item 13 (COLA Revision 6, Part 10 Appendix B Table 2.4-24 ITAAC item 14) will be revised to include analysis and inspection of the UHS Makeup Water System above ground and buried piping to verify compatibility of the piping material and internal/external linings with the as-built environmental conditions and brackish water. Also, discussion of UHS Makeup Water System piping materials and coatings will be provided as part of the response to RAI 279, Question 09.02.05-7.

Response to Question 09.02.05-17, Bullet-3 (Pipe Support):

COLA Revision 7, Part 10 Appendix B Table 2.4-22 (COLA Revision 6, Part 10 Appendix B Table 2.4-24) will be revised to include pipe supports of the UHS Makeup Water System for inspections related to ASME Code Section III piping of ITAAC Item 9 in Part 10 Appendix B Table 2.4-22 of COLA Revision 7.

Response to Question 09.02.05-17, Bullet-4 (Check Valve Inspection):

COLA Revision 7, Part 10 Appendix B Table 2.4-22 provides a reference to Appendix B Table 2.4-29. Table 2.4-29 of COLA Revision 7 includes UHS Makeup Water System Seismic Category I components including check valves. Therefore, the inspections identified in Part 10 Appendix B Table 2.4-22 Item 5 apply to the Seismic Category I check valves of the system.

Response to Question 09.02.05-17, Bullet-5 (Minimum Flow Recirculation Valve Design Feature):

COLA Revision 7, Part 10 Appendix B Table 2.4-22 ITAAC Item 15 is the same as COLA Revision 6, Part 10 Appendix B Table 2.4.24 ITAAC Item 16. COLA FSAR Subsection 9.2.5.3.2 will be revised to provide a description of the min-flow recirculation valve design feature. COLA FSAR Figure 9.2-3 is intended to show the UHS Makeup Water System as a general schematic of the normal makeup, emergency makeup, blowdown and chemical treatment systems together. COLA Revision 7 FSAR Figure 9.2-9 shows the UHS Makeup Water System, including the minimum flow recirculation loop piping and valve. Consistent with the level of detail of the U.S. EPR FSAR and COLA FSAR figures, valve logic is not shown in the UHS Makeup Water System figures.

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[4] UniStar Nuclear Energy Letter UN#10-217, from Greg Gibson to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 118, Structural and Systems Engineering – Inspections, Tests, Analyses, and Acceptance Criteria, dated August 6, 2010

Response to Question 09.02.05-17, Bullet-6 (Pump Discharge Valve Design Feature):

COLA Revision 7, Part 10 Appendix B Table 2.4-22 ITAAC Item 15 is the same as COLA Revision 6, Part 10 Appendix B Table 2.4.24 ITAAC Item 16. COLA FSAR Subsection 9.2.5.3.2 will be revised to provide a description of the pump discharge motor-operated isolation valve design feature. COLA FSAR Figure 9.2-3 shows the UHS Makeup Water System as a general schematic of the normal makeup, emergency makeup, blowdown and chemical treatment systems together. COLA Revision 7 FSAR Figure 9.2-9 shows the UHS Makeup Water System, including the UHS Makeup Water pump discharge isolation valve. Consistent with the level of detail of the U.S. EPR FSAR and COLA FSAR figures, valve logic is not shown in the UHS Makeup Water System figures.

Response to Question 09.02.05-17, Bullet-7 (Testing of Valves Receiving Logic Signal to Close/Open):

COLA Revision 7, Part 10 Appendix B Table 2.4-22, ITAAC Item 19 (updated from COLA Revision 6, Part 10 Appendix B Table 2.4-24) prescribes tests and analyses or a combination of tests and analyses to be performed to verify the commitment that "The motor-operated valves listed in Table 2.4-29 can perform the function listed in Table 2.4-29 under system operating conditions." COLA Revision 7, Part 10 Appendix B Table 2.4-29 includes the UHS Makeup Water System ASME Code Section III motor operated valves and identifies their respective function.

Response to Question 09.02.05-17, Bullet-8 (Testing of Screen Wash System/Travelling Screens):

COLA Revision 7, Part 10 Appendix B Table 2.4-22 ITAAC Item 7 (updated from COLA Revision 6, Part 10 Appendix B Table 2.4-24 ITAAC Item 7) prescribes type tests, analysis, or a combination of type tests and analysis to be performed to verify the UHS Makeup Water dual flow traveling screens and screen wash pump can withstand seismic design basis loads without loss of mechanical function. Also, COLA Revision 7, Part 10 Appendix B Table 2.4-22, ITAAC Item 22 requires tests to be performed on the UHS Makeup Water Intake Structure dual flow traveling screens to verify that the screens can be manually cleaned and rotated. The tests would verify that the traveling screens can be rotated manually following loss of motive power or failure of its electric motor drive, in addition to verifying that the screens can be manually cleaned upon a loss of its screen wash system.

Response to Question 09.02.05-17, Bullet-9 (Displays/Controls in MCR/RSP):

COLA Revision 7, Part 10 Appendix B Table 2.4-28 ITAAC Items 2 and 3 identify the ITAAC tests to be performed for verification of the UHS Makeup Water System displays and controls in both the main control room and the remote shutdown station. COLA Revision 7, Part 10 Appendix B Table 2.4-28 ITAAC Items 2 and 3 will be revised to include the self-cleaning strainers to the list of UHS Makeup Water System equipment having displays and controls in the main control room and remote shutdown station, in order to provide a comprehensive list of the system Class 1E equipment. Additionally, COLA FSAR Section 9.2.5.3.2 will be revised to include the pump discharge strainer blowdown isolation valves in the list of UHS Makeup Water System isolation valves. To maintain consistent terminology between the COLA FSAR and the COLA ITAAC, valve descriptions associated with the UHS Makeup Water System pump

discharge strainer will be revised in COLA Part 2, FSAR Tables 3.9-2, 3.10-1 and 3.11-1, and COLA Part 10, Appendix B Tables 2.4-22, 2.4-28 and 2.4-29.

COLA Impact

COLA FSAR Subsection 9.2.5.3.2 will be revised as described below:

9.2.5.3.2 Piping, Valves, and Fittings

...

UHS Makeup Water System Pumps

There are four vertical turbine pumps, each rated at 750 gpm (approximately 2835 lpm). Each pump is driven by an electric motor, and is equipped with a discharge check valve and motor operated isolation valve. Opening of the motor-operated isolation valve is timed with the start of the associated UHS Makeup Water Pump to minimize dynamic effects on the system. A minimum flow recirculation valve opens in the event the pump discharge valve fails to open, to assure pump minimum flow requirements are satisfied. ~~They~~ The four vertical turbine pumps are designed to ASME Section III, Class 3 requirements, and constructed of materials compatible with the brackish UHS makeup water.

UHS Makeup Water System Isolation Valves

The UHS Makeup Water System isolation valves are safety-related MOVs designed to ASME Section III, Class 3 requirements, and are made of materials compatible with the brackish UHS makeup water. For each train, there are UHS Makeup Water System Pump isolation, minimum flow recirculation, pump discharge strainer blowdown isolation, and initial fill isolation MOVs, the UHS Makeup Water System isolation MOV at the ESWS cooling tower basin, and the UHS Makeup Water System bypass isolation MOV.

...

COLA FSAR Table 3.9-2 will be revised as follows (only portions of the table are shown to identify the location of the changes and the changes themselves):

Table 3.9-2— {Site-Specific Inservice Valve Testing Program Requirements}

Valve Identification Number[1]	Description/ Valve Function	Valve Type[2]	Valve Actuator[3]	ASME Code Class[4]	ASME OM Code Category[5]	Active/ Passive[6]	Safety Position[7]	Test Required[8, 11]	Test Frequency[9]	Comments
Ultimate Heat Sink (UHS) Makeup Water System - Train 1										
...										
30PED10AA005A	UHS Makeup Water Train 1 Test Bypass Isolation Valve	BF	MO	3	B	A	C	ET PI	Q 2Y	
30PED10AA006A	UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Train 1	GT	MO	3	B	A	C	ET PI	Q 2Y	
-	UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 1	BF	MA	3	B	P	O	ET PI	2Y 2Y	
...										

Table 3.9-2— {Site-Specific Inservice Valve Testing Program Requirements}

Valve Identification Number[1]	Description/ Valve Function	Valve Type[2]	Valve Actuator[3]	ASME Code Class[4]	ASME OM Code Category[5]	Active/ Passive[6]	Safety Position[7]	Test Required[8, 11]	Test Frequency[9]	Comments
Ultimate Heat Sink (UHS) Makeup Water System - Train 2										
...										
30PED20AA005A	UHS Makeup Water Train 1 Test Bypass Isolation Valve	BF	MO	3	B	A	C	ET PI	Q 2Y	
30PED20AA006A	UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Train 2	GT	MO	3	B	A	C	ET PI	Q 2Y	
-	UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 2	BF	MA	3	B	P	O	ET PI	2Y 2Y	
...										

Table 3.9-2— {Site-Specific Inservice Valve Testing Program Requirements}

Valve Identification Number[1]	Description/ Valve Function	Valve Type[2]	Valve Actuator[3]	ASME Code Class[4]	ASME OM Code Category[5]	Active/ Passive[6]	Safety Position[7]	Test Required[8, 11]	Test Frequency[9]	Comments
Ultimate Heat Sink (UHS) Makeup Water System - Train 3										
...										
30PED30AA005A	UHS Makeup Water Train 1 Test Bypass Isolation Valve	BF	MO	3	B	A	C	ET PI	Q 2Y	
30PED30AA006A	UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Train 3	GT	MO	3	B	A	C	ET PI	Q 2Y	
-	UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 3	BF	MA	3	B	P	O	ET PI	2Y 2Y	
...										

Table 3.9-2— {Site-Specific Inservice Valve Testing Program Requirements}

Valve Identification Number[1]	Description/ Valve Function	Valve Type[2]	Valve Actuator[3]	ASME Code Class[4]	ASME OM Code Category[5]	Active/ Passive[6]	Safety Position[7]	Test Required[8, 11]	Test Frequency[9]	Comments
Ultimate Heat Sink (UHS) Makeup Water System - Train 4										
...										
30PED40AA005A	UHS Makeup Water Train 1 Test Bypass Isolation Valve	BF	MO	3	B	A	C	ET PI	Q 2Y	
30PED40AA006A	UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Train 4	GT	MO	3	B	A	C	ET PI	Q 2Y	
-	UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 4	BF	MA	3	B	P	O	ET PI	2Y 2Y	
...										

COLA FSAR Table 3.10-1 will be revised as follows (only portions of the table are shown to identify the location of the changes and the changes themselves):

Table 3.10-1— {Seismic and Dynamic Qualifications of Mechanical and Electrical Equipment}

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)		EQ Program Designation (Note 5)
...									
UHS Makeup Water Pump Discharge Strainer Motor Actuator Train 1	30PED10A T001	30UPF020 01	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Filter~~ Drain Valve 1 Train 1	30PED10A A405	30UPF020 01	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Filter~~ Drain Valve 2 Train 1	30PED10A A406	30UPF020 01	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Train 1	30PED10A A006	30UPF020 01	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Motor Actuator Train 1	30PED10A A006	30UPF020 01	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 1	-	30UPF020 01	M	M	ES	SI	S	C/NM	Y(5)
...									

Table 3.10-1— {Seismic and Dynamic Qualifications of Mechanical and Electrical Equipment}

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)		EQ Program Designation (Note 5)
...									
UHS Makeup Water Pump Discharge Strainer Motor Actuator Train 2	30PED20AT001	30UPF02004	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Filter~~ Drain Valve 1 Train 2	30PED20AA405	30UPF02004	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Filter~~ Drain Valve 2 Train 2	30PED20AA406	30UPF02004	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Train 2	30PED20AA006	30UPF02004	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Motor Actuator Train 2	30PED20AA006	30UPF02004	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 2	-	30UPF02004	M	M	ES	SI	S	C/NM	Y(5)
...									

Table 3.10-1— {Seismic and Dynamic Qualifications of Mechanical and Electrical Equipment}

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)		EQ Program Designation (Note 5)
...									
UHS Makeup Water Pump Discharge Strainer Motor Actuator Train 3	30PED30A T001	30UPF020 06	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Filter~~ Drain Valve 1 Train 3	30PED30A A405	30UPF020 06	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Filter~~ Drain Valve 2 Train 3	30PED30A A406	30UPF020 06	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Train 3	30PED30A A006	30UPF020 06	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Motor Actuator Train 3	30PED30A A006	30UPF020 06	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 3	-	30UPF020 06	M	M	ES	SI	S	C/NM	Y(5)
...									

Table 3.10-1— {Seismic and Dynamic Qualifications of Mechanical and Electrical Equipment}

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)		EQ Program Designation (Note 5)
...									
UHS Makeup Water Pump Discharge Strainer Motor Actuator Train 4	30PED40A T001	30UPF020 08	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Filter~~ Drain Valve 1 Train 4	30PED40A A405	30UPF020 08	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Filter~~ Drain Valve 2 Train 4	30PED40A A406	30UPF020 08	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Train 4	30PED40A A006	30UPF020 08	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Motor Actuator Train 4	30PED40A A006	30UPF020 08	M	M	ES	SI	S	C/NM	Y(5)
UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 4	-	30UPF020 08	M	M	ES	SI	S	C/NM	Y(5)
...									

COLA FSAR Table 3.11-1 will be revised as follows (only sufficient portions of the table are shown to identify the location of the change and the change itself):

Table 3.11-1— {Site-Specific Environmentally Qualified Electrical/I&C Equipment}

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)			EQ Program Designation (Note 5)	
...											
UHS Makeup Water Pump Discharge Strainer Motor Actuator Train 1	30PED10AT001	30UPF02001	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Motor Actuator Train 1	30PED10AA006	30UPF02001	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
UHS Makeup Water Building Pump Room Air Handling Unit (AHU) Train 1		30UPF02001	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
...											

Table 3.11-1— {Site-Specific Environmentally Qualified Electrical/I&C Equipment}

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)			EQ Program Designation (Note 5)	
...											
UHS Makeup Water Pump Discharge Strainer Motor Actuator Train 2	30PED20AT001	30UPF02004	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Motor Actuator Train 2	30PED20AA006	30UPF02004	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
UHS Makeup Water Building Pump Room Air Handling Unit (AHU) Train 2		30UPF02004	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
...											

Table 3.11-1— {Site-Specific Environmentally Qualified Electrical/I&C Equipment}

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)			EQ Program Designation (Note 5)	
...											
UHS Makeup Water Pump Discharge Strainer Motor Actuator Train 3	30PED30AT001	30UPF02006	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Motor Actuator Train 3	30PED30AA006	30UPF02006	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
UHS Makeup Water Building Pump Room Air Handling Unit (AHU) Train 3		30UPF02006	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
...											

Table 3.11-1— {Site-Specific Environmentally Qualified Electrical/I&C Equipment}

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)			EQ Program Designation (Note 5)	
...											
UHS Makeup Water Pump Discharge Strainer Motor Actuator Train 4	30PED40AT001	30UPF02008	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~ Blowdown Isolation Valve Motor Actuator Train 4	30PED40AA006	30UPF02008	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
UHS Makeup Water Building Pump Room Air Handling Unit (AHU) Train 4		30UPF02008	M	M	ES	SI	S	1E	EMC	Y(5)	Y(6)
...											

COLA Part 10 ITAAC Table 2.4-22 will be revised as follows (only the impacted portions are shown):

Table 2.4-22—{Ultimate Heat Sink Makeup Water System Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Tests, or Analysis	Acceptance Criteria
...			
9	a. Portions of the UHS Makeup Water System piping shown as ASME Section III in Figure 2.4-1 ~~is~~, including supports, are designed in accordance with ASME Section III Code requirements. b. Portions of UHS Makeup Water System piping shown as ASME Code Section III in Figure 2.4-1, including supports, are installed in accordance with Code Section III Design Report. c. Portions of the CCWS piping shown as ASME Code Section III in Figure 2.4-1, including supports, are installed and inspected in accordance with ASME Code Section III requirements.	a. Inspections of the ASME Code Section III Design Reports (NCA- 3550) and associated reference documents will be performed. b. Analyses to reconcile as-built deviations to the ASME Code Design Reports (NCA-3550) will be performed. Piping, including supports, analyzed using timehistory methods will be reconciled to the as-built information. c. An inspection of the as-built piping, including supports, will be performed.	a. ASME Code Section III Design Reports (NCA- 3550) exist and conclude that portions of the UHS Makeup Water System piping shown as ASME Code Section III in Figure 2.4-1, including supports, comply with ASME Code Section III requirements. b. For portions of the UHS Makeup Water System piping shown as ASME Code Section III in Figure 2.4-1, including supports, ASME Code Data Reports (N-5) exist and conclude that design reconciliation (NCA-3554) has been completed in accordance with the ASME Code Section III for the as-built system. The report(s) document the as-built condition. c. For portions of the as-built CCWS piping shown as ASME Code Section III in Figure 2.4-1, including supports, N–5 Data Reports exist and conclude that installation and inspection are in accordance with ASME Code Section III requirements.
...			

Table 2.4-22—{Ultimate Heat Sink Makeup Water System Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Tests, or Analysis	Acceptance Criteria
...			
15	The Class 1E valves in the UHS Makeup Water System perform the required function under system design conditions. 1. UHS makeup pump discharge valves open on pump start. 2. ~~Debris filter blowdown line isolation valves~~ Pump discharge strainer blowdown isolation valves will open during the ~~debris filter~~ strainer backwash cycle. 3. The pump min-flow recirculation valve opens in the event the pump discharge valve fails to open.	Tests and analyses or a combination of tests and analyses will be performed to demonstrate the ability of the Class 1E valves to change position under system design conditions.	1. UHS makeup pump discharge valves open on pump start. 2. ~~Debris filter blowdown line isolation valves~~ Pump discharge strainer blowdown isolation valves will open during the ~~debris filter~~ strainer backwash cycle. 3. The pump min-flow recirculation valve opens in the event the pump discharge valve fails to open.
...			

COLA Part 10 ITAAC Table 2.4-28 will be revised as follows (only the impacted portions are shown):

Table 2.4-28—{Class 1E Emergency Power Supply Components for Site-Specific Systems Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Tests, or Analysis	Acceptance Criteria
...			
2	Displays exist or can be retrieved in the MCR and the RSS for the following Class 1E equipment: 1. UHS Makeup Water System (makeup water pumps, pump discharge valves, pump min-flow recirculation valves, pump test bypass line isolation valves, initial fill isolation ~~value, and debris filter blowdown line isolation valves)~~valves, pump discharge strainers, and pump discharge strainer blowdown isolation valves). 2. UHS Makeup Water Intake Structure Ventilation System (ventilation fans).	a. Tests will be performed for the retrievability of the displays in the MCR or the RSS. b. Tests will be performed for the retrievability of the displays in the MCR or the RSS.	a. The displays for the following Class 1E equipment can be retrieved in the MCR: 1. UHS Makeup Water System (makeup water pumps, pump discharge valves, pump min-flow recirculation ~~values~~valves, initial fill isolation value, pump test bypass line isolation valves, ~~and debris filter blowdown line isolation valves)~~ pump discharge strainers, and pump discharge strainer blowdown isolation valves). 2. UHS Makeup Water Intake Structure Ventilation System (ventilation fans). b. The displays for the following Class 1E equipment can be retrieved in the RSS: 1. UHS Makeup Water System (makeup water pumps, pump discharge valves, pump min-flow recirculation valves, initial fill isolation ~~value~~valves, pump test bypass line isolation valves, ~~and debris filter blowdown line isolation valves).~~pump discharge strainers, and pump discharge strainer blowdown isolation valves). 2. UHS Makeup Water Intake Structure Ventilation System (ventilation fans).

Table 2.4-28—{Class 1E Emergency Power Supply Components for Site-Specific Systems Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Tests, or Analysis	Acceptance Criteria
3	Controls for the following Class 1E equipment exist in the MCR and the RSS: 1. UHS Makeup Water System (makeup water pumps, pump discharge valves, initial fill isolation ~~value~~valves, pump min-flow recirculation valves, pump test bypass line isolation valves, ~~and debris filter blowdown line isolation valves)~~ pump discharge strainers, and pump discharge strainer blowdown isolation valves). 2. UHS Makeup Water Intake Structure Ventilation System (ventilation fans).	a. Tests will be performed to verify the existence of control signals from the MCR and the RSS to the equipment. b. Tests will be performed to verify the existence of control signals from the MCR and the RSS to the equipment.	a. The controls for the following Class 1E equipment exist in the MCR: 1. UHS Makeup Water System (makeup water pumps, pump discharge valves, initial fill isolation ~~value~~valves, pump min-flow recirculation valves, pump test bypass line isolation valves, ~~and debris filter blowdown line isolation valves)~~ pump discharge strainers, and pump discharge strainer blowdown isolation valves). 2. UHS Makeup Water Intake Structure Ventilation System (ventilation fans). b. The controls for the following Class 1E equipment exist in the RSS: i. UHS Makeup Water System (makeup water pumps, pump discharge valves, pump min-flow recirculation valves, initial fill isolation ~~value~~valves, pump test bypass line isolation valves, ~~and debris filter blowdown line isolation valves)~~ pump discharge strainers, and pump discharge strainer blowdown isolation valves). ii. UHS Makeup Water Intake Structure Ventilation System (ventilation fans).
...			

COLA Part 10 ITAAC Table 2.4-29 will be revised as follows (only the impacted portions are shown):

Table 2.4-29— {Ultimate Heat Sink (UHS) Makeup Water System Component Mechanical Design}

Component Description	Component Tag Number	Component Location	ASME Code	Function	Seismic Category
...					
UHS Makeup Water Pump Discharge Strainer Train 1	30PED10 AT001 A	UHS Makeup Pump Room	Class 3	Run	I
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~Blowdown Isolation Valve Train 1	30PED10AA006 A	UHS Makeup Pump Room	Class 3	Close	I
UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 1	Later	UHS Makeup Pump Room	Class 3	Open	I
...					
UHS Makeup Water Pump Discharge Strainer Train 2	30PED20 AT001 A	UHS Makeup Pump Room	Class 3	Run	I
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~Blowdown Isolation Valve Train 2	30PED20AA006 A	UHS Makeup Pump Room	Class 3	Close	I
UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 2	Later	UHS Makeup Pump Room	Class 3	Open	I
...					

Table 2.4-29— {Ultimate Heat Sink (UHS) Makeup Water System Component Mechanical Design}

Component Description	Component Tag Number	Component Location	ASME Code	Function	Seismic Category
...					
UHS Makeup Water Pump Discharge Strainer Train 3	30PED30 AT001 A	UHS Makeup Pump Room	Class 3	Run	I
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~Blowdown Isolation Valve Train 3	30PED30AA006 A	UHS Makeup Pump Room	Class 3	Close	I
UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 3	Later	UHS Makeup Pump Room	Class 3	Open	I
...					
UHS Makeup Water Pump Discharge Strainer Train 4	30PED40 AT001 A	UHS Makeup Pump Room	Class 3	Run	I
UHS Makeup Water Pump Discharge Strainer ~~Debris Removal~~Blowdown Isolation Valve Train 4	30PED40AA006 A	UHS Makeup Pump Room	Class 3	Close	I
UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 4	Later	UHS Makeup Pump Room	Class 3	Open	I
...					