CCNPP3COLA PEmails

From: Clinton, Juanita D [juanita.d.clinton@unistarnuclear.com]
Sent: Thursday, July 26, 2012 1:00 PM
To: Quinn-Willingham, Laura; Kennedy, Silas
Cc: Clinton, Juanita D
Subject: UN12-077
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10 CFR 50.4
10 CFR 52.79

July 26, 2012

UN#12-077

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 340, Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints

References:

1) Surinder Arora (NRC) to Paul Infanger (UniStar Nuclear Energy), "Final RAI 340 CIB1 5372," dated April 24, 2012

2) UniStar Nuclear Energy Letter UN#12-044, from Mark Finley to Document Control Desk, U.S. NRC, Response to Requests for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3: RAI 325, Information Systems Important to Safety, RAI 328, Flooding Protection Requirements, RAIs 287, 330, RAI 331, RAI 332, RAI 336, Ultimate Heat Sink, RAIs 333, 339, Other Seismic Category I Structures, RAI 337, Initial Plant Test Program – Design Certification and New License Applicants, and RAI 340, Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints, dated May 18, 2012

3) UniStar Nuclear Energy Letter UN#10-062, 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. 182, System Quality Group Classification, dated March 12, 2010

4) UniStar Nuclear Energy Letter UN#11-230, 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 279, Ultimate Heat Sink, dated August 19, 2011

5) UniStar Nuclear Energy Letter UN#10-285, from Greg Gibson to Document Control Desk, U.S. NRC, Ultimate Heat Sink Makeup Water Intake Structure and Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI 253, Seismic System Analysis, dated November 16, 2010

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 April 24, 2012 (Reference 1). This RAI addresses Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints, as discussed in Section 3.9.6 of the Final Safety Analysis Report (FSAR), as submitted in the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA), Revision 8.

Reference 2 indicated that a response to RAI 340, Questions 03.09.06-3, 03.09.06-4, and 03.09.06-5, would be provided to the NRC by July 27, 2012. Enclosure 1 provides our response to RAI No. 340, Questions 03.09.06-3, 03.09.06-4, and 03.09.06-5, and includes revised COLA content. Enclosure 2 provides the COLA FSAR Table 3.9-2 impact of the response to RAI 340, Question 03.09.06-4. A Licensing Basis Document Change Request has been initiated to incorporate these changes into a future revision of the COLA.

The response to RAI 340 modifies COLA sections previously revised in response to RAIs 182, 253, and 279. The information in RAI 340 is in addition to and does not supersede the COLA markups in RAIs 182, 253, and 279.

The response to RAI No. 340, Question 03.09.06-3 inserts a new sentence in the “UHS Makeup Water Intake Structure Bar Screens and Traveling Screens” paragraph under FSAR Section 9.2.5.3.2. The new sentence provides traveling screen sizing information. The text in the “UHS Makeup Water Intake Structure Bar Screens and Traveling Screens” paragraph under FSAR Section 9.2.5.3.2 was previously provided in the response to RAI 182 (Reference 3).

Additionally, the response to RAI No. 340, Question 03.09.06-4 corrects the valve number for the UHS Makeup Water System Test Bypass Isolation Valves in the last sentence of the “UHS Makeup Water System Isolation Valves” paragraph under FSAR Section 9.2.5.3.2. The subject sentence was previously provided in the response to RAI 279 Question 09.02.05-7 (Reference 4). The response to RAI No. 340, Question 03.09.06-4 also makes changes to FSAR Table 3.9-2, “Site-Specific Inservice Valve Testing Program Requirements.” The subject table, which was previously numbered FSAR Table 3.9-1, was revised in the response to RAI 253 (Reference 5).

Enclosure 3 provides a table of changes to the CCNPP Unit 3 COLA associated with the RAI 340 response.

Our response does not include any new regulatory commitments. This letter does not contain any sensitive or proprietary information.

If there are any questions regarding this transmittal, please contact me at (410) 369-1907 or Mr. Wayne A. Massie at (410) 369-1910.

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

Executed on July 26, 2012

Mark T. Finley

Enclosures:
1) Response to NRC Request for Additional Information RAI No. 340, Questions 03.09.06-3, 03.09.06-4, and 03.09.06-5, Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints, Calvert Cliffs Nuclear Power Plant, Unit 3

2) Changes to CCNPP Unit 3 COLA Table 3.9-2 Associated with the Response to RAI No. 340, Question 03.09.06-4, Calvert Cliffs Nuclear Power Plant, Unit 3

3) Table of Changes to CCNPP Unit 3 COLA Associated with the Response to RAI No. 340, Calvert Cliffs Nuclear Power Plant, Unit 3

cc: Surinder Arora, NRC Project Manager, U.S. EPR Projects Branch
Laura Quinn-Willingham, NRC Environmental Project Manager, U.S. EPR COL Application
Getachew Tesfaye, NRC Project Manager, U.S. EPR DC Application, (w/o enclosures)
Patricia Holahan, Acting Deputy Regional Administrator, NRC Region II, (w/o enclosures)
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2,
David Lew, Deputy Regional Administrator, NRC Region I (w/o enclosures)

Enclosure 1

**Response to NRC Request for Additional Information RAI No. 340,
Questions 03.09.06-3, 03.09.06-4, and 03.09.06-5, Functional Design Qualification and
Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints,
Calvert Cliffs Nuclear Power Plant, Unit 3**

RAI No. 340

NRC Question 03.09.06-3

Calvert Cliffs Unit 3 FSAR Section 3.9.6.1, "Functional Design and Qualification of Pumps, Valves, and Dynamic Restraints," states that particular attention will be given to flow-induced loading and degraded flow conditions in the Ultimate Heat Sink (UHS) Makeup Water System to account for debris, impurities, and contaminants. The FSAR does not describe the UHS Makeup Water System design features that address flow-induced loading and degraded flow conditions (e.g., design features to alleviate debris, impurities, and contaminants). The Calvert Cliffs Unit 3 COL applicant is requested to indicate where in the EPR Design Certification FSAR or the Calvert Cliffs Unit 3 FSAR these provisions are located, or to specify these provisions in the Calvert Cliffs Unit 3 FSAR.

Response

The Ultimate Heat Sink (UHS) Makeup Water System pumps are designed for a minimum flow rate of 300 gallons per minute (gpm) and maximum flow rate of 750 gpm. The dual-flow traveling screens are currently sized to have a 6 feet (ft) wide panel. The traveling screens are sized conservatively, even with 93% blockage of the screens with debris, the maximum through screen velocity is no more than 0.5 feet per second (fps).

The ability of the traveling screens to filter high debris loads has been evaluated by comparing the debris loading to the cleaning capacity of the traveling screen. The debris loading can be estimated as the product of the intake flow rate and a volumetric concentration, C, which for conservatism, is set to unity (i.e., C=1) to approximate a fully loaded or saturated (by volume) intake flow. The effective screen face area on one side of each of the dual-flow traveling screen can be estimated approximately as 6 ft (screen width) x 10.8 ft (water depth) x 0.8 = 51.84 ft^2, where 10.8 ft is the water depth at the pump bay during design low water condition and 0.8 is a correction factor to reflect 20% area obstruction by the structural elements in each screen. For the design flow rate of 750 gpm (1.67 cubic feet per second (cfs)) per train, the required velocity (V_{ts}) of the traveling screen to remove the debris from a fully saturated intake flow would be V_{ts} = 1.67 cfs x 1 / 51.8 ft^2 = 0.032 fps, or 1.92 feet per minute (fpm). This is well within the capability of typical dual-flow traveling screens, which can travel with a speed of above 10 fpm, and above 30 fpm for the high speed traveling screens.

The traveling screens will be sized to resist high flow-induced loading to the screens. A conservative screen specification will include a full 9.8 ft water column (w.c.) (3 meters (m) w.c.) static differential head across the screens, a starting head differential of 6.6 ft w.c. (2 m w.c.) by the screen driver, and a full 3.3 ft w.c. (1 m w.c.) dynamic differential across screen during screen operation. None of these loading parameters are expected to be encountered even in extreme conditions. The operation of the dual-flow screens will be initiated based on a differential level setting, such as 4 inches (in) (100 millimeter (mm)) or on a timer basis. Due to the very conservative sizing of screens, a differential level across screen of 4 in (100 mm) is unlikely to occur and as such screen rotation is expected to be controlled mostly via timer. The traveling screens are capable of continuous operation.

The 6 ft wide traveling screens are conservatively sized and can handle fully loaded debris in static, starting or during screen operation conditions. As long as the screens can be turned (for

a speed as low as 0.032 fps or 1.9 fpm), fully loaded debris on screen panels can be handled, realizing most screens can rotate above 10 fpm, and even above 30 fpm if necessary.

The traveling screen will have very fine mesh. Debris finer than the mesh opening would pass through the traveling screens and UHS Makeup Water pumps without causing any damage to the pumps. Fine debris will be removed by the self-cleaning strainers located downstream of the UHS Makeup Water pumps, to protect piping, valves and components downstream of the strainer (Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA) Section 9.2.5.3.2).

The UHS Makeup Water System supplies makeup water to the UHS starting 72 hours post-accident only. Silting, erosion, corrosion and biological fouling in the UHS Makeup Water System are mitigated by periodic flushing. A full description and COLA markup for the wet layup system will be provided in the response to RAI 332, Ultimate Heat Sink, scheduled for submittal by December 20, 2012[1]. The self-cleaning strainers remove finer materials which pass through the traveling screens. To be compatible with the brackish water piping, valves, and fitting materials are designed to be super austenitic steel (CCNPP Unit 3 COLA Section 9.2.5.3.2).

COLA Impact

CCNPP Unit 3 FSAR Chapter 9 will be updated as follows in a future COLA revision:

9.2.5.3.2 Piping, Valves, and Fittings

…

UHS Makeup Water Intake Structure Bar Screens and Traveling Screens

The UHS Makeup Water Intake Structure has four bar screens and four dual-flow traveling screens. The screens prevent debris from passing into the UHS Makeup Water System. The traveling screens are equipped with a Seismic Category II screen wash system that includes four screen wash pumps. The screen wash pumps provide a high pressure spray to remove debris from the traveling screens. <u>The traveling screens are sized to resist high flow-induced loading to the screens, which includes a full 9.8 ft w.c. (3 m w.c.) static differential head across the screens, a starting head differential of 6.6 ft w.c. (2 m w.c.) by the screen driver, and a full 3.3 ft w.c. (1 m w.c.) dynamic differential across the screen during screen operation.</u> These traveling screens are classified as NS-AQ and are designed to remain mechanically functional following an SSE. The ability to manually rotate and clean the travelling screens to ensure adequate flow to the UHS makeup water pumps following a DBA is also provided. The structure housing the traveling screens will protect them from other natural phenomena, e.g. hurricane, tornado. The structure also provides separation between the screens for each of the four divisions. During normal operation, the traveling screens are powered from the Normal Power Supply System. Backup (Class lE) power supply is provided to operate the traveling screens

[1]UniStar Nuclear Energy Letter UN#12-044, from Mark Finley to Document Control Desk, U.S. NRC, Response to Requests for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3: RAI 325, Information Systems Important to Safety, RAI 328, Flooding Protection Requirements, RAIs 287, 330, RAI 331, RAI 332, RAI 336, Ultimate Heat Sink, RAIs 333, 339, Other Seismic Category I Structures, RAI 337, Initial Plant Test Program – Design Certification and New License Applicants, and RAI 340, Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints, dated May 18, 2012

post-DBA through the Emergency Power Supply System if the electrical components of the traveling screens are functional post DBA.

…

RAI No. 340

NRC Question 03.09.06-4

Calvert Cliffs Unit 3 FSAR Table 3.9-2, "Site-Specific Inservice Valve Testing Program Requirements," in Note 10 states that table entries for manual valves will be developed during detailed design engineering. The Calvert Cliffs Unit 3 COL applicant is requested to include the appropriate entries in Table 3.9-2 for manual valves in the UHS Makeup Water System, or justify deferral of the specification of this Inservice Testing Program information until COL issuance.

Response

Manual valves required to support specific safety functions in accordance with ASME OM Code paragraph ISTA-1100, currently identified in CCNPP Unit 3 Combined License Application (COLA) Part 2, Final Safety Analysis Report (FSAR) Chapter 3 Section 3.9.6, are shown in Table 3.9-2 "Site-Specific Inservice Valve Testing Program Requirements." See Enclosure 2 for the revised and additional information for the valves. During detailed design additional manual valves may be identified. Manual valves such as vent, drain, sample, and instrument root valves that are excluded from the inservice testing (IST) program per ASME OM Code paragraph ISTC-1200(a) are not included in Table 3.9-2.

CCNPP Unit 3 FSAR Table 3.9-2 Note 10, "Table entries for manual valves will be developed during detailed design engineering" is removed. The valve tag numbers for Ultimate Heat Sink (UHS) Makeup Water test bypass isolation valves have been corrected in Table 3.9-2 and FSAR Section 9.2.5.3.2.

COLA Impact

Enclosure 2 provides the COLA FSAR Table 3.9-2 impact of the response to RAI 340, Question 03.09.06-4.

CCNPP Unit 3 FSAR Chapter 9 will be updated as follows in a future COLA revision:

9.2.5.3.2 Piping, Valves, and Fittings

…

UHS Makeup Water System Isolation Valves

…

The initial fill motor operated isolation valve, 30PED10/20/30/40 AA004, is closed during normal operation. Upon the receipt of an SI signal, this valve remains closed.

The manual UHS Makeup Water System test bypass isolation valve, 30PED10/20/30/40 AA~~023~~008 is closed during normal operation and remains closed for post accident operation.

RAI No. 340

NRC Question 03.09.06-5

Revision 7 and 8 to the Calvert Cliffs Unit 3 FSAR include numerous changes to the description of the site-specific Inservice Testing (IST) Program in Table 3.9-2, "Site-Specific Inservice Valve Testing Program Requirements." The Calvert Cliffs Unit 3 COL applicant is requested to describe these IST table changes and their justifications in the Calvert Cliffs Unit 3 FSAR.

Response

CCNPP Unit 3 FSAR Chapter 3, Table 3.9-2, "Site-Specific Inservice Valve Testing Program Requirements" was updated in Revision 7 and 8 to incorporate the following changes:

1. **Description/Valve Function:** The description of the following valves has been changed to clarify the function of the valves and indicate their associated trains.

   UHS Train 1
   Valve # 30PED10AA002A, 30PED10AA201A, 30PED10AA001A

   UHS Train 2
   Valve # 30PED20AA002A, 30PED20AA201A, 30PED20AA001A

   UHS Train 3
   Valve # 30PED30AA002A, 30PED30AA201A, 30PED30AA001A

   UHS Train 4
   Valve # 30PED40AA002A, 30PED40AA201A, 30PED40AA001A

   To maintain consistent terminology between the Combined License Application (COLA) FSAR and the COLA Inspection, Tests, Analysis, and Acceptance Criteria (ITAAC), Ultimate Heat Sink (UHS) Makeup Water System valves identified as valves # 30PED10AA006A, 30PED20AA006A, 30PED30AA006A, and 30PED40AA006A with the description "UHS Makeup Water Pump Discharge Strainer Debris Removal Valve" have been changed to "UHS Makeup Water Pump Discharge Strainer Blowdown Isolation Valve," (see the RAI 279 Q09.02.05-17, Item 9 response[2]).

2. **ASME OM Code Category:** The ASME OM Code Category of the following valves has been changed from Category A to Category B based on the ISTC-1300 Paragraph, "Valve Categories" descriptions.

   UHS Train 1 - Valve # 30PED10AA001A, 30PED10AA005A (now revised to be 30PED10AA008A in RAI 340 Q03.09.06-4 response (this submittal)), and 30PED10AA002A
   UHS Train 2 - Valve # 30PED20AA001A, 30PED20AA005A (now 30PED20AA008A), and 30PED20AA002A

[2] UniStar Nuclear Energy Letter UN#11-213, 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. 279, Ultimate Heat Sink, dated July 29, 2011

UHS Train 3 - Valve # 30PED30AA001A, 30PED30AA005A (now 30PED30AA008A), and 30PED30AA002A
UHS Train 4 - Valve # 30PED40AA001A, 30PED40AA005A (now 30PED40AA008A), and 30PED40AA002A

According to ASME OM Code Paragraph ISTC-1300 (b), Category B valves are the valves for which seat leakage in the closed position is inconsequential for the fulfillment of their required function(s). The UHS Makeup Water pump design flow capacity is 750 gpm which exceeds the required minimum makeup capacity of 300 gpm indicated in U.S. EPR FSAR Section 9.2.5, Ultimate Heat Sink, Table 9.2.5-2. Because of this excess design capacity of the Makeup Pumps, any expected seat leakage for the above listed Category B valves would be inconsequential for the fulfillment of their required function(s). When the UHS Makeup Water System is operating, Valves #30PED10AA001A, #30PED20AA001A, #30PED30AA001A, and #30PED40AA001A are open to allow makeup water to the respective basins. As such, the valve leakage in the closed position is inconsequential for these valves.

3. **Active/Passive:** The classification of valves #30PED10AA201A (Train 1), Valve #30PED20AA201A (Train 2), Valve #30PED30AA201A (Train 3), and Valve #30PED40AA201A (Train 4), "UHS Makeup Water Pump Discharge Check Valves" has been changed from "Passive" to "Active." According to ASME OM ISTA-2000 "Definitions," "Active" valves are required to change operator position to accomplish a specific function in shutting down a reactor to the safe shutdown condition, maintaining the safe shutdown condition, or mitigating the consequences of an accident. Normally, the UHS Makeup Water System is in a standby position and the UHS Makeup Water pump discharge check valves are in a closed position. Post 72 hrs of the Design Basis Accident (DBA), when the UHS Makeup Water System becomes operational, these check valves change their operator position from closed to open as UHS Makeup Water pumps provide makeup water to the UHS basin. Therefore, changing the above listed valves classification from "Passive" to "Active" is justified.

4. **Safety Position:** Valves #30PED10AA002A (Train 1), 30PED20AA002A (Train 2), 30PED30AA002A (Train 3), and 30PED40AA002A (Train 4) safety function position has been changed from "Open (O)" to "Close (C)". Post 72 hrs of the DBA, the safety function of the UHS Makeup Water Pump is to provide the required amount of water to the UHS cooling tower basin. During this mode of operation, the safety position of the UHS Makeup Water Pump minimum flow recirculation valve is in the closed position to prevent water loss to the pump intake.

5. **Additional Valves:** CCNPP Unit 3 FSAR Revision 7 included design changes to the UHS Makeup Water System Intake Structure and added the following valves to all four trains in FSAR Table 3.9-2:

UHS Train 1
Valve # 30PED10AA190A, UHS Makeup Water Pump Air Release/Vacuum Breaker Valve Train 1
Valve # 30PED10AA202A, UHS Makeup Water Pump Initial Fill Check Valve Train 1
Valve # 30PED10AA004A, UHS Makeup Water Pump Initial Fill Isolation Valve Train 1
Valve # 30PED10AA006A, UHS Makeup Water Pump Discharge Strainer Blowdown Isolation Valve Train 1

Valve # 30PED10AA003A, UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 1

UHS Train 2
Valve # 30PED20AA190A, UHS Makeup Water Pump Air Release/Vacuum Breaker Valve Train 2
Valve # 30PED20AA202A, UHS Makeup Water Pump Initial Fill Check Valve Train 2
Valve # 30PED20AA004A, UHS Makeup Water Pump Initial Fill Isolation Valve Train 2
Valve # 30PED20AA006A, UHS Makeup Water Pump Discharge Strainer Blowdown Isolation Valve Train 2
Valve # 30PED20AA003A, UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 2

UHS Train 3
Valve # 30PED30AA190A, UHS Makeup Water Pump Air Release/Vacuum Breaker Valve Train 3
Valve # 30PED30AA202A, UHS Makeup Water Pump Initial Fill Check Valve Train 3
Valve # 30PED30AA004A, UHS Makeup Water Pump Initial Fill Isolation Valve Train 3
Valve # 30PED30AA006A, UHS Makeup Water Pump Discharge Strainer Blowdown Isolation Valve Train 3
Valve # 30PED30AA003A, UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 3

UHS Train 4
Valve # 30PED40AA190A, UHS Makeup Water Pump Air Release/Vacuum Breaker Valve Train 4
Valve # 30PED40AA202A, UHS Makeup Water Pump Initial Fill Check Valve Train 4
Valve # 30PED40AA004A, UHS Makeup Water Pump Initial Fill Isolation Valve Train 4
Valve # 30PED40AA006A, UHS Makeup Water Pump Discharge Strainer Blowdown Isolation Valve Train 4
Valve # 30PED40AA003A, UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 4

COLA Impact

Enclosure 2 provides the COLA FSAR Table 3.9-2 impact of the response to RAI 340.

Enclosure 2

Changes to CCNPP Unit 3 COLA Table 3.9-2 Associated with the Response to RAI No. 340, Question 03.09.06-4, Calvert Cliffs Nuclear Power Plant, Unit 3

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

(Page 1 of 5)

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										
30PED10AA002A	UHS Makeup Water Pump Minimum Flow Valve Train 1	BF	MO	3	B	A	C	ET PI	Q 2Y	
30PED10AA190A	UHS Makeup Water Pump Air Release/Vacuum Breaker Valve Train 1	RV	SA	3	C	A	O/C	ET LT ~~PI~~	2Y 10Y ~~2Y~~	
30PED10AA201A	UHS Makeup Water Pump Discharge Check Valve Train 1	CK	SA	3	C	A	O	ET	Q	
30PED10AA001A	UHS Makeup Water Pump Discharge Isolation Valve Train 1	BF	MO	3	B	A	O	ET PI	Q 2Y	
30PED10AA202A	UHS Makeup Water Pump Initial Fill Check Valve Train 1	CK	SA	3	C	A	C	ET	Q	
30PED10AA004A	UHS Makeup Water Pump Initial Fill Isolation Valve Train 1	GT	MO	3	B	A	C	ET PI	Q 2Y	
30PED10AA~~005~~008A	UHS Makeup Water ~~Train 1~~ Test Bypass Isolation Valve Train 1	~~BF~~ GT	~~MO~~ MA	3	B	~~A~~ P	C	ET PI	Q 2Y	
30PED10AA006A	UHS Makeup Water Pump Discharge Strainer Blowdown Isolation Valve Train 1	GT	MO	3	B	A	C	ET PI	Q 2Y	
30PED10AA003A	UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 1	BF	MA	3	B	P	O	ET ~~PI~~	2Y ~~2Y~~	
Ultimate Heat Sink (UHS) Makeup Water System - Train 2										
30PED20AA002A	UHS Makeup Water Pump Minimum Flow Valve Train 2	BF	MO	3	B	A	C	ET PI	Q 2Y	
30PED20AA190A	UHS Makeup Water Pump Air Release/Vacuum Breaker Valve Train 2	RV	SA	3	C	A	O/C	ET LT ~~PI~~	2Y 10Y ~~2Y~~	
30PED20AA201A	UHS Makeup Water Pump Discharge Check Valve Train 2	CK	SA	3	C	A	O	ET	Q	
30PED20AA001A	UHS Makeup Water Pump Discharge Isolation Valve Train 2	BF	MO	3	B	A	O	ET PI	Q 2Y	

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

(Page 2 of 5)

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
30PED20AA202A	UHS Makeup Water Pump Initial Fill Check Valve Train 2	CK	SA	3	C	A	C	ET	Q	
30PED20AA004A	UHS Makeup Water Pump Initial Fill Isolation Valve Train 2	GT	MO	3	B	A	C	ET PI	Q 2Y	
30PED20AA~~005~~A 008	UHS Makeup Water ~~Train 1~~ Test Bypass Isolation Valve	~~BF~~ GT	~~MO~~ MA	3	B	~~A~~ P	C	ET PI	Q 2Y	Train 2
30PED20AA006A 30PED20AA003A	UHS Makeup Water Pump Discharge Strainer 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~~	
Ultimate Heat Sink (UHS) Makeup Water System - Train 3										
30PED30AA002A	UHS Makeup Water Pump Minimum Flow Valve Train 3	BF	MO	3	B	A	C	ET PI	Q 2Y	
30PED30AA190A	UHS Makeup Water Pump Air Release/Vacuum Breaker Valve Train 3	RV	SA	3	C	A	O/C	ET LT ~~PI~~	2Y 10Y ~~2Y~~	
30PED30AA201A	UHS Makeup Water Pump Discharge Check Valve Train 3	CK	SA	3	C	A	O	ET	Q	
30PED30AA001A	UHS Makeup Water Pump Discharge Isolation Valve Train 3	BF	MO	3	B	A	O	ET PI	Q 2Y	
30PED30AA202A	UHS Makeup Water Pump Initial Fill Check Valve Train 3	CK	SA	3	C	A	C	ET	Q	
30PED30AA004A	UHS Makeup Water Pump Initial Fill Isolation Valve Train 3	GT	MO	3	B	A	C	ET PI	Q 2Y	
30PED30AA~~005~~A 008	UHS Makeup Water ~~Train 1~~ Test Bypass Isolation Valve	~~BF~~ GT	~~MO~~ MA	3	B	~~A~~ P	C	ET PI	Q 2Y	Train 3
30PED30AA006A 30PED30AA003A	UHS Makeup Water Pump Discharge Strainer 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}

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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										
30PED40AA002A	UHS Makeup Water Pump Minimum Flow Valve Train 4	BF	MO	3	B	A	C	ET PI	Q 2Y	
30PED40AA190A	UHS Makeup Water Pump Air Release/Vacuum Breaker Valve Train 4	RV	SA	3	C	A	O/C	ET LT ~~PI~~	2Y 10Y ~~2Y~~	
30PED40AA201A	UHS Makeup Water Pump Discharge Check Valve Train 4	CK	SA	3	C	A	O	ET	Q	
30PED40AA001A	UHS Makeup Water Pump Discharge Isolation Valve Train 4	BF	MO	3	B	A	O	ET PI	Q 2Y	
30PED40AA202A	UHS Makeup Water Pump Initial Fill Check Valve Train 4	CK	SA	3	C	A	C	ET	Q	
30PED40AA004A	UHS Makeup Water Pump Initial Fill Isolation Valve Train 4	GT	MO	3	B	A	C	ET PI	Q 2Y	
30PED40AA~~005~~008A	UHS Makeup Water ~~Train 1~~ Test Bypass Isolation Valve Train 4	~~BF~~ GT	~~MO~~ MA	3	B	~~A~~ P	C	ET PI	Q 2Y	
30PED40AA006A	UHS Makeup Water Pump Discharge Strainer Blowdown Isolation Valve Train 4	GT	MO	3	B	A	C	ET PI	Q 2Y	
30PED40AA003A	UHS Makeup Water Pump Discharge Strainer Isolation Valve Train 4	BF	MA	3	B	P	O	ET ~~PI~~	2Y ~~2Y~~	
Miscllaneous Manual Valves										
Later	UHS Makeup Water System Manual Valves	Various	MA	3	B	P	O/C	ET PI	2Y 2 Y	~~See Note 10~~

No changes to this page. This page provided for reference purposes only.

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

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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

Notes:

1. The U. S. EPR subscribes to the Kraftworks Kennzeichen System (KKS) for coding and nomenclature of SSCs.

2. Valve Type
   GB – Globe
   GT – Gate
   CK – Check
   RV – Relief
   RD – Rupture Disk
   DI – Diaphragm
   BF – Butterfly
   PL – Plug

3. Valve Actuator
   MO – Motor-operated
   SO – Solenoid-operated
   AO – Air-operated
   HO – Hydraulic-operated
   SA – Self-actuated
   MA – Manual
   PA – Pilot-actuated

4. ASME Code Class as determined by quality groups from Regulatory 1.26.

5. ASME Code Category A, B, C, D as defined in ASME OM Code 2004, Subsection ISTC-1300

6. ASME functional category as defined in ASME OM Code 2004, Subsection ISTA-2000

7. Valve safety function positions(s), specify both positions for valves that perform a safety function in both the open and closed positions. Valves are exercised to the position (s) required to fulfill their safety function(s). Check valve tests include both open and closed tests.

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

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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

8. Required tests per ASME OM Code 2004, Subsection ISTC-3000
   LT – Leakage test per Table ISTC-3500-1 and ISTC-3000
   ET – Exercise test per Table ISTC-3500-1 and ISTC-3510-1, nominally every 3 months
   PI – Position indication verification per Table ISTC-3500-1 and ISTC-3700
   ST – Stroke time per test per ISTC-5000 (in conjunction with exercise test).

9. Test frequencies abbreviations per NUREG-1482, Revision 1:
   Q test performed once every 92 days
   CS – test performed during cold shutdown, but no more frequently than once every 92 days
   RF – test performed each refueling outage
   2Y – test performed once every 2 years
   5Y – test performed once every 5 years (per ASME OM, ISTC-3540)
   10Y - test performed once every 10 years
   RV – test relief valve at OM schedule.

Deleted

10. ~~Table entries for manual valves will be developed during detailed design engineering.~~

11. The switch for a fail-safe valve functions by interrupting (de-energizing) the electrical or pneumatic actuating force for the valve whenever the switch is moved to the fail-safe position. Therefore, this normal valve operation demonstrates the valve's fail-safe capability, which is verified during valve exercise testing by remote position indication. Since a successful exercise test satisfies a valve's fail-safe testing requirements, a separate test for fail-safe capability is not required and is not specified in this table.

Enclosure 3

Table of Changes to CCNPP Unit 3 COLA Associated with Response to RAI No. 340, Calvert Cliffs Nuclear Power Plant, Unit 3

Table of Changes to CCNPP Unit 3 COLA Associated with Response to RAI No. 340

Change ID #	Subsection	Type of Change	Description of Change
Part 2 – FSAR			
CC3-12-0142	Table 3.9-2	Incorporate COLA markups associated with the response to RAI 340 Question 03.09.06-4.	Valve identification numbers 30PED10AA005A, 30PED20AA005A, 30PED30AA005A, and 30PED40AA005A were revised to be 30PED10AA008A, 30PED20AA008A, 30PED30AA008A, and 30PED40AA008A, respectively. Valve identification numbers 30PED10AA202A, 30PED10AA004A, 30PED10AA003A, 30PED20AA202A, 30PED20AA004A, 30PED20AA003A, 30PED30AA202A, 30PED30AA004A, 30PED30AA003A, 30PED40AA202A, 30PED40AA004A, and 30PED40AA003A added. The valve type was changed from “BF” to “GT”, the valve actuator was changed from “MO” to “MA”, and the Active/Passive designator was changed from “A” to “P” for valves 30PED10AA008A, 30PED20AA008A, 30PED30AA008A, and 30PED40AA008A. The “PI” test required and the “2Y” test frequency was deleted for valve numbers 30PED10AA190A, 30PED20AA190A, 30PED30AA190A, 30PED40AA190A, 30PED10AA003A, 30PED20AA003A, 30PED30AA003A, and 30PED40AA003A. Note 10 was deleted.
CC3-12-0142	9.2.5.3.2	Incorporate COLA markups associated with the response to RAI 340 Question 03.09.06-3.	The “UHS Makeup Water Intake Structure Bar Screens and Traveling Screens” paragraph under FSAR Section 9.2.5.3.2 has a sentence added discussing traveling screen sizing.
CC3-12-0142	9.2.5.3.2	Incorporate COLA markups associated with the response to RAI 340 Question 03.09.06-4.	The last sentence in the “UHS Makeup Water System Isolation Valves” paragraph under FSAR Section 9.2.5.3.2 corrects the valve number for the UHS Makeup Water System Test Bypass Isolation Valves.