Greg Gibson
Vice President, Regulatory Affairs

750 East Pratt Street, Suite 1600
Baltimore, Maryland 21202

UniStar
NUCLEAR ENERGY

10 CFR 50.4
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December 8, 2009

UN#09-511

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 No. 173, Initial Plant Test Program

References:
1) Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "FINAL RAI No. 173 CQVP 2972" email dated September 29, 2009

2) UniStar Nuclear Energy Letter UN#09-480, from Greg Gibson to Document Control Desk, U.S. NRC, Submittal of Response to RAI No. 173, Initial Plant Test Program, dated November 13, 2009

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 September 29, 2009 (Reference 1). This RAI addresses the Initial Plant Test Program, as discussed in Section 14.2 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA), Revision 6.

Reference 2 provided a December 9, 2009 schedule for the responses for RAI No. 173, Questions 14.02-51 and 14.02-52. The enclosure provides our responses to Questions 14.02-51 and 14.02-52, 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.

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NRO

Our responses do 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) 470-4205, or Mr. Michael J. Yox at (410) 495-2436.

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

Executed on December 8, 2009

Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI No. 173, Questions 14.02-51 and 14.02-52, Initial Plant Test Program, 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 (w/o enclosure)
Loren Plisco, Deputy Regional Administrator, NRC Region II (w/o enclosure)
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2
U.S. NRC Region I Office

GTG/RDS/mdf

Enclosure

Response to NRC Request for Additional Information
RAI No. 173, Questions 14.02-51 and 14.02-52, Initial Plant Test Program,
Calvert Cliffs Nuclear Power Plant, Unit 3

RAI No. 173

Question 14.02-51

Section 14.2.14.2 of the Calvert Cliffs Nuclear Power Plant Unit 3 (CCNPP3) FSAR provides the test abstract for the Ultimate Heat Sink (UHS) makeup water system. The NRC staff requests that UniStar address the following issues related to the UHS makeup water system initial test:

Section 14.2.14.2, Item 3.b states, "Verify safety-related automatic valves (MOVs, SOVs, AOVs) respond as designed to accident signal." In addition to safety-related valves that respond to an accident signal, Section 9.2.5 of the CCNPP3 FSAR contains safety-related valves that are designed to respond to other signals, such as the makeup pump discharge valve which is designed to respond to the makeup pump start. Please revise Section 14.2.14.2, Item 3.b to include the verification of the response of all safety-related automatic valves in the UHS makeup water system to their appropriate open/close signal sources.

Section 14.2.14.2, Item 3.f states, "Verify flow through the SAQ room cooler in each room of both the UHS Makeup Water Intake Structure and UHS Electrical Building." SAQ (Essential Service Water Pump Building Ventilation System) room cooler flow is not described in FSAR Section 9.2.5 or shown on Figure 9.2-3. Please identify the FSAR section that addresses the SAQ.

In addition, the following items are not specifically stated as being tested and should be included in the test abstract:

- Testing of screen water system and pumps, traveling screens, and strainers.
- Verification of minimum Technical Specification flow rates for the system.
- Testing of water hammer design features, such as time delays on valves.
- Testing of normal or accident ESW (Essential Service Water) basin makeup controls.

Response

FSAR Section 14.2.14.2, Item 3.b will be revised to include verification of Ultimate Heat Sink (UHS) Makeup Water System safety-related automatic valve response to applicable open/close signal sources.

The UHS Makeup Water Intake Structure and UHS Electrical Building cooling systems (SAF) are addressed in FSAR Section 9.4.15 and Figure 9.4-1. Symbol SAQ is applicable to the Essential Service Water (ESW) Pump Building Ventilation System. Therefore, SAQ will be deleted from COLA FSAR Section 14.2.14.2. U.S. EPR FSAR Section 9.4.11 discusses the ESW Pump Building Ventilation System (SAQ) and is incorporated by reference into the COLA FSAR.

FSAR Section 14.2.14.2, Item 3.e addresses strainer testing. FSAR Section 14.2.14.2 will be revised to include valve time delay testing relied upon to prevent water hammer, testing of the screen wash system and traveling screens, and verification of the minimum Technical Specification flow rate.

Testing of the ESW Cooling Tower basin level instrumentation and controls is addressed in U.S. EPR FSAR Section 14.2.12.5.8, Ultimate Heat Sink (Test #049) Test Method 3.5 and Acceptance Criteria 5.1.5. UHS Makeup Water System initiation and operation from the main control room and the remote shutdown panel is tested and verified as described in COLA FSAR Section 14.2.14.2, Ultimate Heat Sink Makeup Water System, Item 3.a and 5.a.

COLA Impact

FSAR Section 14.2.14.2 will be revised as follows in a future COLA revision:

14.2.14.2 Ultimate Heat Sink (UHS) Makeup Water System

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~~ each of the applicable open/close signal sources, including time delay circuitry.

   c. Verify valve position indication.

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

   e. Verify air release valves operate as designed on pump start.

   f. Verify each traveling screen and screen wash system operates as designed.

   ~~e~~g. Verify each discharge strainer operates as designed.

   h. Verify that makeup flow through the test bypass line demonstrates the system can deliver the minimum Technical Specification flow rate to the ESWS Cooling Tower.

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

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

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

   ~~i~~l. Verify valve performance data, where required.

   ~~j~~m. Verify the temperature controller and monitoring functions for the heat tracing system operate in accordance with the design requirements.

~~k~~n. Verify electrical independence and redundancy of power supplies for safety-related functions.

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, AOVs) respond to the designated ~~accident signal~~ open/close signal sources, including time delay circuitry, 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 air release valves operate as designed on pump start.

f. The traveling screens and screen wash systems operate as designed.

~~e~~g. The discharge strainers perform as designed.

h. The makeup flow through the test bypass line demonstrates the system can deliver the minimum Technical Specification flow rate to the ESWS Cooling Tower.

~~f~~i. 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~~j. The alarms, interlocks, display instrumentation, and status lights function as designed.

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

~~i~~l. The valves meet performance data where required.

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

~~k~~n. Heat tracing operates within temperature controller set point limits, and monitoring functions operate in accordance with design requirements.

~~l~~o. Safety-related components meet electrical independence and redundancy requirements.

Question 14.02-52

Please revise Section 14.2.14.2, "Ultimate Heat Sink (UHS) Makeup Water System," or 14.2.14.3, "Essential Service Water Blowdown System," of the CCNPP3 FSAR to include the testing of instrumentation and controls (either automatic or manual) that control the ESW (Essential Service Water) basin level in normal make-up or safety-related UHS make-up modes.

Response

Refer to the U.S. EPR FSAR Subsection 14.2.12.5.8, Ultimate Heat Sink (Test #049) Test Method 3.5 and Acceptance Criteria 5.1.5 for testing of the ESW (Essential Service Water) basin level instrumentation and controls.

Refer to COLA FSAR Section 14.2.14.3, for testing of the ESW (Essential Service Water) Blowdown System.

COLA Impact

The COLA FSAR will not be revised as a result of this response.