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10 CFR 50.4
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April 14, 2014

UN#14-034

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 414, ASME Code Class 1, 2, and 3 Piping Systems
and Piping Components and Their Associated Supports

References: 1) Surinder Arora (NRC) to Paul Infanger (UniStar Nuclear Energy), "CCNPP3 -
Final RAI 414 EMB 7401," dated February 14, 2014

2) Letter from Paul Infanger (UniStar Nuclear Energy) to Document Control Desk
(NRC), UN#14-024, dated March 14, 2014

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 (UNE), dated February 14, 2014 (Reference 1). This RAI addresses the ASME Code Class 1, 2, and 3 Piping Systems and Piping Components and Their Associated Supports, as discussed in Section 3.12 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 9. In Reference 2 UNE stated that this response would be provided by April 14, 2014.

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

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If there are any questions regarding this transmittal, please contact me at (410) 369-1987 or Mr. Mark Finley at (410) 369-1907.

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

Executed on April 14, 2014

A handwritten signature in black ink, appearing to read "Paul Infanger", with a stylized flourish extending from the end.

Paul Infanger

cc: Surinder Arora, NRC Project Manager, U.S. EPR Projects Branch
Tomeka Terry, NRC Environmental Project Manager, U.S. EPR COL Application
George Wunder, NRC Project Manager, U.S. EPR DC Application
Patricia Holahan, Acting Deputy Regional Administrator, NRC Region II
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2
David Lew, Deputy Regional Administrator, NRC Region

Enclosure 1

**Response to NRC Request for Additional Information
RAI 414, ASME Code Class 1, 2, and 3 Piping Systems and
Piping Components and Their Associated Supports
Calvert Cliffs Nuclear Power Plant, Unit 3**

QUESTION 03.12-2

This RAI is a Follow Up to RAI 399 (eRAI 7227), Question 03.12-1:

In its response to RAI 399, Question 03.12-1, UniStar stated that the essential elements of a program to monitor the pressurizer surge line temperatures to verify that the transients for these lines are representative of actual plant operations, unless data from a similar plant's operation determines that monitoring is not warranted. UniStar's response also included statement that the data collected during foreign EPR startup test programs will verify that the design transients are representative of actual operations. In questions related to the U.S. EPR FSAR issued in 2009 (RAI 215, Question 3.12-17 and RAI 306, Question 03.12-19), the staff previously raised the concern and clarified that plant heatup/cooldown methods control the system ΔT (pressurizer temperature – Coolant Loop temperature) and surge line transients. In response, the DC applicant also indicated that heatup/cooldown procedures are plant-specific. Accordingly, the DC FSAR was updated beginning in Revision 2 to state that a COL applicant who references the U.S. EPR design certification will monitor the pressurizer surge line without referencing foreign or similar plants. The staff is requesting the COLA applicant to address why foreign EPR data and other plants' data can be used as representative for Calvert Cliffs, as this would be considered a departure from the DC FSAR. In the same response, the applicant also identified conducting visual inspections (ASME, Section XI, VT-3) of the pressurizer surge line. The staff noted that the surge line is insulated during monitoring and requests clarification of the purpose of the visual inspection.

Response:

The visual inspections and measurements will be performed during hot functional testing (HFT). The primary purpose of these visual inspections is to perform growth and temperature measurements to detect thermal stratification and instances where thermal growth and other pipe design issues may cause piping failure if left uncorrected. NOTE: ASME, VT-2, VT-3 inspections are performed prior to N-stamping the piping system, therefore precede installation of the insulation (not performed during HFT). During HFT, the system engineers would visually measure pipe movement against the base measurements and also determine if there are unusual vibrations, sounds, etc.

It is possible to perform the inspections with or without insulation. The metal insulation is relatively rigid and thermal growth measurements can be taken with the insulation installed. If hanger damage is suspected it may be necessary to remove insulation in order to determine the extent of the damage.

The following text was proposed in the response for RAI 399¹ for COLA section 3.12.5.10.1. UNE is modifying this text (redline strikeout) to remove the provisions for using similar plant's data to determine if the monitoring is warranted. This revised COLA wording is consistent with the U.S. EPR FSAR, therefore, no departure is required.

¹ UniStar Nuclear Energy Letter UN#13-147, from Paul Infanger to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI 399, ASME Code Class 1, 2, and 3 Piping Systems and Piping Components and Their Associated Supports, dated November 27, 2013

COLA Impact:

3.12.5.10.1 Pressurizer Surge Line Stratification (NRC Bulletin 88-11)

The U.S. EPR FSAR includes the following COL Items in Section 3.12.5.10.1:

A COL applicant that references the U.S. EPR design certification will describe essential elements of a program to monitor pressurizer surge line temperatures during the first fuel cycle of initial plant operation to verify that the design transients for the surge line are representative of actual plant operations.

The COL Item is addressed as follows:

The essential elements of a program to monitor the pressurizer surge line temperatures to verify that the design transients for these lines are representative of actual plant operations, ~~unless data from a similar plant's operation determines that monitoring is not warranted,~~ are described below.

- The thermal stratification data collected in U.S. EPR FSAR Tier 2, Section 14.2, Test #168, the piping displacement data collected in U.S. EPR FSAR Tier 2, Section 14.2, Test #165, ~~and the data collected during foreign EPR startup test programs~~ will verify that the design transients are representative of actual operations.
- Conducting visual inspections (ASME, Section XI, VT -3) of the pressurizer surge line.
- Monitoring devices shall be located in sufficient quantity in order to obtain a temperature profile on the cross section of the subject pipe.
- Plant parameters including pressurizer temperature, pressurizer level, hot leg and cold leg temperatures, RCS fluid flow rates and reactor coolant pump status shall also be recorded.
- The monitoring should record data from the installed instruments as well as the applicable plant data on a time dependent basis for review and potential analysis later.
- Prerequisites for this monitoring include the RCS and attached piping systems are ready for service.
- No special testing is required for this monitoring program.
- Verifying that the contribution of normal and upset condition stratification cycles is considered in the fatigue analysis of the surge line piping.

Enclosure 2

**Table of Changes to CCNPP Unit 3 COLA Associated with the
Response to RAI 414, ASME Code Class 1, 2, and 3 Piping Systems and
Piping Components and Their Associated Supports
Calvert Cliffs Nuclear Power Plant, Unit 3**

Table of Changes to CCNPP Unit 3 COLA
Associated with the Response to RAI No. 414

Change ID #	Subsection	Type of Change	Description of Change
Part 2 – FSAR			
GN-10-0191	3.12.5.9 3.12.5.10.1 3.12.5.10.3 3.12.5.10.4	Implementation of DCD revision 2 changes-added COL Items and responses	Added COL Items and responses for monitoring the RHR/SIS/EBS injection piping, pressurizer surge line temperatures and the normal spray line temperatures.
GN-11-0232	3.12.5.10.1 3.12.5.10.4	Correction to COL Item wording based on DCD revision 3 changes	Revised COL Item wording.
GN-12-0153	3.12.5.9, 3.12.5.10.1, 3.12.5.10.3 3.12.5.10.4	Revised COL Item wording based on DCD revision 4 changes	Revised COL Item and response wording to include essential elements of a program.
GN-13-0141	3.12.5.9, 3.12.5.10.1, 3.12.5.10.3 3.12.5.10.4	Revised COL Item response wording based on response to RAI 399, Question 03.12-1 ¹ .	Revised COL Item response wording to address the essential elements of a program
GN-14-0043	3.12.5.10.2	Revised response to COL Item previously provided for RAI 399 in response to RAI 414, Question 3.12-2 (this response).	Deleted option to use similar and foreign plant data to determine if pressurizer surge line monitoring is required. This change supersedes the test for Section 3.12.5.10.2 provided in response to RAI 399 ¹ .