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10 CFR 50.4
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ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Response to Request for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3,
RAI 305, Technical Specifications

References:
1) Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "FINAL RAI 305 CTSB 5733, dated May 23, 2011.

2) UniStar Nuclear Energy Letter UN#11-240, from Greg Gibson to Document Control Desk, U.S. NRC, RAI Closure Plan, dated August 23, 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 May 23, 2011 (Reference 1). This RAI addresses Technical Specifications, as discussed in Section 16 of the Final Safety Analysis Report (FSAR), and as submitted in Parts 2 and 4 of the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA), Revision 7.

Reference 2 provided a response date of September 23, 2011, for RAI Question 16-23.

The Enclosure provides our response to RAI No. 305 Question 16-23, 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

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 September 23, 2011

Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI No. 305, Question 16-23, Technical Specifications, 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
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Enclosure
Response to NRC Request for Additional Information RAI No. 305,
Question 16-23, Technical Specifications,
Calvert Cliffs Nuclear Power Plant, Unit 3

RAI No. 305

NRC Question 16-23

This RAI is in response to the applicant's response to follow-up RAI 260, Question 16-22 (RAI 260, Question 16-22 was a follow-up to RAI 190, Question 16-20, which was a follow-up to RAI 95, Questions 16-1 and 16-2).

1. The response to Part B, Section 1.8.2, DEPARTURES, on Page 4 of 32 states that "The Setpoint Control Program (SCP) Administrative Technical Specification (TS) reference in COLA FSAR Section 1.8.2, "Departures," is being retained." The associated markup for Section 1.8.2 was not provided in the response.

2. The "Summary of Departure" discussion on page 28 of 32, states that "Applicable Surveillance Requirements and footnotes are revised to reference the Setpoint Control Program. Numerical setpoints are removed and replaced with a reference to the Setpoint Control Program." Footnotes that had been previously revised to reference the SCP in Table 3.3.1-2 were deleted in Part C of the response to RAI 190, Question 16-20. In addition, the footnote used to replace the numerical setpoints in the Limiting Trip Setpoint / Design Limit column of Table 3.3.1-2 was also deleted in Part C of the response to RAI 190, Question 16-20. The applicant is requested to provide the necessary clarifying information.

3. The "Summary of Departure" discussion on pages 28/29 of 32, states that "The TS Bases 3.3.1 are revised to incorporate additional background information and clarify the applicability of the program to specific functions." All Reactor Trip and Engineered Safety Features setpoints specified in the Protection System TS are subject to the requirements of the SCP identified in Plant Specific Technical Specifications (PTS) 5.5.18, "Setpoint Control Program." The applicant is requested to provide the necessary clarifying information.

4. The response to Part C, Setpoint Control Program section (Items 1,3,6), on pages 4 through 6, and the associated changes made to the SCP Administrative TS (5.5.18) on pages 15 through 18 (COLA Impact, Part 4, Item 10), do not sufficiently address the staff's concerns regarding the necessary content of the SCP TS, as indicated below:

   The response to Part C, Item 1, resulted in a significant re-write of step 5.5.18.c and revision to step 5.5.18.d of the proposed SCP TS. Although the referenced changes address the U.S. EPR overall surveillance testing philosophy that CALIBRATION surveillances are only performed at the sensor level (i.e., analog components subject to drift), inaccuracies exist relative to certain aspects of the program guidance associated with (1) the evaluation and trending of as-found calibration setting values, and (2) as-left calibration setting value calibration specifics.

   Regarding the response to Part C, Item 3, the staff questions the applicant's claim that Technical Report ANP-10287P, "Incore Trip Setpoint and Transient Setpoint Methodology For U.S. EPR," provides the methodology used to determine the channel uncertainties for the Low DNBR and HLPD Reactor Trip functions. It

appears that (1) ANP-10287P may only provide the methodologies used to determine the analytical limits associated with these functions, and (2) the methodology used to determine the channel uncertainties as described in ANP-10275P-A, "U.S. EPR Instrument Setpoint Methodology Topical Report," may actually be applicable to all functions, including those whose setpoints are cycle specific values (i.e., Table 3.3.1-2 functions A.1.a, A.1.b, A.1.c, A.1.d, A.1.e, A.2, B.11.c, B.11.d, B.12.a, and B.12.b).

Permissive value guidance as described in the response to Part C, Item 6, and the resultant changes made to steps 5.5.18.b and 5.5.18.e of the SCP TS, cannot be utilized. Permissive function setpoints are bracketed values in LCO 3.3.1, Table 3.3.1-2, of the U.S. EPR Design Certification. They are not stated values as originally indicated in RAI 260, Question 16-22, Part C, Item 6, on page 3 of 32.

The staff proposes that the applicant adopt the model specification provided within. It is the staff's position that the model specification satisfies 10 CFR 50.36(c)(1)(ii)(A). In addition, the applicant is requested to (1) determine which report(s) provide NRC approved methodologies for the determination of channel uncertainties and to ensure that only the applicable report(s) are referenced in step 5.5.18.b of the SCP TS, and (2) confirm that the SCP TS, revised to reflect the U.S. EPR overall surveillance testing philosophy that CALIBRATION surveillances are only performed at the sensor level, is fully supported by ANP-10275P-A, "U.S. EPR Instrument Setpoint Methodology Topical Report," which appears to be silent regarding the application of two-sided PTAC, AV, and ALT limits to each of the sensor calibration settings (e.g., the five points checked during CALIBRATION – 0%, 25%, 50%, 75%, and 100% of span).

5. Permissive value guidance as described in the response to Part C, Bases section (Items 1,2) on page 6 of 32, and the resultant changes made to the Bases discussions associated with Surveillance Requirements 3.3.1.4, 3.3.1.6, and 3.3.1.9, in corresponding Items f, g, and h on page 21 of 32, cannot be utilized. Permissive function setpoints are bracketed values in LCO 3.3.1, Table 3.3.1-2, of the U.S. EPR Design Certification. They are not stated values as originally indicated in RAI 260, Question 16-22, Part C, Bases section (Items 1,2), on page 3 of 32. The staff proposes that the applicant revise the Bases text in Items f, g, and h to read as follows:

   f. "In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT. The Setpoint Control Program also establishes requirements for the performance of CALIBRATION surveillances."

   g. "In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT. The Setpoint Control Program also establishes requirements for the performance of CALIBRATION surveillances."

h. "SR 3.3.1.9 verifies that the Nominal Trip Setpoints are properly loaded into the applicable APUs. In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT."

6. The markup for Plant-Specific Technical Specifications, Item c, on page 10 of 32, reads "Verify setpoints are properly loaded in APUs in accordance with TS 5.5.18, "Setpoint Control Program."" Item c should read "Verify setpoints are properly loaded in APUs in accordance with Specification 5.5.18, "Setpoint Control Program (SCP)"", to ensure consistency with similar changes made to Plant-Specific Technical Specifications, Items a and b, on page 10 of 32.

7. COLA Impact, Part 4, Generic Changes, Item 1, TS 1.1, DEFINITIONS, on page 8 of 32, addresses bracketed information associated with the Definition for PROTECTION SYSTEM (PS) RESPONSE TIME. The Reviewer's Note referenced in subpart b under Generic Technical Specifications is being revised in the U.S. EPR Design Certification. In addition, the response did not address the bracketed information and associated Reviewer's Note in the Bases discussion for the Protection System Response Time Surveillance Requirement (SR 3.3.1.10). The applicant is requested to provide the necessary clarifying information.

8. COLA Impact, Part 4, Site Specific Changes, Item 1, LCO 3.3.2, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION, on page 25 of 32, revises CCNPP Unit 3 TS Table 3.3.2-1, "Post Accident Monitoring Instrumentation," by adding the PAM variable "Essential Service Water System Cooling Tower Basin Level." COLA Impact, Part 4, Site Specific Changes, Item 3, BASES 3.3.2, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION, on page 26 of 32, revises CCNPP Unit 3 Bases Section B 3.3.2 by providing a Bases discussion for the PAM variable "Essential Service Water System Cooling Tower Basin Level." The staff questions inclusion of this site-specific PAM variable in CCNPP Unit 3 TS Table 3.3.2-1 and associated Bases Section B 3.3.2, as well as its classification as a Type A variable, based on the following:

   A 72-hour basin water volume is the minimum water volume that must be present in a basin to accommodate system water inventory losses experienced in the basin due to ultimate heat sink tower operation under the worst case environmental conditions, and with the highest essential service water heat load for a 72-hour period, without incurring pump damage during operation. The applicable modes for PAM instrumentation (Types A, B, and C) in LCO 3.3.2 are Modes 1, 2, and 3. From an operational perspective, would CCNPP Unit 3 be expected to remain in Mode 3 (Hot Standby; ≥ 350 °F) following a Design Basis Accident (DBA) event requiring the implementation of EOPs beyond the 72 hour point? In all likelihood, the plant would most likely be in Mode 4 (Hot Shutdown; 350 °F > Tavg > 200 °F) with plans to transition to Mode 5 (Cold Shutdown; ≤ 200 °F) well before expiration of the 72 hour period beyond which the site-specific PAM variable for monitoring the performance of the Ultimate Heat Sink (UHS) in the Calvert PTS would be required.

The applicant is requested to justify the Type A classification for the "Essential Service Water System Cooling Tower Basin Level" PAM variable and its inclusion in CCNPP Unit 3 TS Table 3.3.2-1 and associated Bases Section B 3.3.2.

Attachment to RAI 305 (eRAI 5733)

Example Setpoint Control Program Specification
(CCNPP Unit 3, Follow up to RAI 260, Question 16-22)

5.5.18 Setpoint Control Program

a. The Setpoint Control Program (SCP) implements the regulatory requirement of 10 CFR 50.36 (c)(1)(ii)(A) that technical specifications will include items in the category of limiting safety system settings (LSSS), which are settings for automatic protective devices related to those variables having significant safety functions. The LSSS for both SL related and Non-SL related automatic protection instrumentation functions are included in the scope of the Setpoint Control Program.

b. The Limiting Trip Setpoint (LTSP), Nominal Trip Setpoint (NTSP), Allowable Value (AV), Performance Test Acceptance Criteria (PTAC) and As-Left Tolerance (ALT) for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT, shall be calculated in conformance with the instrumentation setpoint methodology previously reviewed and approved by the NRC in ANP-10275P-A, "U.S. EPR Instrument Setpoint Methodology Topical Report," Revision 0, dated February 26, 2008 (ML080590482), and the conditions stated in the associated NRC safety evaluation.

c. Performance of CALIBRATION surveillances shall include the following:

    1. The as-left calibration setting values shall be the values at which the sensor was set at the completion of the surveillance with no additional adjustment of the sensor. The as-found calibration setting values shall be the values measured during subsequent performance of the surveillance before making any adjustment to the sensor that could change the calibration setting values.

    2. The as-found calibration setting values shall be compared with the previous as-left values or the specified calibration settings (e.g., 0, 25, 50, 75, 100%). If the as-found calibration setting values are compared with the specified calibration settings to meet this requirement, then the following conditions apply:

        i. the setting tolerance band (i.e., the specified ALT) must be less than or equal to the square root of the sum of the squares of reference accuracy, measurement and test equipment errors, and readability uncertainties;

        ii. the setting tolerance band (i.e., the specified ALT) must be included in the total loop uncertainty; and

        iii. the pre-defined test acceptance criteria band (i.e., the specified PTAC) for each as-found calibration setting value must include either the setting tolerance band (the

specified ALT) or the uncertainties associated with the setting tolerance band (the specified ALT), but not both of these.

3. If any as-found calibration setting value is outside the two-sided limits of "previous as-left value ± PTAC" or "calibration setting ± PTAC," but inside the specified limits of ± AV, then the sensor shall be evaluated to verify that it is functioning in accordance with its design basis before declaring the surveillance requirement met and returning the sensor to service. This condition shall be dispositioned by the plant's corrective action program.

4. If any as-found calibration setting value is outside the two-sided limits of ± AV, then the surveillance requirement is not met and the sensor shall be immediately declared inoperable.

5. The sensor shall be calibrated such that the as-left calibration setting values are within the specified ALT around the specified calibration settings (e.g., 0, 25, 50, 75, 100%) at the completion of each CALIBRATION surveillance; otherwise, the surveillance requirement is not met and the sensor shall be immediately declared inoperable.

d. The difference between each as-found calibration setting value and either the previously recorded as-left value or the specified calibration setting (e.g., 0, 25, 50, 75, 100%) for each sensor, shall be trended and evaluated to verify that the sensor is functioning in accordance with its design basis.

e. The Setpoint Control Program shall establish a document containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT, a record of changes to those values, and references to the calculation documentation. Changes to this document shall be governed by the regulatory requirements of 10 CFR 50.59. In addition, changes to the specified LTSP, NTSP, AV, PTAC, and ALT values shall be governed by the approved setpoint methodology. This document, including any midcycle revisions or supplements, shall be provided to the NRC upon issuance for the initial cycle and each reload cycle.

f. The NTSP value for each Technical Specification required automatic protection instrumentation function shall be verified to be properly loaded into its assigned Acquisition and Processing Unit during the performance of Surveillance Requirement 3.3.1.9.

Response

NRC Question 16 - 23, Item 1:

Question 16 - 23, Item 1, refers to the Part B, Section 1.8.2 DEPARTURES portion of the RAI 260, Question 16 - 22 response[1]. The RAI 260, Question 16 - 22 response stated, "The Setpoint Control Program (SCP) Administrative Technical Specification (TS) reference in COLA FSAR Section 1.8.2, "Departures," is being retained." The response should also have indicated that the Setpoint Control Program had been reinserted into COLA Section 1.8.2 as a result of ongoing COLA updates not associated with the RAI 260, Question 16 - 22 response. An excerpt of COLA Section 1.8.2, Revision 7, is provided below.

1.8.2 Departures

...	
Coefficient of Static Friction	FSAR 3.8.5.5
Generic Technical Specifications and Bases - Setpoint Control Program	FSAR 16 (COLA Part 4)

...

The COLA Impact section of this response will not include any associated COLA Section 1.8.2 markup as no markup is currently required.

NRC Question 16 - 23, Item 2:

The COLA Impact section of this response shows the changes to the "Summary of Departure" discussion. The changes provide clarifying information regarding revision to applicable Surveillance Requirements and footnotes to reference the Setpoint Control Program. The "Summary of Departure" discussion for Section 1.1.9, GENERIC TECHNICAL SPECIFICATIONS AND BASES - SETPOINT CONTROL PROGRAM, will be revised to read as follows:

> Summary of Departure:
>
> A Setpoint Control Program is adopted in the CCNPP Unit 3 Technical Specifications (TS). TS 3.3.1 is revised to delete the ~~associated Reviewer's Notes and~~ bracketed information. Applicable Surveillance Requirements ~~and footnotes~~ are revised to reference the Setpoint Control Program. Numerical setpoints in the bracketed "Nominal Trip Setpoint" column of Table 3.3.1-2 are removed and replaced with a reference to the Setpoint Control Program. TS 5.5 is revised to add a Setpoint Control Program description to the Administrative Controls - Programs and Manuals Section (5.5). The Setpoint Control Program description references the NRC approved setpoint methodology documents that shall be used for the development of required numerical setpoints. The TS Bases 3.3.1 are revised to incorporate additional background information and clarify ~~the applicability of the program to specific functions~~ that the

[1] UniStar Nuclear Energy Letter UN#10-292, 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. 260, Technical Specifications Setpoint Control Program, dated November 19, 2010

Reactor Trip, Engineered Safety Features, Safety Automation System, and Permissive setpoints specified in the Distributed Control TS are subject to the requirements of the SCP identified in TS 5.5.18, "Setpoint Control Program."

NRC Question 16 - 23, Item 3:

Clarifying information regarding the applicability of the Setpoint Control Program to Reactor Trip and Engineered Safety Features setpoints specified in the Protection System TS subject to the requirements of the SCP, is provided in the Response to Question 16 - 23, Item 2 above.

NRC Question 16 - 23, Item 4:

The response to this question is provided in three parts below:

a) With regard to the wording of the NRC's proposed Setpoint Control Program (SCP) description, UniStar is revising Step C.4 to delete the reference to a two-sided limit for the AV.

Regulatory Guide 1.105, Figure 1, shows the allowable value only on the conservative side (approaching the Analytical Limit). Additionally, page 6 of Regulatory Guide 1.105 states:

> "Section 4.3 of ISA-S67.04-1994 states that the limiting safety system setting (LSSS) may be the trip setpoint, an allowable value, or both. For the standard technical specifications, the staff designated the allowable value as the LSSS. In association with the trip setpoint and limiting conditions for operation (LCOs), the LSSS establishes the threshold for protective system action to prevent acceptable limits being exceeded during design basis accidents. The LSSS therefore ensures that automatic protective action will correct the abnormal situation before a safety limit is exceeded."

In addition, in RAI 2 to ANP-10275P-A, NRC requested, in part, clarification of the AV (ML080590482). The AREVA NP response[2] to the RAI stated "The AV (defined as the least conservative acceptable as-found surveillance value) defines the maximum possible value for process measurement at which the AL is protected. The AV verifies that the AL and Safety Limit are still protected at the time of the surveillance. Since OPERABILITY of the instrument channel is determined at the time of the surveillance performance, the fact that the tested trip point occurred conservative to the AV ensures that at that point in time the channel would have functioned to protect the AL and is OPERABLE. With the implementation of these concepts, calculation of the AV using any of the ISA 67.04 Part II methods is acceptable."

Therefore, the intent of the AV is to protect the safety limit and it is not a two-sided value. A proposed update to the Setpoint Control Program to reflect this change is attached.

b) With regard to the NRC request to determine which report(s) provides NRC approved methodologies for the determination of channel uncertainties and to ensure that only the

[2] ANP-10275P-A, "US EPR Instrument Setpoint Methodology Topical Report", document date December 31, 2007 (ADAMS No. ML080590512).

applicable report(s) are referenced in Step 5.5.18.b of the SCP TS, both AREVA Topical Reports ANP-10275P-A, "U.S. EPR Instrument Setpoint Methodology," and ANP-10287P, "Incore Trip Setpoint and Transient Methodology for U.S. EPR Topical Report," which are referenced in Chapter 7 of the U.S. EPR FSAR, are used in the determination of Channel Uncertainties for credited reactor trip and Engineered Safety Features functions. As stated in the Introduction to ANP-10275P-A:

> "This report addresses the uncertainty methodology for the inputs to complex functions, with the exception of the self-powered neutron detectors (SPNDs). Incore instrumentation, high linear power density (HLPD), high core power level (HCPL), low saturation margin, anti-dilution, and departure from nucleate boiling ratio (DNBR) are outside the scope of this report because they use a statistical methodology other than square root sum of the sum of the squares (SRSS), such as an approved safety analysis code."

ANP-10287P documents the analytical methodology used to determine the setpoints for the incore-based DNBR and LPD functions. While ANP-10287P utilizes the methodology described in ANP-10275-P-A for most sensors, the modeling of the uncertainties associated with the SPNDs is only addressed in ANP-10287P.

Therefore, both ANP-10275P-A and ANP-10287P should be referenced in Step 5.5.18.b of the SCP description. A proposed update to the SCP description to reflect this change is provided in the COLA Impact section of this response.

c) With regard to the NRC request to confirm that the SCP TS, revised to reflect the U.S. EPR overall surveillance testing philosophy that CALIBRATION surveillances are only performed at the sensor level, is fully supported by ANP-10275P-A, UniStar has not identified any conflicts between the SCP description and the AREVA Topical Report. Section 4.2, *Performance Test Acceptance Criteria*, of ANP-10275P-A states:

> "The PTAC shall be based on a prediction of the expected performance of the tested instrumentation under the test conditions. These acceptance criteria are established to provide reasonable assurance that the equipment performs as expected and that there is no masking of equipment degradation. The total loop uncertainty calculations shall include the determination of the AF tolerance in addition to the determination of the LTSP. The determination of the AF tolerance shall include those effects expected during the test such as the RA, instrument uncertainties during normal operation including DR, and M&TE uncertainties. If the AF value exceeds the PTAC from the NTSP during surveillance testing, a report will be entered into the corrective action program. The instrument is declared inoperable if the AF value exceeds the AV (RIS 2006-17)."

Specific details regarding the calibration and acceptance criteria for each sensor (e.g., the five points checked during CALIBRATION – 0%, 25%, 50%, 75%, and 100% of span for applicable sensors) will be included in the applicable procedure. Note that comments regarding the phrase "two-sided limits of ± AV" are provided in Part a, above.

NRC Question 16 - 23, Item 5:

Regarding the Permissive value guidance described in Part C of the response to RAI 260, Question 16-22, UniStar will revise the Bases text for Items f, g, and h to control Permissive values under the SCP, as follows:

f. "In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document that containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT. The Setpoint Control Program also establishes requirements for the performance of CALIBRATION surveillances. ~~Permissive values shall be as specified in U.S. EPR FSAR, Tier 2 Section 7.2.1.3.~~"

g. "In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document that containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT. The Setpoint Control Program also establishes requirements for the performance of CALIBRATION surveillances. ~~Permissive values shall be as specified in U.S. EPR FSAR, Tier 2 Section 7.2.1.3.~~"

h. "SR 3.3.1.9 verifies that the ~~setpoints~~ Nominal Trip Setpoints are properly loaded into the applicable APUs. In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT. ~~Permissive values shall be as specified in U.S. EPR FSAR, Tier 2 Section 7.2.1.3.~~"

NRC Question 16 - 23, Item 6:

Regarding the markup on page 10 of 32, UniStar will revise the Plant-Specific Technical Specifications, Item c, "Surveillance Requirement 3.3.1.9" states as follows:

> Verify setpoints are properly loaded in APUs in accordance with ~~TS~~Specification 5.5.18, "Setpoint Control Program."

NRC Question 16 - 23, Item 7:

Regarding the request to provide clarifying information regarding the bracketed information and associated Reviewer's Note in the Bases discussion for the Protection System Response Time Surveillance Requirement (SR 3.3.1.10), UniStar will revise Part 4, Generic Changes, Item 1, TS 1.1, DEFINITIONS as follows:

TS 1.1 DEFINITIONS

Generic Technical Specifications:

a. The ~~PROTECTION SYSTEM (PS)~~ RESPONSE TIME definition includes brackets around the following:

"In lieu of measurement, response time may be verified for selected components provided that the components and methodology for the verification have been previously reviewed and approved by the NRC."

b. A Reviewer's Note in the ~~PROTECTION SYSTEM (PS)~~ RESPONSE TIME definition states:

~~"Applicable portions of the NRC approved Topical Reports may be utilized to modify the requirements for response time surveillance testing. These applicable portions of NRC approved Topical Reports should be referenced and discussed in the Bases description for the PS RESPONSE TIME surveillance requirement."~~
"The last sentence in the RESPONSE TIME definition applies to plants that have obtained NRC approval to utilize allocations for selected components based on NRC-approved U.S. EPR-applicable Topical Reports."

Plant-Specific Technical Specifications:

a. The brackets and associated text in the ~~PROTECTION SYSTEM (PS)~~ RESPONSE TIME definition are deleted.

b. The Reviewer's Note in the ~~PROTECTION SYSTEM (PS)~~ RESPONSE TIME definition are deleted.

Justification:

a. The brackets and associated text are no longer required because there are no NRC approved Topical Reports which may be utilized to modify the requirements for response time surveillance testing.

b. The Reviewer's Note is no longer required because there are no NRC approved Topical Reports which may be utilized to modify the requirements for response time surveillance testing.

Regarding the Reviewer's Note referenced in Subpart b under Generic Technical Specifications, being revised in Revision 3 of U.S. EPR Design Certification, UniStar will revise the Reviewer's Note in CCNPP Unit 3 COLA as stated in the response to Question 16-23 Item 7 above.

Regarding the request for clarifying information addressing the bracketed information and associated Reviewer's Note in the Bases discussion for the Protection System Response Times Surveillance Requirement (SR 3.3.1.10), there were two (2) changes made in Revision 3 of the U.S. EPR Technical Specifications Bases 3.3.1. The first change renumbered SR 3.3.1.10 to

SR 3.3.1.11 and the second change modified the quoted information regarding the use of Topical Reports. UniStar will revise Bases 3.3.1 as follows:

13 BASES 3.3.1 PROTECTION SYSTEM (PS)

Generic Technical Specifications:

i. TS Bases 3.3.1 includes a Reviewer's Note in Surveillance Requirement 3.3.1~~0~~1 that states "~~Applicable portions of NRC approved Topical Reports may be utilized to modify the requirements for response time surveillance testing. These applicable portions of NRC approved Topical Reports should be referenced and discussed~~The following Bases apply to plants that have obtained NRC approval to utilize allocations for selected components based on NRC-approved U.S. EPR-applicable Topical Reports."

NRC Question 16 - 23, Item 8:

The Ultimate Heat Sink (UHS), in conjunction with the Essential Service Water (ESW) System, is designed to provide cooling during normal, abnormal and accident conditions. ESW cooling tower basin level instrumentation provides indication of the availability of cooling tower basin inventory to support the UHS safety function, and is a key parameter used to determine UHS train operability. The basins of the ESW cooling towers are sized to provide sufficient water to support performance of the UHS safety function, which is to dissipate core decay heat and support containment cooling, for up to 3 days (72 hours) post-accident under worst case conditions without requiring replenishment. Normal makeup to the ESW cooling tower basins is provided by the non-safety-related desalinization plant. If normal makeup is not available, emergency makeup water to the ESW cooling tower basins (and UHS) is provided through manual operation of the UHS Makeup Water System. Operator action to manually start the UHS Makeup Water System is directed by plant Emergency Operating Procedures.

Regulatory Guide 1.97, Revision 4, endorses IEEE Standard 497-2002, "IEEE Standard Criteria for Accident Monitoring Instrumentation for Nuclear Power Generating Stations." Section 4.1 of IEEE Standard 497-2002, states:

> Type A variables are those variables that provide the primary information required to permit the control room operating staff to:
>
> a) Take specific planned manually-controlled actions for which no automatic control is provided and that are required for safety systems to perform their safety-related functions as assumed in the plant Accident Analysis Licensing Basis.
>
> b) Take specific planned manually-controlled actions for which no automatic control is provided and that are required to mitigate the consequences of an AOO.

The Type A classification for the "Essential Service Water System Cooling Tower Basin Level" PAM variable is appropriate because it is a variable that provides the primary information

required to permit the control room operating staff to take the specific planned manually-controlled action of starting the UHS Makeup Water System. The description of a Type A variable includes mention of "manually-controlled actions for which no automatic control is provided." The operator action to manually start the UHS Makeup Water System is the primary preferred method of starting the UHS Makeup Water System.

The RAI 279, Question 09.02.05-7 response[3] provided new COLA Section 9.2.5.7.3.2, "UHS Makeup Actuation from SIS Coincident with Low Water Level in the Cooling Tower Basin." This section lists the actions that take place automatically in the event that no manual action for system priming has occurred, following a Safety Injection Signal (SIS) signal and coincident low water level. This system provides an automatic backup to the primary method of manually starting the UHS Makeup Water System, however, this system is not credited for design basis scenarios.

COLA Impact

COLA Part 4, Generic Changes, will be revised as follows:

GENERIC CHANGES

These changes are made for all UniStar fleet COLAs.

1 DEFINITIONS

Generic Technical Specifications:

c. The ~~PROTECTION SYSTEM (PS)~~ RESPONSE TIME definition includes brackets around the following:

"In lieu of measurement, response time may be verified for selected components provided that the components and methodology for the verification have been previously reviewed and approved by the NRC."

d. A Reviewer's Note in the ~~PROTECTION SYSTEM (PS)~~ RESPONSE TIME definition states:
~~"Applicable portions of the NRC approved Topical Reports may be utilized to modify the requirements for response time surveillance testing. These applicable portions of NRC approved Topical Reports should be referenced and discussed in the Bases description for the PS RESPONSE TIME surveillance requirement."~~
"The last sentence in the RESPONSE TIME definition applies to plants that have obtained NRC approval to utilize allocations for selected components based on NRC-approved U.S. EPR-applicable Topical Reports."

Plant-Specific Technical Specifications:

[3] 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 No. 279, Ultimate Heat Sink, dated August 19, 2011

c. The brackets and associated text in the ~~PROTECTION SYSTEM (PS)~~ RESPONSE TIME definition are deleted.

d. The Reviewer's Note in the ~~PROTECTION SYSTEM (PS)~~ RESPONSE TIME definition are deleted.

...

COLA Part 4, LCO 3.3.1 Protection System (PS), will be revised as follows:

Plant Specific Technical Specifications:

a. Surveillance Requirement 3.3.1.4 is revised to state:

"Perform CALIBRATION in accordance with Specification 5.5.18, "Setpoint Control Program (SCP). ""

b. Surveillance Requirement 3.3.1.6 is revised to state:

"Perform CALIBRATION in accordance with Specification 5.5.18, "Setpoint Control Program (SCP).""

c. Surveillance Requirement 3.3.1.9 is revised to state:

"Verify setpoints are properly loaded in APUs in accordance with ~~TS~~Specification 5.5.18, "Setpoint Control Program.""

...

COLA Part 4, TS 5.5.18 Setpoint Control Program, will be revised as follows:

10 TS 5.5.18 SETPOINT CONTROL PROGRAM

Generic Technical Specifications:

The Generic Technical Specifications do not describe a Setpoint Control Program.

Plant Specific Technical Specifications:

The following program description represents an Exemption and Departure to the U.S. EPR FSAR. It is added to the Plant-Specific Technical Specifications.

5.5.18 Setpoint Control Program (SCP)

~~d. The Setpoint Control Program implements the regulatory requirement of 10 CFR 50.36(c)(1)(ii)(A) that technical specifications will include items in the category of limiting safety system settings (LSSS), which are settings for automatic protective devices related to those variables having~~

~~significant safety functions. Both SL-LSSS and Non-SL LSSS automatic protective instrumentation functions are included in the scope of the Setpoint Control Program.~~

~~e. The Limiting Trip Setpoint (LTSP), Nominal Trip Setpoint (NTSP), Allowable Value (AV), Performance Testing Acceptance Criteria (PTAC), and As-Left Tolerance (ALT) for each Technical Specification required automatic protection instrumentation function shall be calculated in conformance with the instrumentation setpoint methodology previously reviewed and approved by the NRC. The NRC approved methodologies used to determine the Analytical Limits shall be those described in:~~

~~2. Technical Specification 5.6.3, CORE OPERATING LIMITS REPORT (COLR).~~

~~3. Technical Specification 5.6.4, Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMIT REPORT (PTLR).~~

~~The NRC approved methodologies used to determine the channel uncertainty are as follows:~~

~~1. ANP-10275P-A, "U.S EPR Instrument Setpoint Methodology Topical Report," Revision 0, dated February 26, 2008 (ML080590482), and the conditions stated in the associated NRC safety evaluation.~~

~~2. [ANP-10287P-A, "Incore Trip Setpoint and Transient Setpoint Methodology For U.S. EPR," Revision #, dated Month dd, yyyy, (MLxxxxxxxxx)], and the conditions stated in the associated NRC safety evaluation, [Letter to AREVA NP from NRC, Title, dated Month, dd, yyyy, (MLxxxxxxxxx)].~~

~~Permissive values shall be as specified in U.S. EPR FSAR, Tier 2 Section 7.2.1.3.~~

~~c. Performance of CALIBRATION surveillances shall include the following:~~

~~1. If the as-found calibration setting values are inside the two-sided limits of the PTAC, then the division is OPERABLE.~~

~~2. If the as-found calibration setting value is outside the two-sided limits of the PTAC, then the division is inoperable, and corrective action is required, including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required.~~

~~As-found acceptance criteria will generally utilize no more than the square-root-sum-of-squares combination of the Reference Accuracy, M&TE, M&TE Readability, and Drift. The performance test verifies that the instruments are performing as expected. To prevent masking equipment degradation the acceptance criteria shall not include any~~

~~margin. There are some applications in which a sensor or transmitter may be tested during abnormal conditions so that other uncertainty contributors such as temperature effects, radiation effects, vibration effects, apply. Site-specific procedures will establish trending requirements.~~

~~3. The sensor(s) shall be calibrated such that the as-left sensor calibration setting value(s) are within the specified ALT around the specified NTSP (a trip setting as or more conservative than the specified LTSP) for each required automatic protection instrumentation function at the completion of the surveillance; otherwise, the surveillance requirement is not met and the sensor shall be immediately declared inoperable.~~

~~d. The difference between the as-found calibration setting values and the previously recorded as-left values for each sensor shall be trended and evaluated to verify that the sensor is functioning in accordance with its design basis.~~

~~e. The Setpoint Control Program shall establish a document containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, a record of changes to those values, and references to the calculation documentation. Permissive values shall be as specified in U.S. EPR FSAR, Tier 2 Section 7.2.1.3. Changes to this document shall be governed by the regulatory requirements of 10 CFR 50.59. In addition, changes to this document shall be governed by the approved setpoint methodology. This document, including any midcycle revisions or supplements, shall be provided to the NRC upon issuance for the initial cycle and each reload cycle.~~

a. The Setpoint Control Program (SCP) implements the regulatory requirement of 10 CFR 50.36 (c)(1)(ii)(A) that technical specifications will include items in the category of limiting safety system settings (LSSS), which are settings for automatic protective devices related to those variables having significant safety functions. The LSSS for both SL related and Non-SL related automatic protection instrumentation functions are included in the scope of the Setpoint Control Program.

b. The Limiting Trip Setpoint (LTSP), Nominal Trip Setpoint (NTSP), Allowable Value (AV), Performance Test Acceptance Criteria (PTAC) and As-Left Tolerance (ALT) for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT, shall be calculated in conformance with the instrumentation setpoint methodology in the following documents:

1. ANP-10275P-A, "U.S. EPR Instrument Setpoint Methodology Topical Report," Revision 0, dated February 26, 2008

(ML080590482), and the conditions stated in the associated NRC safety evaluation.

2. [ANP-10287P-A, "Incore Trip Setpoint and Transient Setpoint Methodology For U.S. EPR," Revision #, dated Month dd, yyyy, (MLxxxxxxxxx)], and the conditions stated in the associated NRC safety evaluation, [Letter to AREVA NP from NRC, Title, dated Month, dd, yyyy, (MLxxxxxxxxx)].

c. Performance of CALIBRATION surveillances shall include the following:

1. The as-left calibration setting values shall be the values at which the sensor was set at the completion of the surveillance with no additional adjustment of the sensor. The as-found calibration setting values shall be the values measured during subsequent performance of the surveillance before making any adjustment to the sensor that could change the calibration setting values.

2. The as-found calibration setting values shall be compared with the previous as-left values or the specified calibration settings (e.g., 0, 25, 50, 75, 100%). If the as-found calibration setting values are compared with the specified calibration settings to meet this requirement, then the following conditions apply:

   i. the setting tolerance band (i.e., the specified ALT) must be less than or equal to the square root of the sum of the squares of reference accuracy, measurement and test equipment errors, and readability uncertainties;

   ii. the setting tolerance band (i.e., the specified ALT) must be included in the total loop uncertainty; and

   iii. the pre-defined test acceptance criteria band (i.e., the specified PTAC) for each as-found calibration setting value must include either the setting tolerance band (the specified ALT) or the uncertainties associated with the setting tolerance band (the specified ALT), but not both of these.

3. If any as-found calibration setting value is outside the two-sided limits of "previous as-left value ± PTAC" or "calibration setting ± PTAC," but inside the specified limits of ± AV, then the sensor shall be evaluated to verify that it is functioning in accordance with its design basis before declaring the surveillance requirement met and returning the sensor to service. This condition shall be dispositioned by the plant's corrective action program.

4. If any as-found calibration setting value is outside the AV, then the surveillance requirement is not met and the sensor shall be immediately declared inoperable.

5. The sensor shall be calibrated such that the as-left calibration setting values are within the specified ALT around the specified calibration settings (e.g., 0, 25, 50, 75, 100%) at the completion of each CALIBRATION surveillance; otherwise, the surveillance requirement is not met and the sensor shall be immediately declared inoperable.

d. The difference between each as-found calibration setting value and either the previously recorded as-left value or the specified calibration setting (e.g., 0, 25, 50, 75, 100%) for each sensor, shall be trended and evaluated to verify that the sensor is functioning in accordance with its design basis.

e. The Setpoint Control Program shall establish a document containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT, a record of changes to those values, and references to the calculation documentation. Changes to this document shall be governed by the regulatory requirements of 10 CFR 50.59. In addition, changes to the specified LTSP, NTSP, AV, PTAC, and ALT values shall be governed by the approved setpoint methodology. This document, including any midcycle revisions or supplements, shall be provided to the NRC upon issuance for the initial cycle and each reload cycle.

f. The NTSP value for each Technical Specification required automatic protection instrumentation function shall be verified to be properly loaded into its assigned Acquisition and Processing Unit during the performance of Surveillance Requirement 3.3.1.9.

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COLA Part 4, Bases 3.3.1 Protection System (PS) – Generic Technical Specifications Item i, will be revised as follows:

Generic Technical Specifications:

...

h. TS Bases 3.3.1, Surveillance Requirements, 3.3.1.9, states "SR 3.3.1.9 verifies that the Limiting Trip Setpoint, Design Limits, and Permissive values have been properly loaded into the applicable APU."

i. TS Bases 3.3.1 includes a Reviewer's Note in Surveillance Requirement 3.3.1~~0~~1 that states

"~~Applicable portions of NRC approved Topical Reports may be utilized to modify the requirements for response time surveillance testing. These applicable portions of NRC approved Topical Reports should be~~

~~referenced and discussed~~The following Bases apply to plants that have obtained NRC approval to utilize allocations for selected components based on NRC-approved U.S. EPR-applicable Topical Reports."

...

COLA Part 4, Bases 3.3.1 Protection System (PS), will be revised as follows:

e. Bases 3.3.1, Actions, the following sentence is added to the end of the first paragraph:

"The Setpoint Control Program ensures that divisions are performing as expected by confirming that the drift and other related errors are consistent with the supporting setpoint methodologies and calculations."

f. Bases 3.3.1, Surveillance Requirements, SR 3.3.1.4, is revised to add the following paragraph at the end of the SR:

"In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document that containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT. The Setpoint Control Program also establishes requirements for the performance of CALIBRATION surveillances. ~~Permissive values shall be as specified in U.S. EPR FSAR, Tier 2 Section 7.2.1.3.~~"

g. Bases 3.3.1, Surveillance Requirements, SR 3.3.1.6, is revised to add the following paragraph at the end of the SR:

"In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document that containing the current value of the specified LTSP, NTSP, AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT. The Setpoint Control Program also establishes requirements for the performance of CALIBRATION surveillances. ~~Permissive values shall be as specified in U.S. EPR FSAR, Tier 2 Section 7.2.1.3.~~"

h. TS Bases 3.3.1, Surveillance Requirements, SR 3.3.1.9, is revised to state:

"SR 3.3.1.9 verifies that the ~~setpoints~~ Nominal Trip Setpoints are properly loaded into the applicable APUs. In accordance with Specification 5.5.18, the Setpoint Control Program shall establish a document containing the current value of the specified LTSP, NTSP,

AV, PTAC, and ALT for each Technical Specification required automatic protection instrumentation function, except for permissive functions, which only require the NTSP, AV, PTAC, and ALT. ~~Permissive values shall be as specified in U.S. EPR FSAR, Tier 2 Section 7.2.1.3.~~"

i. TS Bases 3.3.1 Surveillance Requirements is revised to remove the Reviewer's Note and bracketed text regarding topical reports.

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COLA Part 7, Section 1.1.9 will be revised as follows:

1.1.9 GENERIC TECHNICAL SPECIFICATIONS AND BASES - SETPOINT CONTROL PROGRAM

Affected U.S. EPR FSAR Sections: Tier 2, Section 16 - Technical Specifications (TS) 3.3.1 and 5.5, and Bases 3.3.1

Summary of Departure:

A Setpoint Control Program is adopted in the CCNPP Unit 3 Technical Specifications (TS). TS 3.3.1 is revised to delete the ~~associated Reviewer's Notes and~~ bracketed information. Applicable Surveillance Requirements ~~and footnotes~~ are revised to reference the Setpoint Control Program. Numerical setpoints in the bracketed "Nominal Trip Setpoint" column of Table 3.3.1-2 are removed and replaced with a reference to the Setpoint Control Program. TS 5.5 is revised to add a Setpoint Control Program description to the Administrative Controls - Programs and Manuals Section (5.5). The Setpoint Control Program description references the NRC approved setpoint methodology documents that shall be used for the development of required numerical setpoints. The TS Bases 3.3.1 are revised to incorporate additional background information and clarify ~~the applicability of the program to specific functions~~ that the Reactor Trip, Engineered Safety Features, Safety Automation System, and Permissive setpoints specified in the Distributed Control TS are subject to the requirements of the SCP identified in TS 5.5.18, "Setpoint Control Program."

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