UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 21, 2012

Mr. Brian J. O'Grady
Vice President-Nuclear and CNO
Nebraska Public Power District
72676 648A Avenue
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION – CORRECTION TO AMENDMENT NO. 242 TECHNICAL SPECIFICATION AND SAFETY EVALUATION RE: IMPLEMENTATION OF A 24-MONTH FUEL CYCLE AND ADOPTION OF TSTF-493, REVISION 4, OPTION A (TAC NO. ME7169)

Dear Mr. O'Grady:

By letter dated September 28, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12251A098), the U.S. Nuclear Regulatory Commission (NRC, the Commission) issued Amendment No. 242 to Renewed Facility Operating License No. DPR-46 for the Cooper Nuclear Station (CNS), in response to your application dated September 16, 2011, as supplemented by letters dated May 2, May 24, and September 17, 2012 (ADAMS Accession Nos. ML11264A165, ML121290449, ML12151A132, and ML12268A168, respectively). The amendment revised the CNS Technical Specifications (TSs) and operating license to implement a 24-month fuel cycle and adopt TS Task Force (TSTF) Traveler TSTF-493, Revision 4, "Clarify Application of Setpoint Methodology for LSSS [Limiting Safety System Settings] Functions," Option A. Specifically, the amendment revises certain TS Surveillance Requirement frequencies that are specified as "18 months" by changing them to "24 months" in accordance with the guidance provided in NRC Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle."

The following editorial errors were found after the issuance of Amendment No. 242, as documented by e-mail from D. Van Der Kamp (Nebraska Public Power District, the licensee) to M. Markley (NRC) dated November 20, 2012.

1. TS Page 3.3-60: The LLS Pressure Setpoint AV for Low Open currently states 996.5 psig. The revised value is 966.5 psig, as stated in the licensee's letter dated May 2, 2012.

2. Safety Evaluation (SE) page 2: The designation and title references to TS Tables 3.3.1.1-1, 3.3.2.1-1, 3.3.5.1-1, and 3.3.5.2-1 are incorrect and should conform to those in the TSs.

3. SE page 11: The first line of page 11 and the title of SE Section 3.3.1, Item 1, should refer to "channel function tests" instead of "channel functional tests" for clarification.

4. SE page 12: The title of SE Section 3.3.1, Item 2, should be "CHANNEL FUNCTION TESTS" instead of "RESPONSE TIME TESTS" for clarification.

5. SE page 13: The last paragraph regarding TS 3.3.6.3 states, "The Low opening pressure is changed from "> 995 psig and < 1035 psig" to "> 996.5 psig and < 1010 psig." This statement should be revised to read, "The Low opening pressure is changed from "≥ 995 psig and ≤ 1035 psig" to "≥ 966.5 psig and ≤ 1010 psig" as stated in the licensee's letter dated May 2, 2012. Additionally, the inequality symbols are being corrected; < and > should be ≤ and ≥ respectively.

6. SE page 16: For TS 3.3.4.1, the inequality symbols are being corrected; "< and >" should be "≤ and ≥" respectively, as stated in the licensee's application dated September 16, 2011, as supplemented.

7. SE page 21: In the second paragraph, the reference to the licensee's letter dated May 24, 2012, should be corrected to its letter dated May 2, 2012.

8. SE page 24: In Section 3.10.2, the reference to SR 3.6.1.7.2 should be to SR 3.6.1.8.2, as stated in the licensee's application dated September 16, 2011, as supplemented.

9. SE page 42: TS Table 3.3.5.1-1 should be corrected to refer to the Core Spray Pump Start-Time Delay Relay (Mechanical component) as "Function 1.e." as stated in the licensee's application dated September 16, 2011, as supplemented, instead of "Function 1.d."

10. SE page 43: Section 3.22.2.1 currently states, "The calibration tolerances are specified in the licensee-controlled Technical Requirements Manual." This should be corrected to instead state, "The calibration tolerance methodologies are specified in the licensee-controlled Technical Requirements Manual" as required by TSTF-493 and as stated in the licensee's application dated September 16, 2011, as supplemented.

11. SE page 44: The reference to Drywell Pressure – High as "Function 5" should be corrected to refer to "Function 6" as stated in the licensee's application dated September 16, 2011, as supplemented.

12. SE page 45: Section 3.23 currently states, "This deviation is acceptable since the GE setpoint methodology has been reviewed and accepted by the NRC staff as noted in Section 3.3 of this safety evaluation." This should refer to Section 3.2.2 instead of Section 3.3.

The listed changes do not affect the NRC staff's overall conclusions associated with Amendment No. 242.

The corrected TS and SE pages are enclosed. The changes are identified by a vertical bar on the right. Please replace the affected pages with these revised pages.

If you have any questions, please contact me at 301-415-1377 or via e-mail at lynnea.wilkins@nrc.gov.

Sincerely,

C F Lyon for

Lynnea E. Wilkins, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosure:
As stated

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ENCLOSURE

REVISED TECHNICAL SPECIFICATION AND SAFETY EVALUATION

PAGES FOR AMENDMENT NO. 242 DATED SEPTEMBER 28, 2012

COOPER NUCLEAR STATION

Technical Specification page 3.3-60

Safety Evaluation pages 2, 11-13, 16, 21, and 42-45

Table 3.3.6.3-1 (page 1 of 1)
Low-Low Set Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Pressure - High	1 per LLS valve	SR 3.3.6.3.3 SR 3.3.6.3.4 SR 3.3.6.3.5	≤ 1050 psig
2. Low-Low Set Pressure Setpoints	2 per LLS valve	SR 3.3.6.3.3 SR 3.3.6.3.4 SR 3.3.6.3.5	Low: Open ≥ 966.5 psig and ≤ 1010 psig Close ≥ 835 psig and ≤ 875.5 psig High: Open ≥ 996.5 psig and ≤ 1040 psig Close ≥ 835 psig and ≤ 875.5 psig
3. Discharge Line Pressure Switch	1 per SRV	SR 3.3.6.3.1 SR 3.3.6.3.2 SR 3.3.6.3.4 SR 3.3.6.3.5	≥ 25 psig and ≤ 55 psig

Additionally, the proposed change will resolve operability determination issues associated with potentially non-conservative TS Allowable Values (AVs)[1] calculated using methods in the industry standard Instrument Society of America (ISA)-S67.04-1994 Part 2, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The concern is that when these values are used to assess instrument channel performance during testing, non-conservative decisions about the equipment operability may result. The proposed change will also resolve operability determination issues related to relying on AVs associated with TS limiting safety system settings (LSSSs)[2] to ensure that TS requirements, not plant procedures, will be used for assessing instrument channel operability.

TSTF-493, Revision 4, Attachment A contains Functions related to those variables that have a significant safety function as defined in Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.36(c)(1)(ii)(A). The licensee stated that the application is consistent with Option A of the NRC-approved Revision 4 to TSTF-493, with some proposed variations or deviations from the TS changes described in the traveler. CNS's TSs are based on an earlier version of NUREG-1433, "Standard Technical Specifications - General Electric Plants, BWR/4." The level of detail and content of the CNS Bases for TS 3.3.1 are different from that provided in NUREG-1433, Revision 3 (ADAMS Accession No. ML041910194), requiring modification of the Bases changes in TSTF-493, Revision 4, Option A. NPPD proposed TS Bases changes that are consistent with the intent of TSTF-493, Revision 4. The availability of this TS improvement was announced in the *Federal Register* on May 11, 2010 (75 FR 26294).

The proposed change would revise the CNS TSs to be consistent with the NRC-approved TSTF-493, Revision 4, Option A. Under Option A, two surveillance Notes would be added to SRs in the Surveillance Requirement column of the Function Tables for TS 3.3.1.1-1, "Reactor Protection System Instrumentation," TS 3.3.2.1-1, "Control Rod Block Instrumentation," TS 3.3.5.1-1, "Emergency Core Cooling System Instrumentation," and TS 3.3.5.2-1, "Reactor Core Isolation Cooling System Instrumentation." Specifically, surveillance Notes would be added to SRs that require verifying trip setpoint setting values (i.e., channel calibration and channel functional test SRs). The affected instrument Functions are listed in Attachment 1 to the license amendment request (LAR) dated September 16, 2011.

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[1] The instrument setting "Allowable Value" is a limiting value of an instrument's as-found trip setting used during surveillances. The AV is more conservative than the Analytical Limit (AL) to account for applicable instrument measurement errors consistent with the plant-specific setpoint methodology. If during testing, the actual instrumentation setting is less conservative than the AV, the channel is declared inoperable and actions must be taken consistent with the TS requirements.

[2] The regulations in 10 CFR 50.36(c)(1)(ii)(A) state, in part, that

> Limiting safety system settings for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions.

In Attachment 5 to its letter dated September 16, 2011, the licensee identifies the following logic system functional tests and selected channel function tests:

1. LOGIC SYSTEM FUNCTIONAL TESTS (LSFT) and SELECTED CHANNEL FUNCTION TESTS

TS 3.3.1.1, Reactor Protection System (RPS) Instrumentation
SR 3.3.1.1.11 Perform CHANNEL FUNCTIONAL TEST.
SR 3.3.1.1.13 Perform LOGIC SYSTEM FUNCTIONAL TEST.

TS 3.3.2.1, Control Rod Block Instrumentation
SR 3.3.2.1.7 Perform CHANNEL FUNCTIONAL TEST.

TS 3.3.2.2, Feedwater and Main Turbine High Water Level Trip Instrumentation
SR 3.3.2.2.3 Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.

TS 3.3.3.2, Alternate Shutdown System
SR 3.3.3.2.2 Verify each required control circuit and transfer switch is capable of performing the intended functions.

TS 3.3.4.1, Anticipated Transient Without Scram recirculation Pump Trip (ATWS-RPT) Instrumentation
SR 3.3.4.1.3 Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.

TS 3.3.5.1, Emergency Core Cooling System (ECCS) Instrumentation
SR 3.3.5.1.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.

TS 3.3.5.2, Reactor Core Isolation Cooling (RCIC) System Instrumentation
SR 3.3.5.2.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.

TS 3.3.6.1, Primary Containment Isolation Instrumentation
SR 3.3.6.1.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.

TS 3.3.6.2, Secondary Containment Isolation Instrumentation
SR 3.3.6.2.4 Perform LOGIC SYSTEM FUNCTIONAL TEST.

TS 3.3.6.3, Low-Low Set (LLS) Instrumentation
SR 3.3.6.3.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.

TS 3.3.7.1, Control Room Emergency Filter (CREF) System Instrumentation
SR 3.3.7.1.4 Perform LOGIC SYSTEM FUNCTIONAL TEST.

TS 3.3.8.1, Loss of Power (LOP) Instrumentation
SR 3.3.8.1.3 Perform LOGIC SYSTEM FUNCTIONAL TEST.

TS 3.3.8.2, Reactor Protection System (RPS) Electric Power Monitoring
SR 3.3.8.2.2 Perform a system functional test.

2. CHANNEL FUNCTION TESTS

TS 3.3.1.1, Reactor Protection System (RPS) Instrumentation
SR 3.3.1.1.15 Verify the RPS RESPONSE TIME is within limits.

TS 3.3.2.1, Control Rod Block Instrumentation
SR 3.3.2.1.6 Verify the RWM is not bypassed when THERMAL POWER is < 9.85% RTP.

Based on the review of the licensee's evaluation on impact to safety, the validating failure history review, and the commitment to trend and evaluate the extended surveillances, the NRC staff concludes that the effect on plant safety is small, that the change does not invalidate any assumption in the plant design basis, and that the impact, if any, on system availability is minimal from the proposed change to a 24-month testing frequency for the above non-calibration changes.

3.2.2 Calibration Changes

As stated in Section 2.3 of this safety evaluation, GL 91-04 guidance describes seven criteria that the licensee must evaluate for each proposed calibration-related 24-month surveillance extension. The NRC staff verified that the licensee's proposed changes met these criteria by reviewing Attachments 1, 5, and 6, and Enclosure 1 of the LAR submittal dated September 16, 2011; Enclosure 2, NEDC 92-050L Rev. 2, "Calculation of Calibration Values for Low-Low Set Pressure Switches," dated April 30, 2012 (proprietary), and Enclosure 4, NEDC 11-109, Rev. 0, "Instrument Drift Analysis for NBI-PS-51A/B/C/D (Barksdale B2T-M12SS)," dated October 3, 2011 (ADAMS Accession No. ML12129A319), of the licensee's letter dated May 2, 2012 (ADAMS Accession No. ML121290449), in response to the NRC staff's request for additional information (RAI) dated April 3, 2012 (ADAMS Accession No. ML120860054).

1. Similar to the non-calibration changes, the evaluation of calibration changes must demonstrate that instrument drift for a given device has performed as expected through its service life. The licensee performed an analysis on the failure history and summarized that analysis in Attachment 5 of the LAR submittal dated September 16, 2011. The NRC staff evaluated the CNS analysis for the calibration-related SR changes and concludes that the history and CNS analysis supports the extended surveillance interval and met the criteria of GL 91-04.

2. The drift analysis for each instrument type should demonstrate that the drift value has been determined with a high degree of probability and high degree of confidence. The licensee submitted its drift analysis methodology, "Instrument Drift Analysis Design Guide," as Enclosure 1 of the LAR submittal dated September 16, 2011. The licensee stated that the methodology had been updated to require 30 samples to ensure statistically significant results. The NRC staff reviewed Enclosure 1 of the LAR and concludes that the method is acceptable. To verify that the licensee appropriately applied the methodology, the staff reviewed Enclosure 4, calculation number NEDC 11-109, Rev. 0, of the licensee's letter dated May 2, 2012. The NRC staff concludes that the licensee appropriately followed the method and the drift value was determined with a high

degree of probability and high degree of confidence (95/95) and met the criteria of GL 91-04.

3. The third criterion is to confirm that the magnitude of instrument drift has been determined with a high probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type (make, model number, and range) and application that performs a safety function. The licensee must provide a list of the channels by TS section that identifies these instrument applications. The licensee stated in Attachment 1 that it had completed all the drift calculations for the instruments addressed in the LAR. The NRC staff reviewed Attachment 6 of the LAR and concludes that it listed by TS surveillance and TS function, each instrument including make, model, range and the corresponding calculation. The staff reviewed the drift analysis methodology, "Instrument Drift Analysis Design Guide," Enclosure 1 of the LAR. To verify that the licensee appropriately applied the methodology, the staff reviewed Enclosure 2, calculation number NEDC 11-109, Rev. 0, of the licensee's letter dated May 2, 2012. The staff concludes that the licensee appropriately followed the method and the drift value was determined with a high degree of probability and high degree of confidence (95/95) and met the criteria of GL 91-04.

4. The next GL 91-04 criterion is to confirm the projected drift error does not exceed the drift in the current setpoint calculation. Where setpoints must be changed, verify the safety analysis assumptions are not exceeded. The licensee updated all calculations for the requested TS changes and identified two setpoint changes that resulted from the extended surveillance interval which are described in Sections 3.1.3 and 3.1.4 in Attachment 1 of the LAR.

   CNS identified the following AV changes to support the longer surveillance interval of 24-month fuel cycle:

   <u>TS 3.3.5.1, Emergency Core Cooling System (ECCS) Instrumentation</u>

   Table 3.3.5.1-1 Function 2.d, Reactor Pressure - Low (Recirculation Discharge Valve Permissive), requires a change to the upper limit TS Allowable Value. The TS Allowable Value (in pounds per square inch gauge (psig)) is being changed from "< 221 psig" to "< 246 psig."

   <u>TS 3.3.6.3, Low-Low Set (LLS) Instrumentation</u>

   Table 3.3.6.3-1 Function 2, Low-Low Set Pressure Setpoints, requires changes to the Low and High opening and closing TS Allowable Values. The Low opening pressure is changed from "≥ 995 psig and ≤ 1035 psig" to "≥ 966.5 psig and ≤ 1010 psig." The Low closing pressure is changed from "≥ 855 psig and ≤ 895 psig" to "≥ 835 psig and ≤ 875.5 psig." The High opening pressure is changed from "≥ 1005 psig and ≤ 1045 psig" to "≥ 996.5 psig and ≤ 1040 psig." The High closing pressure is changed from "≥ 855 psig and ≤ 895 psig" to "≥ 835 psig and ≤ 875.5 psig."

The NRC staff reviewed the licensee's analyses, evaluations, and calculations for the proposed calibration-related 24-month surveillance extensions as documented in Attachments 1, 5, and 6 and Enclosure 1 of the LAR as well as Enclosures 2 and 4 of the May 2, 2012, RAI response letter. The staff concludes that they met the criteria of GL 91-04 and RG 1.105, Revision 3, and provided adequate justification for the proposed increased surveillance intervals of the following instrument channels:

TS 3.3.1.1, Reactor Protection System (RPS) Instrumentation

SR 3.3.1.1.12 Perform CHANNEL CALIBRATION.

- Function 1.a, Intermediate Range Monitors, Neutron Flux - High
- Function 2.b, Average Power Range Monitors, Neutron Flux - High (Flow Biased)
- Function 3, Reactor Vessel Pressure - High
- Function 4, Reactor Vessel Water Level - Low (Level 3)
- Function 5, Main Steam Isolation Valve - Closure
- Function 6, Drywell Pressure - High
- Function 7.a, Scram Discharge Volume Water Level - High, Level Transmitter
- Function 7.b, Scram Discharge Volume Water Level - High, Level Switch
- Function 8, Turbine Stop Valve - Closure
- Function 9, Turbine Control Valve Fast Closure, DEH [Digital Electro-Hydraulic] Trip Oil Pressure – Low

SR 3.3.1.1.14 Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is > 29.5% RTP [Rated Thermal Power].

TS 3.3.1.2, Source Range Monitor (SRM) Instrumentation

SR 3.3.1.2.7 Perform CHANNEL CALIBRATION.

TS 3.3.2.2, Feedwater and Main Turbine High Water Level Trip Instrumentation

SR 3.3.2.2.2 Perform CHANNEL CALIBRATION. The Allowable Value shall be < 54.0 inches.

TS 3.3.3.1, Post Accident Monitoring (PAM) Instrumentation

SR 3.3.3.1.3 Perform CHANNEL CALIBRATION of each required PAM Instrumentation channel except for the Primary Containment H_2 and 0_2 Analyzers.

TS 3.3.3.2, Alternate Shutdown System

SR 3.3.3.2.3 Perform CHANNEL CALIBRATION for each required instrumentation channel.

TS 3.3.4.1, Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

SR 3.3.4.1.2 Perform CHANNEL CALIBRATION. The Allowable Values shall be:

- a. Reactor Vessel Water Level - Low Low (Level 2): ≥ -42 inches; and
- b. Reactor Pressure - High: ≤ 1072 psig.

extended need to be performed during outage conditions since they have the potential to initiate an unplanned transient if performed during operating conditions. A review of the applicable plant surveillance history demonstrated that ECCS had a handful of previous failures of the TS functions that would have been detected solely by the periodic performance of these SRs.

By letter dated May 2, 2012, the licensee concluded that the failures were unique and nonrecurring (including resolution through modification), or that the failures would not have prevented the required technical specification safety function, or that the failed components are subject to more frequent testing and would have been identified.

The NRC staff reviewed the proposed change and the licensee's justification for the change, and determined that because of the frequent testing of the system and the history of the system performance, the impact of this change on safety is minimal. Based on the above, the NRC staff concludes that the proposed changes are acceptable based on (1) consistency with the guidance provided in the GL 91-04, (2) historical plant maintenance and surveillance data supporting the conclusion, and (3) that the assumptions in the plant licensing basis would not be invalidated as a result of this revision.

3.7 TS 3.5.3, RCIC System – SRs 3.5.3.4 and 3.5.3.5

The licensee proposes to increase the surveillance test interval of these SRs from once every 18 months to once every 24 months, for a maximum interval of 30 months including the allowed 1.25 times the interval specified in the frequency. These RCIC functional tests ensure that the system will operate as designed.

The licensee stated that the pumps and valves are tested quarterly in accordance with the IST Program to verify operability and some valves may have independent relief to be tested at a different frequency. This testing ensures that the major components of the systems are capable of performing their design function. A review of the applicable plant surveillance history demonstrated that RCIC had no previous failures of these TS functions that would have been detected solely by the periodic performance of these SRs.

The NRC staff reviewed the proposed change and the licensee's justification for the change, and determined that because of the frequent testing of the system and the history of the system performance, the impact of this change on safety is minimal. Based on the above, the NRC staff concludes that the proposed changes are acceptable based on (1) consistency with the guidance provided in the GL 91-04, (2) historical plant maintenance and surveillance data supporting the conclusion, and (3) that the assumptions in the plant licensing basis would not be invalidated as a result of this revision.

3.8 TS 3.3.6.1, Primary Containment Isolation Instrumentation

3.8.1 SR 3.6.1.1.2

The licensee proposes to increase the surveillance test interval of this SR from once every 18 months to once every 24 months, for a maximum interval of 30 months including the TS SR 3.0.2 allowed 1.25 times the interval specified in the frequency. The licensee stated that the surveillance interval for this test was developed with a determination that performance during a unit outage was prudent and that other primary containment SRs would identify component

interval for SR 3.6.1.6.2 is acceptable because the functions are verified to be operating properly by the performance of more frequent Channel Functional Tests per SR 3.3.6.3.3.

This more frequent testing ensures that a major portion of the circuitry is operating properly and will detect significant failures within the instrument loop. Additionally, the LLS valves (i.e., SRVs assigned to the LLS logic) are designed to meet applicable reliability, redundancy, single failure, and qualification standards and regulations as described in the CNS USAR. As such, these functions are designed to be highly reliable. The licensee has stated that a review of surveillance test history verified that the LLS valves had no previous failures of the TS functions that would have been detected solely by the periodic performance of these SRs.

Based on the review of the licensee's evaluation on impact to safety, the NRC staff concludes that the effect on plant safety is small. Based on the above, the NRC staff concludes that the proposed changes are acceptable based on (1) consistency with the guidance provided in the GL 91-04, (2) historical plant maintenance and surveillance data supporting the conclusion, (3) the inaccessibility of the SRVs during power operation, and (4) that the assumptions in the plant licensing basis would not be invalidated as a result of this revision.

3.10 TS 3.6.1.7, Reactor Building-to-Suppression Chamber Vacuum Breakers - SR 3.6.1.7.3, and TS 3.6.1.8, Suppression-Chamber-to-Drywell Vacuum Breakers - SR 3.6.1.8.3

3.10.1 SR 3.6.1.7.3

The licensee proposes to increase the surveillance test interval of this SR from once every 18 months to once every 24 months, for a maximum interval of 30 months including the TS SR 3.0.2 allowed 1.25 times the interval specified in the frequency. The 18-month Frequency was based on the need to perform the surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the surveillance were performed with the reactor at power. SR 3.6.1.7.2 is performed at a shorter interval (92-day) and demonstrates in large part the proper functioning status of each reactor building-to-suppression chamber vacuum breaker. The licensee stated that review of surveillance test history verified no previous failures of the TS functions that would have been detected solely by the periodic performance of this SR for these vacuum breaker valves and the impact of this change on unit safety is small.

Based on the above, the NRC staff concludes that extending this SR frequency to once per 24 months is acceptable based on (1) the redundancy of the components involved, (2) the infrequency of SR failure, and (3) more frequently performed surveillance test that demonstrate functional status, which provide reasonable assurance that plant safety would not be affected.

3.10.2 SR 3.6.1.8.3

The licensee proposes to increase the surveillance test interval of this SR from once every 18 months to once every 24 months, for a maximum interval of 30 months including the TS SR 3.0.2 allowed 1.25 times the interval specified in the frequency. The 18-month Frequency was based on the need to perform the surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the surveillance were performed with the reactor at power. SR 3.6.1.8.2 is performed at a shorter interval (31-day) and demonstrates in large part the proper functioning status of each suppression chamber-to-drywell vacuum breaker. The licensee stated that review of surveillance test history verified no previous failures

The licensee has applied exclusion criteria to the following functions in the following TS Tables:

TS Table 3.3.1.1-1, "Reactor Protection System Instrumentation" Functions

1. Intermediate Range Monitors
   b. Inop (Interlock)
2. Average Power Range Monitors
   e. Inop (Interlock)
5. Main Steam Isolation Valve – Closure (Mechanical component)
7. Scram Discharge Volume Water Level – High
   b. Level Switch (Mechanical component)
8. Turbine Stop Valve – Closure (mechanical component)
10. Reactor Mode Switch – Shutdown Position (Manual actuation)
11. Manual Scram (Manual actuation)

TS Table 3.3.2.1-1, "Control Rod Block Instrumentation" Functions

1. Rod Block Monitor
   d. Inop (Interlock)
   e. Downscale (Not part of RPS or ECCS)
2. Rod Worth Minimizer (Not part of RPS or ECCS)
3. Reactor Mode Switch – Shutdown Position (Manual actuation)

TS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation" Functions

1. Core Spray System
   c. Reactor Pressure – Low (Injection Permissive) (Automatic actuation logic circuit)
   e. Core Spray Pump Start-Time Delay Relay (Mechanical component)

2. Low Pressure Coolant Injection (LPCI) System
   c. Reactor Pressure – Low (Injection Permissive) (Automatic actuation logic circuit)
   d. Reactor Pressure – Low (Recirculation Discharge Valve Permissive)(Automatic actuation logic circuit)
   e. Reactor Vessel Shroud Level – Level 0 (Automatic actuation logic circuit)
   f. Low Pressure Coolant Injection Pump Start-Time Delay Relay
      - Pumps B, C (Interlock)
      - Pumps A, D (Interlock)

3. High Pressure Coolant Injection (HPCI) System
   c. Reactor Vessel Water Level – High (Level 8) (This function is not assumed to function in the CNS Safety Analyses)
   d. Emergency Condensate Storage Tank (ECST) Level - Low (mechanical component)
   e. Suppression Pool Water Level – High (Mechanical component)

4. Automatic Depressurization System (ADS) Trip System A
   b. Automatic Depressurization System Initiation Timer (Automatic actuation logic circuit)
   d. Core Spray Pump Discharge Pressure – High (Automatic actuation logic circuit)
   e. Low Pressure Coolant Injection Pump Discharge Pressure – High (Automatic actuation logic circuit)

5. ADS Trip System B
   b. Automatic Depressurization System Initiation Timer (Automatic actuation logic circuit)
   d. Core Spray Pump Discharge Pressure – High (Automatic actuation logic circuit)
   e. Low Pressure Coolant Injection Pump Discharge Pressure – High (Automatic actuation logic circuit)

TS Table 3.3.5.2-1, "Reactor Core Isolation Cooling System Instrumentation" Functions

2. Reactor Vessel Water Level – High (Level 8) (This function is not assumed to function in the CNS Safety Analyses)
3. Emergency Condensate Storage Tank (ECST) Level - Low (Mechanical component)

The NRC staff reviewed the list of excluded TS functions and concludes that the above list is acceptable.

3.22.2 Technical Evaluation

3.22.2.1 Addition of Surveillance Notes to TS Functions

The licensee has added surveillance Notes to the following TS instrumentation specifications: TS 3.3.1.1, "Reactor Protection System Instrumentation," TS 3.3.2.1, "Control Rod Block Instrumentation," TS 3.3.5.1, "Emergency Core Cooling System Instrumentation," and TS 3.3.5.2, "Reactor Core Isolation Cooling System Instrumentation." The licensee stated that the determination to include surveillance Notes for specific Functions in these TS Tables is based on these functions being automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). Furthermore, the licensee stated that if during calibration testing the setpoint is found to be conservative with respect to the AV but outside its predefined AFT band, then the channel shall be brought back to within its predefined calibration tolerance before returning the channel to service. The calibration tolerances methodologies are specified in the licensee-controlled Technical Requirements Manual. Changes to the values are controlled under the criteria of 10 CFR 50.59. The licensee has applied surveillance Notes to the following functions in the following TS Tables:

TS Table 3.3.1.1-1, "Reactor Protection System Instrumentation" Functions

1. Intermediate Range Monitors
   a. Neutron Flux – High

2. Average Power Range Monitors
   a. Neutron Flux - High (Startup)
   b. Neutron Flux – High (Flow biased)
   c. Neutron Flux – High (Fixed)
   d. Downscale

3. Reactor Vessel Pressure – High

4. Reactor Vessel Water Level – Low (Level 3)

6. Drywell Pressure – High

7. Scram Discharge Volume Water Level – High
   a. Level Transmitter

9. Turbine Control Valve Fast Closure, DEH (digital electro-hydraulic) Trip Oil Pressure - Low

<u>TS Table 3.3.2.1-1, "Control Rod Block Instrumentation" Functions</u>

1. Rod Block Monitor
   a. Low Power Range – Upscale
   b. Intermediate Power Range - Upscale
   c. Low Power Range - Upscale

<u>TS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation" Functions</u>

1. Core Spray System
   a. Reactor Vessel Water Level – Low Low Low (Level 1)
   b. Drywell Pressure - High
   c. Core Spray Pump Discharge Flow – Low (Bypass)

2. Low Pressure Coolant Injection (LPCI) System
   a. Reactor Vessel Water Level – Low Low Low (Level 1)
   b. Drywell Pressure - High
   g. Low Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)

3. High Pressure Coolant Injection (HPCI) System
   a. Reactor Vessel Water Level – Low Low (Level 2)
   b. Drywell Pressure – High
   f. High Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)

4. Automatic Depressurization System (ADS) Trip System A
   a. Reactor Vessel Water Level – Low Low Low (Level 1)
   c. Reactor Vessel Water Level – Low (Level 3) (confirmatory)

5. ADS Trip System B
   a. Reactor Vessel Water Level – Low Low Low (Level 1)
   c. Reactor Vessel Water Level – Low (Level 3) (confirmatory)

TS Table 3.3.5.2-1, "Reactor Core Isolation Cooling System Instrumentation" Functions

1. Reactor Vessel Water Level – Low Low (Level 2)

The proposed surveillance notes will add the requirement to address operability of the subject functions in the TS as discussed in TSTF-493, Revision 4, Option A. The NRC staff reviewed the list of affected TS functions.

3.22.2.2 Evaluation of Surveillance Notes to TS Functions

The proposed surveillance notes will ensure instrument operability will be maintained and that uncertainties will be included in the AFT calculations in an acceptable manner. By establishing the TS requirements in the surveillance notes, the licensee will ensure that there will be a reasonable expectation that these instruments will perform their safety function, if required. Based on the above, the NRC staff concludes the addition of the notes to be acceptable. The NRC staff further concludes that the proposed TS changes are acceptable since they meet the requirements of 10 CFR 50.36(c)(3), in that the SRs will ensure that the necessary quality of systems are maintained, that the facility will be maintained within safety limits, and the LCOs will continue to be met.

3.23 NRC Staff Conclusion

Based on the above evaluation, the NRC staff concludes that the proposed changes to the TS SRs to support the implementation of a 24-month fuel cycle for CNS are acceptable. The proposed LAR was evaluated by the NRC staff to determine whether applicable regulations and requirements continue to be met. The NRC staff concludes that the proposed changes do not require any exemptions or relief from regulatory requirements, other than the TS. Applicable regulatory requirements will continue to be met, adequate defense-in-depth will be maintained, and sufficient safety margins will be maintained. In addition, the NRC staff concludes that the adoption of TSTF-493, Revision 4, is acceptable. The licensee noted two deviations from the model safety evaluation. One is based on use of General Electric setpoint methodology instead of the industry standard guidance endorsed in TSTF-493. This deviation is acceptable since the GE setpoint methodology has been reviewed and accepted by the NRC staff as noted in Section 3.2.2 of this safety evaluation. The proposed changes will not impact the licensee's compliance to regulatory requirements as stated in Section 2.0 of this safety evaluation.

4.0 REGULATORY COMMITMENTS

In its letter dated May 2, 2012, the licensee made the following regulatory commitment:

> NPPD will supplement the 24-Month Cycle License Amendment Request to revise the SR 3.8.4.8 18-month frequency to 12 months, consistent with IEEE 450-1995. [NLS2012033-01]

By letter dated May 24, 2012, the licensee fulfilled the commitment.

If you have any questions, please contact me at 301-415-1377 or via e-mail at lynnea.wilkins@nrc.gov.

Sincerely,

/RA by CF Lyon for/

Lynnea E. Wilkins, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosure:
As stated

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