

Russell A. Smith Site Vice President

> May 13, 2014 WO 14-0043

U. S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, DC 20555

- Reference: 1) Letter ET 13-0023, dated August 13, 2013, from J. P. Broschak, WCNOC, to USNRC
- Subject: Docket No. 50-482: Supplemental Information in Support of the License Amendment Request for the Transition to Westinghouse Core Design and Safety Analysis Methodologies

Gentlemen:

Reference 1 provided the Wolf Creek Nuclear Operating Corporation (WCNOC) application to revise the Technical Specifications to support transition to the Westinghouse core design and safety analysis methodologies. The amendment request included revising the Wolf Creek Generating Station (WCGS) Technical Specifications (TS) to replace the existing WCNOC methodologies for performing core design and safety analyses; adoption of Option A of Technical Specification Task Force (TSTF) TSTF-493-A, Revision 4, "Clarify Application of Setpoint Methodology for LSSS Functions;" and adopting the Alternative Source Term radiological analysis methodology in accordance with 10 CFR 50.67, "Accident source term."

This letter requests the addition of a license condition to eliminate scheduling problems with the first performance of Surveillance Requirements (SRs) that will have modified acceptance criteria after the implementation of the requested amendment. Since the proposed changes to the SRs result in modified surveillance requirement testing acceptance criteria, the first required performance will come due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of the requested amendment. Attachment I provides supplemental information including the justification for the proposed license condition. Attachment II provides the proposed change to Appendix D of the Renewed Facility Operating License No. NPF-42. This is similar to the License Condition that was applied to the revised SRs added by License Amendment No. 123 for the Improved Technical Specification conversion.



Reference 1 requested approval of the proposed license amendment by December 15, 2014, to support Cycle 21 operation (startup from Refueling Outage 20, Spring 2015). On February 18, 2014, WCNOC notified the Nuclear Regulatory Commission (NRC) Project Manager of a potential deficiency in Reference 1 pertaining to the proposed Nominal Trip Setpoint for the degraded voltage Function in TS 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation." Attachment I provides additional information concerning the potential deficiency.

The potential deficiency in the TS 3.3.5 proposed degraded voltage Nominal Trip Setpoint and the instrument uncertainties associated with the loss of voltage Function, as well as the WCNOC resources available to support the implementation of the Westinghouse setpoint methodology necessitated a reevaluation of the NRC requested approval date of December 15, 2014, with implementation to occur in Refueling Outage 20. WCNOC has determined that additional time is required to develop the necessary procedures and programs for the implementation of the Westinghouse setpoint methodology. This was discussed in a teleconference with the NRC Project Manager on March 26, 2014. As such, WCNOC is respectfully requesting an approval date of the proposed license amendment by August 3, 2015 with the implementation to occur no later than startup from Refueling Outage 21 (Fall 2016).

The additional information does not expand the scope of the application and does not impact the no significant hazards consideration determination presented in Reference 1.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," a copy of this submittal is being provided to the designated Kansas State official.

There are no regulatory commitments contained in this submittal. If you have any questions concerning this matter, please contact me at (620) 364-4156, or Mr. Michael J. Westman at (620) 364-4009.

Sincerel

Russell A. Smith

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- Attachment I Supplemental Information
  - II Proposed Change to Appendix D of the Renewed Facility Operating License No. NPF-42
- cc: T. A. Conley (KDHE), w/a M. L. Dapas (NRC), w/a C. F. Lyon (NRC), w/a N. F. O'Keefe (NRC), w/a Senior Resident Inspector (NRC), w/a

# **STATE OF KANSAS** SS COUNTY OF COFFEY

Russell A. Smith, of lawful age, being first duly sworn upon oath says that he is Site Vice President of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By

Russell A. Smith Site Vice President

SUBSCRIBED and sworn to before me this  $13^{H/}$  day of May, 2014.



(Khonda S. Fiemeyer Notary Public Expiration Date January 11, 2018

### Supplemental Information

Reference 1 provided the Wolf Creek Nuclear Operating Corporation (WCNOC) application to revise the Technical Specifications to support transition to the Westinghouse core design and safety analysis methodologies. The amendment request included revising the Wolf Creek Generating Station (WCGS) Technical Specifications (TS) to replace the existing WCNOC methodologies for performing core design and safety analyses; adoption of Option A of Technical Specification Task Force (TSTF) TSTF-493-A, Revision 4, "Clarify Application of Setpoint Methodology for LSSS Functions;" and adopting the Alternative Source Term radiological analysis methodology in accordance with 10 CFR 50.67, "Accident source term." Provided below is justification supporting the addition of a license condition to eliminate scheduling problems with the first performance of Surveillance Requirements (SRs) that will have modified acceptance criteria after the implementation of the requested amendment. Additionally, information is provided concerning the potential deficiency in Reference 1 pertaining to the proposed Nominal Trip Setpoint (NTSP) for the degraded voltage Function in TS 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation."

## Justification for Proposed License Condition

As discussed in Attachment I of Reference 1, the Westinghouse Setpoint Methodology establishes a fixed-magnitude. two-sided (bidirectional) as-found tolerance (AFT) and as-left tolerance (ALT) about the NTSP, such that channel OPERABILITY is defined as the ability to be calibrated within the calibration tolerance band. In the Westinghouse Setpoint Methodology, the ALT and the AFT are of the same magnitude, based on the same acceptance criterion. This method places relatively small limits on the allowable drift/deviation of field settings between successive surveillance intervals. Implementation of the Westinghouse Setpoint Methodology requires that each subsequent surveillance find the channel to be within the prescribed AFT about the NTSP, otherwise the instrument channel would be reset to a value that is within the ALT requirement around the NTSP as established by the Westinghouse Setpoint Methodology. Channels found to be not within the AFT are required to be evaluated. If the channel cannot be reset to within the ALT the channel would be declared inoperable. Based on this methodology, there is no need to specify an Allowable Value limit in the TS. This results in the Westinghouse Setpoint Methodology listing the NTSP as the limiting safety system setting (LSSS) TS limit. The Westinghouse Setpoint Methodology conservatively limits the allowed setpoint deviation from one surveillance to the next surveillance such that channels would be more likely to be readily identified as not performing as expected, such that the channel would be evaluated or remedial actions to restore the channel to OPERABLE status, would be taken, if required. The implementation of the Westinghouse Setpoint Methodology provides adequate assurance that the affected instrument channels would continue to be OPERABLE and results in a more conservative acceptance criteria for determining OPERABILITY.

The implementation of the Westinghouse Setpoint Methodology affects the surveillance requirements for the majority of the Functions in TS Table 3.3.1-1, "Reactor Trip System Instrumentation," and TS Table 3.3.2-1, "Engineered Safety Feature Actuation System Instrumentation." WCNOC is proposing to implement the approved amendment no later than startup from Refueling Outage 21 (Fall 2016). A number of the SRs are performed outside of a refueling outage window. Performance of all the affected SRs during Refueling Outage 21 would create an unnecessary burden. Therefore, WCNOC is proposing a license condition to eliminate scheduling problems with the first performance of SRs that will have modified

acceptance criteria after the implementation of the requested amendment. Since the proposed changes to the SRs result in modified surveillance requirement testing acceptance criteria, the first required performance will come due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of the requested amendment. The propose license condition states:

For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment.

The following is an example of how a revised SR would meet the above license condition. If the revised SR has acceptance criteria which differs from the acceptance criteria in the existing TSs and the frequency for the SR is 31 days and has not changed, the license condition requires that the SR be first performed using the new acceptance criteria within 38 days (31 days plus the SR 3.0.2 extension) following the date the surveillance was last performed prior to the implementation date of the license amendment. The proposed license condition is similar to the license condition applied to revised SRs added by License Amendment No. 123 for the Improved Technical Specification conversion.

## Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation

During the implementation phase for the proposed change to the Westinghouse setpoint methodology, a detailed review identified a potential deficiency with the proposed Nominal Trip Setpoint and instrumentation uncertainties for the TS 3.3.5 degraded voltage Function and loss of voltage Function that were calculated in WCAP-17602-P, "Westinghouse Setpoint Calculations for the Wolf Creek Generating Station Control, Protection, and Indication System," (Enclosure IV to Reference 1).

### **Degraded Voltage Function**

The function of the degraded voltage bistables on the Class 1E 4.16 kV buses (NB01 and NB02) is to ensure that motors and starters will not be subjected to sustained degraded voltage levels that might cause motors to trip out on overcurrent or to stall, contactors to dropout, or current potential transformer fuses to open. If the bus voltage decreases below the minimum limit, an alarm is received in the control room and the bus feeder breakers are opened after time delays. The electrical loads are then transferred to the DGs. The protection scheme has time delays to protect against false alarms or nuisance tripping due to voltage dips associated with motor starts.

Table 1 lists the current analysis of record (AOR) values and the proposed values determined in WCAP-17602-P.

	Current AOR	WCAP-17602-P
Limit	105.9 Volts	105.90 Volts
Uncertainty	1.02% span	1.7% span
Nominal Trip	ominal Trip 107.43 Volts 10	
Setpoint		
Reset Value	109.29 Volts	110.56 Volts

## Table 1: Degraded Voltage Values

The degraded voltage instrumentation uncertainty increased from 1.02% span in the WCGS analysis of record calculation to 1.7% span in WCAP-17602-P. The increase in uncertainty resulted in the change to the NTSP.

The impact on the reset value was not identified until the implementation phase of the methodology transition project. When a large load is added onto the electrical buses, such as a service water pump motor being started, the voltage initially decreases due to an increased load demand. After the initial drop, the voltage stabilizes and begins to recover. During the voltage transient, the voltage can actually decrease below the degraded voltage NTSP. This would result in an unnecessary start of the DGs as there is not a degraded voltage condition present for an extended period of time; but rather, the voltage decreased for a short period of time due to the addition of a load onto the electrical buses. Thus, to avoid unnecessary DG starts, a reset value and time delays are used. In essence, once the degraded voltage NTSP is reached, the voltage has a certain amount of time, based upon the time delay settings, to recover above the reset value. If the voltage recovers above the reset value, then the degraded voltage trip is cleared and no DG start occurs. If the voltage does not recover above the reset value, then the Safety related loads are shed from the Class 1E 4.16 kV bus and are loaded onto the DG. The NTSP and uncertainty documented in WCAP-17602-P may challenge the ability of the reset value to perform its function due to the increased NTSP.

### Loss of Voltage Function

The purpose of the loss of voltage function is to detect a complete loss of offsite power and then start the DGs. When developing the uncertainty for the loss of voltage function, the requirement of the relay to recover to 110% of the dropout voltage within the relay time delay was not considered. The increased uncertainty may impact the ability of the relay to meet this requirement.

WCNOC, in conjunction with Westinghouse, are evaluating the conditions associated with the LOP DG Start Instrumentation to determine an acceptable resolution to this issue. WCNOC expects to submit additional changes to SR 3.3.5.3 from those proposed in Reference 1 to address the potential deficiency.

### **References:**

1. WCNOC Letter ET 13-0023, "License Amendment Request for the Transition to Westinghouse Core Design and Safety Analysis," August 13, 2013. ADAMS package Accession No. ML13247A075.

Attachment II to WO 14-0043 Page 1 of 2

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Proposed Change to Appendix D of the Renewed Facility Operating License No. NPF-42

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Amendment Number	Additional Condition		Implementation Date
179 (Cont'd)	(b)	The first performance of the periodic assessment of CRE habitability, Specification 5.5.18c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from August 16, 2004, the date of the most recent successful tracer gas test, as stated in the November 16, 2004, letter response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.	
	(c)	The first performance of the periodic measurement of control room pressure, Specification 5.5.18.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from February 2, 2007, the date of the most recent successful pressure measurement test.	
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