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Docket Number 50-346

10 CFR 50.90

License Number NPF-3

Serial Number 3193

November 2, 2005

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555-0001

Subject: Davis-Besse Nuclear Power Station (DBNPS)  
Supplemental Information Regarding License Amendment Application to  
Revise Technical Specification (TS) 3/4.3.2.1, Safety Features Actuation  
System (SFAS) Instrumentation Setpoints and Surveillance Testing  
(License Amendment Request (LAR) 03-0014; TAC No. MC3084)

Ladies and Gentlemen:

This letter responds to an NRC request for additional information (RAI) regarding  
LAR 03-0014.

By letter dated May 5, 2004 (Serial Number 3009), the FirstEnergy Nuclear Operating Company (FENOC) submitted an application for amendment of the Operating License, Appendix A, Technical Specifications (TS) for the DBNPS. Among other changes, the proposed amendment would: revise the "Allowable Values" entries for Safety Features Actuation System (SFAS) Functional Unit Sequence Logic Channel "a", "Essential Bus Feeder Breaker Trip (90%)", and SFAS Functional Unit Sequence Logic Channel "b", "Diesel Generator Start, Load Shed on Essential Bus (59%)"; rename these trip relays to more accurately reflect their design function; and establish annual calibration requirements for these same Functional Units, consistent with updated calculations and current setpoint methodology. The proposed changes incorporate administrative limits presently maintained by the DBNPS to ensure adequate voltage is provided to safety-related loads, and to preclude inadvertent actuation of the 4160 Volt Loss of Voltage Relay logic.

On August 20, 2004, the NRC staff requested information regarding the electromechanical Loss of Voltage Relays, which were previously removed by

A001

modification, and the replacement solid state Loss of Voltage Relays. On October 12, 2004, FENOC representatives met with NRC staff at NRC Headquarters to discuss the NRC's request for additional information, and to present the associated instrument setpoint calculation. By letter dated January 17, 2005 (Serial Number 3100), FENOC provided a written response to the NRC staff's request for additional information.

On July 19, 2005, the NRC staff informally requested FENOC to respond to a generic request for additional information included in a March 31, 2005 letter from James A. Lyons, NRC, to Mr. Alex Marion, Nuclear Energy Institute. The FENOC response to this request is provided in Enclosure 1.

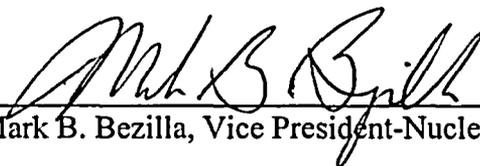
The supplemental information provided in this letter does not affect the conclusion of the license amendment application that the proposed changes do not involve a significant hazards consideration and do not have an adverse effect on nuclear safety.

By letter dated October 10, 2005 (Serial Number 3186), FENOC proposed an additional TS change to add a footnote to TS Table 4.3-2, "Safety Features Actuation System Instrumentation Surveillance Requirements," regarding the as-left instrument setting. This proposed change is consistent with the NRC position described in the March 31, 2005 letter from James A. Lyons, NRC, to Mr. Alex Marion, Nuclear Energy Institute.

A list of regulatory commitments made in this letter is included in Enclosure 2. Should you have any questions or require additional information, please contact Mr. Henry L. Hegrat, Supervisor – Fleet Licensing, at (330) 315-6944.

The statements contained in this submittal, including its associated enclosures, are correct to the best of my knowledge and belief. I am authorized by the FirstEnergy Nuclear Operating Company to make this submittal. I declare under penalty of perjury that the foregoing is true and correct.

Executed on: Nov 2, 2005

By:   
Mark B. Bezilla, Vice President-Nuclear

MSH

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Enclosure 1: Response to Concerns and RAI Presented in the NRC Letter to NEI, dated March 31, 2005, Concerning Trip Setpoints and Allowable Values (ADAMS ML050870008).

Enclosure 2: Commitment List

cc: J. L. Caldwell, Regional Administrator, NRC Region III  
W. A. Macon, DB-1 NRC/NRR Project Manager  
N. Dragani, Executive Director, Ohio Emergency Management Agency,  
State of Ohio (NRC Liaison)  
C. S. Thomas, DB-1 NRC Senior Resident Inspector  
Utility Radiological Safety Board

**RESPONSE TO CONCERNS AND RAI PRESENTED  
IN THE NRC LETTER TO NEI, DATED MARCH 31, 2005,  
CONCERNING TRIP SETPOINTS AND ALLOWABLE VALUES  
(ADAMS ML050870008)**

There are three items described on page 3 of the letter dated March 31, 2005 from Mr. Lyons to Alex Marion of the Nuclear Energy Institute. The following is taken from that letter:

*During the public meeting held on March 11, 2005, at the NRC Headquarters Office, you requested that the NRC withdraw the RAI question and continue its review of existing licensing actions pending finalization of the TSTF technical specification change to address this issue. You reiterated this request in your March 18, 2005 letter. As noted previously, the NRC staff is continuing the review of existing in-house LARs. To move forward with LARs that are currently under NRC staff review, an interim approach has been developed that addresses the NRC staff's concerns until the TSTF technical specification change is reviewed and approved. As part of these licensee specific reviews, the revised RAI question (see Enclosure) will remain outstanding, with the understanding that, in addition to a brief discussion of the licensee's methodology for establishing LSSS, the licensee's response to the question needs to contain the following in order for the staff to complete its review:*

- 1. An explicit regulatory commitment to adopt the final TSTF technical specification change to come into conformance with the existing understanding of the requirements of 10 CFR 50.36.*
- 2. An explicit regulatory commitment to assess the operability of tested instrumentation based on the previous as-left instrument setting and accounting for the uncertainties associated with the test or calibration.*
- 3. A revision to the technical specifications for the LSSS being changed by the LAR to incorporate a footnote that states:*

*The as-left instrument setting shall be returned to a setting within the tolerance band of the trip setpoint established to protect the safety limit.*

### RESPONSE 1-3

As noted on page eight of Enclosure 1 of DBNPS LAR 03-0014, the DBNPS uses Method 2 from Instrument Society of America (ISA) Recommended Practice 67.04.02-2000, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation," to establish the Degraded Voltage Relay and Loss of Voltage Relay setpoints. Using this method, the Allowable Value is calculated from the Analytical Limit, by adding or subtracting instrument uncertainties that are not tested during periodic surveillances, depending on the conservative direction of the process variable. Similarly, the trip setpoint is determined by adding or subtracting the instrument channel uncertainties to the Analytical Limit, depending on the conservative direction of the process variable. For process variables that decrease toward the Analytical Limit, the instrument channel uncertainty and margin terms are added to the Analytical Limit. For process variables that increase toward the Analytical Limit, the instrument channel uncertainty and margin terms are subtracted from the Analytical Limit. Additional detail was provided with LAR 03-0014.

As part of the uncertainty calculation, a calibration tolerance is established. The periodic Channel Calibration surveillance tests include acceptance criteria for the trip setpoint, including the calibration tolerance. If these acceptance criteria are not met, the instrument will be re-calibrated within the calibration tolerance value before returning it to operable status. FENOC plans to incorporate similar criteria for the periodic Channel Functional Tests, in accordance with the supplemental information provided under separate cover in DBNPS letter Serial Number 3186. Serial Number 3186 proposed to add the TS reset footnote discussed on page 3 (item 3) of the March 31, 2005 letter from James A. Lyons, NRC, to Mr. Alex Marion, Nuclear Energy Institute.

For item 1, FENOC commits to evaluate the final TSTF technical specification change recommendations after NRC approval of the associated TSTF traveler. However, FENOC can not commit to submittal of a license amendment request proposing adoption of these recommendations before having a chance to evaluate them. FENOC has reviewed the NRC staff positions described in the September 7, 2005 letter from the NRC to the NEI Setpoints Task Force titled, "Technical Specification for Addressing Issues Related to Setpoint Allowable Values." Based on this letter, FENOC anticipates that there may be additional requirements included in the TSTF traveler which will place calibration tolerance criteria and/or operability evaluation criteria in the TS Bases, Technical Requirements Manual or Updated Safety Analysis Report.

For item 2, FENOC does not commit to assessing the operability of the tested instrumentation based on the previous as-left instrument setting and accounting for the uncertainties associated with the test or calibration. As previously described, the instruments will be evaluated for operability based on the as-found setting being consistent with the calculated trip setpoint and the calibration tolerance. This will provide assurance that the instrument is performing within the criteria established in the calculations. Evaluation of the difference between the previous as-left setting and the current as-found setting would create an additional administrative burden while providing no additional assurance that the instrument is performing within the calculation limits. As industry evaluation of this issue concludes with the anticipated issuance of the TSTF, additional consideration will be given to this methodology under the evaluation committed to above.

For item 3, FENOC proposed (Serial Number 3186, referenced above) an additional TS change to add a footnote to TS Table 4.3-2, "Safety Features Actuation System Instrumentation Surveillance Requirements," regarding the as-left instrument setting. This change will be consistent with the NRC position described in the March 31, 2005 letter from James A. Lyons, NRC, to Mr. Alex Marion, Nuclear Energy Institute.

In addition to the items discussed above, the Enclosure to the March 31, 2005 letter requests additional information:

**REVISED METHOD 3 REQUEST FOR ADDITIONAL INFORMATION**

*The [insert plant name] technical specifications define Limiting Safety System Settings (LSSS) as an allowable value (AV). During reviews of proposed license amendments that contain changes to LSSS setpoints, the NRC staff identified concerns regarding the method used by some licensees to determine the allowable values (AV) identified in the technical specifications (TS). AVs are identified in the TS as LSSS to provide acceptance criteria for determination of instrument channel operability during periodic surveillance testing. The NRC staff's concern relates to one of the three methods for determining the AV as described in the Instrument Society of America (ISA) recommended practice ISA-RP67.04-1994, Part II, "Methodology for Determination of Setpoints for Nuclear Safety-Related Instrumentation."*

*The NRC staff has determined that to ensure a plant will operate in accordance with the assumptions upon which the plant safety analyses have been based, additional information is required regardless of the methodology used to establish LSSS values in technical specifications. Details about the NRC staff's concerns are available on the NRC's public website under ADAMS Accession Numbers ML041690604, ML041810346, and ML050670025.*

*In Order for the NRC staff to assess the acceptability of your license amendment request related to this issue, the NRC staff requests the following additional information:*

- 1. Discuss the setpoint methodology used at [insert plant name] to establish AVs associated with LSSS setpoints.*

#### RESPONSE 1

Please refer to page 7 of Enclosure 1 of DBNPS LAR 03-0014. ISA Recommended Practice 67.04.02-2000, Method 2 was used to develop the Allowable Value and trip setpoints for the Degraded Voltage Relays and the Loss of Voltage Relays discussed in LAR 03-0014. Using this method, the Allowable Value is calculated from the Analytical Limit, by adding or subtracting instrument uncertainties that are not tested during periodic surveillances, depending on the conservative direction of the process variable. Similarly, the trip setpoint is determined by adding or subtracting the instrument channel uncertainties to the Analytical Limit, depending on the conservative direction of the process variable. For process variables that decrease toward the Analytical Limit, the instrument channel uncertainty and margin terms are added to the Analytical Limit. For process variables that increase toward the Analytical Limit, the instrument channel uncertainty and margin terms are subtracted from the Analytical Limit.

For several years, the preferred instrumentation setpoint calculation method for safety-related applications at the DBNPS has been the method currently described in ISA Recommended Practice 67.04.02-2000 Section 7.3, Method 2. Method 2 was used for LAR 03-0014. Method 1 is occasionally used, however, both of these methods result in the same Allowable Value. Although Method 3 was at one time used at the DBNPS, no Allowable Value for protection systems, i.e., Reactor Protection System, Safety Features Actuation System, and Steam and Feedwater Rupture Control System, is based on a calculation developed using Method 3.

- 2. Regardless of the methodology used, the NRC staff has the following questions regarding the use of the methodology at [insert plant name]:*
  - a. Discuss how the methodology and controls you have in place ensure the analytical limit (AL) associated with an LSSS will not be exceeded (the AL is a surrogate that ensures the safety limits will not be exceeded). Include in your discussion information on the controls you employ to ensure the trip setpoint established after completing periodic surveillances satisfies your methodology. If the controls are located in a document other than the TS, discuss how those controls satisfy the requirements of 10 CFR 50.36.*

RESPONSE 2.a

As stated above, the Allowable Values for the Degraded Voltage Relays and the Loss of Voltage Relays were calculated using Method 2 of ISA Recommended Practice 67.04.02-2000. Because Method 2 calculates the Allowable Value by reference to the Analytical Limit, Method 2 is conservative with respect to Method 3. Method 2 calculates the Trip Setpoint by adding or subtracting the channel uncertainty (plus margin) from the Analytical Limit, depending on the conservative direction of the process variable. Similarly, Method 2 calculates the Trip Setpoint by adding or subtracting the instrument channel uncertainties to the Analytical Limit, dependent upon the conservative direction of the process variable. For process variables that decrease toward the Analytical Limit, the instrument channel uncertainty and margin terms are added to the Analytical Limit. For process variables that increase toward the Analytical Limit, the instrument uncertainty and margin terms are subtracted from the Analytical Limit. Uncertainties that are random, normally distributed, and independent may be combined using the Square-Root-Sum-of-the-Squares (SRSS) method.

Regulatory Guide (RG) 1.105, Revision 3, December 1999, states that conformance with Part 1 of ISA-S67.04-1994, "Setpoints for Nuclear Safety-Related Instrumentation," with the listed clarifications and exceptions, provides a method acceptable to the NRC staff for satisfying the NRC's regulations for ensuring that setpoints for safety-related instrumentation are established and maintained within the technical specification limits. Regulatory Position C.1 of Regulatory Guide 1.105, Revision 3, provides the following position with regard to the degree of certainty with which a licensee must ensure the analytical limit (AL) associated with an LSSS will not be exceeded:

*Section 4 of ISA-S67.04-1994 specifies the methods, but not the criterion, for combining uncertainties in determining a trip setpoint and its allowable values. The 95/95 tolerance limit is an acceptable criterion for uncertainties. That is, there is a 95% probability that the constructed limits contain 95% of the population of interest for the surveillance interval selected.*

Therefore, RG 1.105 accepts "95/95" as satisfying the requirements of 10 CFR 50.36. This conclusion is supported by the NRC document, "Setpoint Allowable Values for Instrument Channels in Safety-Related Service," ADAMS accession number ML041810346, June 23, 2004, at page 27. Review of Instrument Society of America Recommended Practice ISA-RP67.04.02-2000 has led FENOC to conclude that Method 2 meets the 95/95 criterion and therefore the calculation described in FENOC's May 5, 2004 application (Serial 3009, LAR 03-0014) meets the requirements of 10 CFR 50.36.

With respect to the trip setpoint, this was discussed in FENOC's response (above) to items 1, 2, and 3 on page 3 of the March 31, 2005 letter from Mr. Lyons of the NRC to Mr. Marion of the NEI. As part of the uncertainty calculation, a calibration tolerance is established. The periodic surveillance tests will include acceptance criteria for the trip setpoint being within the established tolerance. If these acceptance criteria are not met, the surveillance test has not satisfied the Technical Specification periodic surveillance requirement. Therefore, the instrument will be re-calibrated within the calibration tolerance value prior to returning the equipment to operable status.

As discussed above, setpoints established using Allowable Values calculated in accordance with Method 2 satisfy the requirements of 10 CFR 50.36. However, FENOC also proposed (Serial 3186, referenced above) to add the TS reset footnote discussed on page 3 (item 3) of the March 31, 2005 letter from James A. Lyons, NRC, to Mr. Alex Marion, Nuclear Energy Institute. This proposed change will provide additional assurance that the trip setpoint established after completing periodic surveillances is bounded by the assumptions contained in the DBNPS calculations.

- b. Discuss how the TS surveillances ensure the operability of the instrument channel. This should include a discussion on how the surveillance test results relate to the technical specification AV and describe how these are used to determine the operability of the instrument channel. If the requirements for determining operability of the LSSS instrument being tested are in a document other than the TS (e.g., plant test procedure), discuss how this meets the requirements of 10 CFR 50.36.*

**RESPONSE 2.b**

As discussed above, during the TS surveillance testing the trip setpoints will be verified to be within the calibration tolerance.

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### COMMITMENT LIST

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station, Unit Number 1, (DBNPS) in this document. Any other actions discussed in the submittal represent intended or planned actions by the DBNPS. They are described only for information and are not regulatory commitments. Please notify Henry L. Hegrat, Supervisor – Licensing (330-315-6944) of any questions regarding this document or associated regulatory commitments.

<u>COMMITMENTS</u>	<u>DUE DATE</u>
<p>FENOC commits to evaluate the final Technical Specification Task Force (TSTF) technical specification change recommendations after NRC approval of the associated TSTF traveler.</p> <p>As industry evaluation concludes with the anticipated issuance of the TSTF, additional consideration will be given to methods for assessing operability under the TSTF evaluation committed to above.</p>	<p>Evaluation will be completed within 120 days of receipt of the NRC-approved TSTF traveler.</p>