August 9, 2006

Mr. Mark B. Bezilla
Vice President
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
Mail Stop A-DB-3080
5501 North State Route 2
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE: SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SETPOINTS AND SURVEILLANCE TESTING REQUIREMENTS (TAC NO. MC3084)

Dear Mr. Bezilla:

The Commission has issued the enclosed Amendment No. 275 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit 1. The amendment revises the Technical Specifications (TSs) in response to your application dated May 5, 2004, as supplemented by letters dated January 17, October 10, and November 2, 2005 and May 30, 2006.

The amendment revises TS Table 1.2, "Frequency Notation"; TS 3/4.3.2, "Safety System Instrumentation" – "Safety Features Actuation System Instrumentation"; TS 3/4.3.2.1 Table 3.3-3, "Safety Features Actuation System Instrumentation"; TS 3/4.3.2.1 Table 3.3-4, "Safety Features Actuation System Trip Setpoints"; and TS 3/4.3.2.1 Table 4.3-2, "Safety Features Actuation System Instrumentation Surveillance Requirements."

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Stephen J. Campbell, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosures:
1. Amendment No. 275 to NPF-3
2. Safety Evaluation

cc w/encls: See next page

Mr. Mark B. Bezilla August 9, 2006
Vice President-Nuclear, Davis-Besse
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 North State Route 2
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE: SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SETPOINTS AND SURVEILLANCE TESTING REQUIREMENTS (TAC NO. MC3084)

Dear Mr. Bezilla:

The Commission has issued the enclosed Amendment No. 275 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit 1. The amendment revises the Technical Specifications (TSs) in response to your application dated May 5, 2004, as supplemented by letters dated January 17, October 10, and November 2, 2005 and May 30, 2006.

The amendment revises TS Table 1.2, "Frequency Notation"; TS 3/4.3.2, "Safety System Instrumentation" – "Safety Features Actuation System Instrumentation"; TS 3/4.3.2.1 Table 3.3-3, "Safety Features Actuation System Instrumentation"; TS 3/4.3.2.1 Table 3.3-4, "Safety Features Actuation System Trip Setpoints"; and TS 3/4.3.2.1 Table 4.3-2, "Safety Features Actuation System Instrumentation Surveillance Requirements."

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/
Stephen J. Campbell, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosures:
1. Amendment No. 275 to NPF-3
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC	LPL3-2 R/F	RidsNrrPMSCampbell	RidsNrrDirsItsb
RidsOGCRP	RidsRgn3MailCenter	RidsAcrsAcnwMailCenter	
GHill (2)	RidsNrrLADClarke	RidsNrrDorlLpl3-2	RidsNrrDeEeib
DORL DPR	RidsNrrDeEicb		

Package Accession Number: ML060400485
Amendment Accession Number: ML060400472
TS Accession Number: ML062230087 *no legal objection

OFFICE	LPL3-2/PM	LPL3-2/LA	EICB/BC	EEIB/BC	ITSB/BC	OGC	LPL3-2/BC
NAME	SCampbell:mw	DClarke	AHowe	GWilson	TKobetz	MZobler*	DCollins
DATE	8/9 /06	8/9/06	6 / 27 /06	7 / 7 /06	7 / 13 /06	7 / 25 /06	8 9 /06

OFFICIAL RECORD COPY

Davis-Besse Nuclear Power Station, Unit 1

cc:

Manager - Regulatory Affairs
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 North State - Route 2
Oak Harbor, OH 43449-9760

Director, Ohio Department of Commerce
Division of Industrial Compliance
Bureau of Operations & Maintenance
6606 Tussing Road
P.O. Box 4009
Reynoldsburg, OH 43068-9009

Regional Administrator
U.S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, IL 60523-4351

Resident Inspector
U.S. Nuclear Regulatory Commission
5503 North State Route 2
Oak Harbor, OH 43449-9760

Barry Allen, Plant Manager
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 North State - Route 2
Oak Harbor, OH 43449-9760

Dennis Clum
Radiological Assistance Section Supervisor
Bureau of Radiation Protection
Ohio Department of Health
P.O. Box 118
Columbus, OH 43266-0118

Carol O'Claire, Chief, Radiological Branch
Ohio Emergency Management Agency
2855 West Dublin Granville Road
Columbus, OH 43235-2206

Zack A. Clayton
DERR
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43266-0149

State of Ohio
Public Utilities Commission
180 East Broad Street
Columbus, OH 43266-0573

Attorney General
Office of Attorney General
30 East Broad Street
Columbus, OH 43216

President, Board of County
Commissioners of Ottawa County
Port Clinton, OH 43252

President, Board of County
Commissioners of Lucas County
One Government Center, Suite 800
Toledo, OH 43604-6506

The Honorable Dennis J. Kucinich
United States House of Representatives
Washington, D.C. 20515

The Honorable Dennis J. Kucinich
United States House of Representatives
14400 Detroit Avenue
Lakewood, OH 44107

Gary R. Leidich
President and Chief Nuclear Officer
FirstEnergy Nuclear Operating Company
Mail Stop A-GO-19
76 South Main Street
Akron, OH 44308

Joseph J. Hagan
Senior Vice President of Operations and
Chief Operating Officer
FirstEnergy Nuclear Operating Company
Mail Stop A-GO-14
76 South Main Street
Akron, OH 44308

David W. Jenkins, Attorney
FirstEnergy Corporation
Mail Stop A-GO-18
76 South Main Street
Akron, OH 44308

Davis-Besse Nuclear Power Station, Unit 1

cc:

Danny L. Pace
Senior Vice President, Fleet Engineering
FirstEnergy Nuclear Operating Company
Mail Stop A-GO-14
76 South Main Street
Akron, OH 44308

Manager, Fleet Licensing
FirstEnergy Nuclear Operating Company
Mail Stop A-GHE-107
395 Ghent Road
Akron, OH 44333

Manager, Site Regulatory Compliance
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
Mail Stop A-DB-3065
5501 North State Route 2
Oak Harbor, OH 43449-9760

Jeannie M. Rinckel
Vice President, Fleet Oversight
FirstEnergy Nuclear Operating Company
Mail Stop A-GO-14
76 South Main Street
Akron, OH 44308

FIRSTENERGY NUCLEAR OPERATING COMPANY

AND

FIRSTENERGY NUCLEAR GENERATION CORP.

DOCKET NO. 50-346

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 275
License No. NPF-3

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment filed by FirstEnergy Nuclear Operating Company et al., (the licensee) dated May 5, 2004, as supplemented by letters dated January 17, October 10, and November 2, 2005 and May 30, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-3 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 275, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Daniel S. Collins, Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: August 9, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 275

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

Replace the following pages of the Facility Operating License and of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
License Page 4	License Page 4
1-8	1-8
3/4 3-9	3/4 3-9
3/4 3-11	3/4 3-11
3/4 3-13	3/4 3-13
3/4 3-21	3/4 3-21
3/4 3-22	3/4 3-22

2.C. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

FENOC is authorized to operate the facility at steady state reactor core power levels not in excess of 2772 megawatts (thermal). Prior to attaining the power level, Toledo Edison Company shall comply with the conditions identified in Paragraph (3) (o) below and complete the preoperational tests, startup tests and other items identified in Attachment 2 to this license in the sequence specified. Attachment 2 is an integral part of this license.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 275, are hereby incorporated in the license. FENOC shall operate the facility in accordance with the Technical Specifications.

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the issuance of the license or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the license supported by a favorable evaluation by the Commission:

(a) FENOC shall not operate the reactor in operational Modes 1 and 2 with less than three reactor coolant pumps in operation.

(b) Deleted per Amendment 6

(c) Deleted per Amendment 5

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 275 TO FACILITY OPERATING LICENSE NO. NPF-3

FIRSTENERGY NUCLEAR OPERATING COMPANY

FIRSTENERGY NUCLEAR GENERATION CORP.

DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1

DOCKET NO. 50-346

1.0 INTRODUCTION

By letter to the U.S. Nuclear Regulatory Commission (NRC, the Commission) dated May 5, 2004, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML041310374) as supplemented by letters dated January 17 (ADAMS Accession No. ML050210170), October 10 (ADAMS Accession No. ML052870376), and November 2, 2005 (ADAMS Accession No. ML053120383), and May 30, 2006 (ADAMS Accession No. ML061520316), FirstEnergy Nuclear Operating Company, et al., (the licensee) requested changes to the technical specifications (TSs) for the Davis-Besse Nuclear Power Station, Unit 1 (Davis-Besse). The supplemental letters dated January 17, October 10, and November 2, 2005, and May 30, 2006, contained clarifying information and did not change the NRC staff's initial proposed finding of no significant hazards consideration.

The proposed changes would revise TS 3/4.3.2, "Safety System Instrumentation," setpoints and surveillance requirements (SRs). Specifically the proposed changes would revise the following specifications:

- TS Table 1.2, "Frequency Notation"
- TS 3/4.3.2, "Safety System Instrumentation" – "Safety Features Actuation System [SFAS] Instrumentation"
- TS 3/4.3.2.1 Table 3.3-3, "Safety Features Actuation System Instrumentation"
- TS 3/4.3.2.1 Table 3.3-4, "Safety Features Actuation System Trip Setpoints"
- TS 3/4.3.2.1 Table 4.3-2, "Safety Features Actuation System Instrumentation Surveillance Requirements"

The proposed changes would also add a definition of "annual" frequency for use in the TS, and remove the "trip setpoint" values for functional unit sequence logic channel "a", "Essential Bus Feeder Breaker Trip (90%)," and functional unit sequence logic channel "b", "Diesel Generator Start, Load Shed on Essential Bus (59%)" and rename these trip relays to more accurately reflect their design function. The proposed amendment would also revise the "Allowable Values [AV]" entries and would establish annual calibration requirements for these same functional units, consistent with updated calculations and current setpoint methodology.

2.0 REGULATORY EVALUATION

In Section 5.2 of Enclosure 1 of its submittal, the licensee identified the following regulatory requirements for this amendment request:

General Design Criterion (GDC) 17, "Electric power systems," of Appendix A, to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, requires that nuclear power plants have onsite and offsite electric power systems to permit the functioning of structures, systems, and components that are important safety. The onsite system is required to have sufficient independence, redundancy, and testability to perform its safety function, assuming a single failure. The offsite power system must be supplied by two physically independent circuits that are designed and located so as to minimize, to the extent practical, the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. In addition, this criterion requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as a result of loss of power from the nuclear power unit, the offsite transmission network, or the onsite power supplies.

GDC 18, "Inspection and testing of electric power systems," of Appendix A, to 10 CFR Part 50, requires that electric power systems that are important to safety must be designed to permit appropriate periodic inspection and testing.

The NRC staff finds that the licensee identified the applicable regulatory requirements in Section 5.0 of its May 5, 2004, submittal. The regulatory requirements that the NRC staff considered in its review of the application are in 10 CFR Part 50. The system is designed to meet the requirements specified in GDC 17 and GDC 18 of 10 CFR Part 50, Appendix A.

Pursuant to 10 CFR 50.36, "Technical specifications," TSs include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls. The rule does not specify the particular requirements to be included in a plant's TSs. As stated in 10 CFR 50.36(c)(2)(i), the "Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specification..."

3.0 TECHNICAL EVALUATION

Section 8.3.1, "AC Power System," of the Davis-Besse Updated Safety Analysis Report (USAR) describes the functions of the onsite power systems. Normally, unit power from the main generator is supplied to the 4160-volt essential buses via the auxiliary transformer. When the main generator is unavailable, offsite power is provided from the Davis-Besse switchyard to the 4160-volt essential buses from two redundant startup transformers. A fast bus transfer scheme from the auxiliary transformer to the startup transformers provides for continued powering of the 4160-volt essential buses after the main generator trips off line. The 4160-volt essential buses provide power to various 4160-volt essential loads.

The 4160-volt essential bus undervoltage protection is described in USAR Section 8.3.1.1.3, "4160 Volt Auxiliary System." Each 4160-volt essential bus is provided with two levels of voltage protection. Four relays per bus at each voltage level (two per functional unit) operate with coincidental logic to preclude spurious trips of the offsite source. The undervoltage trip setpoints and associated time delays for the sequence logic channels "Essential Bus Feeder

Breaker Trip (90%)" and the "Diesel Generator Start, Load Shed on Essential Bus (59%)," are provided in TS Table 3.3-4, "Safety Features Actuation System (SFAS) Trip Setpoints". The time delays associated with the relays are chosen so as to minimize the possibility that short-duration disturbances will unnecessarily reduce availability of the offsite power source, to assure that the allowable time duration of a degraded voltage condition does not result in failure of safety systems or components, and to assure that the starting times of equipment assumed in the accident analysis are not exceeded. The degraded voltage (90%) relays (DVRs) automatically disconnect the offsite source whenever the bus voltage drops below the relay setpoint for longer than allowed by the relay time delay setpoint. Disconnecting the offsite source causes the loss of voltage (59%) relays (LVRs) to actuate. The LVRs will lock out the offsite source, load-shed the bus, and start the associated emergency diesel generator (EDG) whenever the bus voltage drops below the relay setpoint for longer than the relay time delay setpoint.

For the DVR and LVR setpoint calculations, the licensee used methods from American Nuclear Standards Institute/Instrument Society of America (ANSI/ISA)-S67.04.01-2000, "Setpoints for Nuclear Safety Instrumentation." This document was prepared by ISA with a goal of providing uniformity in the field of instrumentation. ANSI/ISA-RP67.04.02-2000 presents guidelines and examples of methods for the implementation of ANSI/ISA-67.04.01-2000. ANSI/ISA-S67.04.01-2000 definition 3.1 and ANSI/ISA-RP67.04.02-2000 definition 3.1 define the AV as "a limiting value that the trip setpoint may have when tested periodically, beyond which appropriate action shall be taken." ANSI/ISA-RP67.04.02-2000, paragraph 7.1 further interprets "appropriate action" as an evaluation for operability. ANSI/ISA-S67.04.01-2000 paragraph 4.3.2 states that "the purpose of the AV is to identify a value that, if exceeded, may mean that the instrument has not performed within the assumptions of the setpoint calculation." The licensee's analysis is based on Method 2 from ANSI/ISA-RP67.04.02-2000, Section 7.3. Method 2 determines the AV by calculating the instrument channel uncertainty without including drift and uncertainties observed during normal operation. This result is then added to or subtracted from the Analytical Limit (AL) to establish the AV.

The current AVs for the DVR voltage, which have been in TSs since 1977, would permit operation with some motor-operated valves below the minimum voltage required for proper operation as defined in Generic Letter 89-10, "Safety-Related Motor Operated Valve Testing and Surveillance." The licensee determined a lower AL of 3700 volts and an upper AL of 3786 volts for the DVR setpoint. The licensee used Method 2 described in ANSI/ISA-RP67.04.02-2000 and determined a lower AV of 3712 volts (dropout) and an upper AV of 3771 volts (pickup). This change reflects updated analyses to ensure the DVRs will not interfere with load sequencing or EDG breaker closure. The new AVs will also protect against inadvertent actuation of the DVRs.

Similarly, the licensee determined the lower AL time delay as 6.21 seconds, which is the bounding acceleration time for the 4160-volt motors due to a SFAS, based on the high pressure injection motors' start time at 70-percent nominal voltage. The upper AL for the DVR time delay was determined at 8.1 seconds, which is based on a delay time approved in Amendments 7 and 58 of the Davis-Besse TSs, including breaker and generator operational characteristics and uncertainties. The licensee used Method 2 described in ANSI/ISA-RP67.04.02-2000 and determined a lower AV of 6.4 seconds and an upper AV of 7.9 seconds.

Based on the calculated lower and upper AV for the DVR voltage and time delay, the licensee proposed that the AV listed in TS table 3.3-4 for the Functional Unit Sequence Logic Channel "a", "Essential Bus Feeder Breaker Trip (90%)," be changed from "$\geq$ 3558 volts $\leq$ 7.8 sec" to "$\geq$ 3712 volts (dropout) and $\leq$ 3771 volts (pickup) with a time delay of $\geq$ 6.4 and $\leq$ 7.9 sec". The proposed change to the DVR AV will ensure that adequate voltage is available to electrical loads, while minimizing the possibility of inadvertent DVR actuations.

For the LVR voltage, to preclude undesired interaction between the LVR and the EDG load sequence, the upper AL was established at the minimum EDG transient analysis voltage, including margin applied in the transient analysis. The licensee determined the upper AL at 2500 volts, which includes margins for analysis uncertainties. The licensee used Method 2 described in ANSI/ISA-RP67.04.02-2000 and determined an AV of 2492 volts. The licensee did not propose a change for the LVR lower AV voltage and, therefore, a lower AV was not calculated.

Similarly, the licensee established the LVR AL for time delay at a level equal to the current AV of 0.6 second, which accounts for the combined DVR response time using the AL for each relay (DVR, LVR, dead bus timer). The new lower AL is intended to preclude spurious trips due to transient events that may occur on the transmission system or within the onsite electrical distribution system. The licensee determined a lower AL of 0.4 second and an upper AL of 0.6 seconds. The licensee analytically calculated the channel uncertainties using the same methods as previously described for the DVR time delay. The lower AV was determined to be 0.42 second and the upper AV was determined to be 0.58 second.

Based on the calculated lower and upper AV for the DVR voltage and time delay, the licensee proposed that the AV listed in TS Table 3.3-4 for the "Allowable Value" for Functional Unit Sequence Logic Channel "b", "Diesel Generator Start, Load Shed on Essential Bus (59%)", be changed from "≥ 2071 and ≤ 2450 volts for 0.5 ± 0.1 sec" to "≥ 2071 volts (dropout) and ≤ 2492 volts (pickup) with a time delay of ≥ 0.42 and ≤ 0.58 sec". This change reflects updated setpoint and EDG transient response analyses to ensure that the LVRs will not interfere with load sequencing or EDG operation.

The NRC staff reviewed Regulatory Guide 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation," and determined that the guide endorses the use of ANSI/ISA-S67.04-1994 as an acceptable method for determining safety-related setpoints. The NRC staff reviewed ANSI/ISA-67.04-01-2000 and ANSI/ISA-RP-67.04.02-2000 and determined that the applicable portions of ANSI/ISA-67.04-01-2000 and ANSI/ISA-RP67.04.02-2000 are equivalent to the corresponding NRC-endorsed sections of ANSI/ISA-S67.04-1994.

Additionally, the licensee proposed replacing the words "Trip Setpoints" with "Allowable Values" in the title for Table 3.3-4 and deleting the trip setpoints from this table to be consistent with NUREG-1430, "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors," Revision 2. The NRC staff reviewed current Revision 3, of NUREG-1430 dated June, 2004. The NUREG specified placing "Allowable Values" in the section describing reactor protection instrumentation setpoints. The NRC staff determined that this change improved the Standard TSs, which was the intent of the NUREG, and could be applied to SFAS instrumentation setpoints. The licensee maintained that the nominal trip setpoints are specified in the setpoint analysis, and are included in the Davis-Besse Relay Setting Manual, a Davis-Besse controlled document. Further, the licensee stated that these trip setpoints will also be listed in the USAR and subject to evaluation under the regulatory requirements of 10 CFR 50.59 "Changes, tests and experiments" prior to changing their values in the future. The NRC staff determined this administrative change is acceptable. The remaining licensee proposed changes are administrative and editorial in nature and are, therefore, acceptable.

The NRC staff issued several requests for additional information (RAIs), each with multiple questions, and a clarification seeking information from the licensee that demonstrates compliance with GDCs 17 and 18 of 10 CFR Part 50, Appendix A. By letter dated January 17, 2005, the licensee submitted a response to an NRC staff question regarding the impact on the safety-related equipment served by electromechanical LVRs that were replaced with solid state LVRs. The purpose of this RAI was to determined whether clearly defined bases for uncertainties associated with the total instrument uncertainties were calculated for the TS AVs. In their response, the licensee provided a comparison between the original General Electric model 12NGV13B25A (NGV) LVR relays and the solid state Asea Brown Boveri LVR relays currently installed. The licensee stated that the original undervoltage relays operated in tandem with Agastat model 7014PA or model E-7014PA electropneumatic time delay relays set at approximately 0.5 seconds. The relay manufacturer's (General Electric's) setting band for the NGV relays was 70-100 volts. In addition, the time delay settings were significantly affected by temperature variations. These undesirable features were eliminated by replacing the original undervoltage and time delay relays with integrated solid-state time delay harmonic-compensated undervoltage units. The replacement relays provide the same function as the original relays and are qualified for safety-related mild environment applications for use in seismic installations. With respect to the capability of the relays to perform their function, the replacement relays provide a more accurate setpoint, a more accurate time delay, and a more comprehensively documented uncertainty basis. This allows a more clearly defined basis for uncertainties associated with the total instrument uncertainties calculated for the TS AVs. This change improved setting accuracy and stability, but the nominal setting values were maintained. The NRC staff reviewed the comparison and determined that this LVR replacement improved setting accuracy and stability, while maintaining the nominal setting values.

The January 17, 2005, letter also addressed an NRC staff question regarding the potential effect on the overcurrent relay protection and the pump speed characteristics, considering any difference between the original relays and the new solid-state relays for both accident and non accident conditions. The licensee performed a comprehensive evaluation of several required equipment and overcurrent protective devices. The licensee evaluated any detrimental impacts of the degraded voltage event on potential transformers, current transformers, ground fault relays, heaters, battery chargers, rectifiers, steam and feedwater rupture control system logic cabinets, motors, contactors, breakers on essential load center transformers, and 480-volt overcurrent protective devices. The licensee stated that the required equipment will start after the EDGs restore power and that no potential equipment damage was identified. The NRC staff determined this is acceptable.

Additionally, the NRC staff issued an RAI clarification involving a footnote to be added to TS Table 4.3-2, regarding returning the as-left setpoint to within the tolerance band of the trip setpoint. This proposed change was consistent with an NRC position described in a March 31, 2005, letter (ADAMS Accession No. ML050870008) to the Nuclear Energy Institute. By letters dated October 10, and November 2, 2005, and May 30, 2006, the licensee proposed to add this footnote to TS Table 4.3-2. The proposed footnote would ensure that the as-left setting for these relays following annual channel calibrations and monthly channel functional tests are within the assumptions of the instrument setpoint methodology. This meets the requirements of 10 CFR 50.36 and, therefore, is acceptable to the NRC staff.

Finally, the NRC staff issued an RAI question that asked whether the licensee declares the relays inoperable, if during channel calibration and functional tests, the results exceed the calibration tolerance and whether this would be added to the licensee's corrective action program. By letters dated October 10 and November 2, 2005, and May 30, 2006, the licensee responded that the operability of the tested instruments will be evaluated based on the as-found setting being within the calculated trip setpoint and the calibration tolerance. This will provide assurance that the instrument is functioning within the criteria established in the calculations.

The calibration tolerance is smaller compared to uncertainties between the calculated setpoint and the AV. The licensee's corrective action program requires the initiation of a condition report anytime surveillance acceptance criteria for TS instruments are not met. In addition to equipment trend analysis, the results of the calibrations and functional tests are added to the system engineer's performance book. The licensee's approach to determine instrument operability provides assurance that instrument will perform within the calibration limits, therefore, the NRC staff finds this acceptable.

Based on its review of the licensee's submittal and their responses to the RAIs, the NRC staff concludes that the proposed changes are acceptable. Also, the NRC staff reviewed and accepted the licensee's instrumentation methodology (described in ANSI/ISA-S67.04.01-2000, as mentioned above) including associated calculations. As discussed above, the NRC staff has evaluated the proposed changes to the TSs. Additionally, the NRC staff concludes that it is safe to operate the plant using the proposed SFAS instrumentation AVs and the proposed changes to the TSs and SRs. Therefore, the proposed changes meet the requirements of 10 CFR 50.36 and GDCs 17 and 18 of 10 CFR Part 50, Appendix A. Based on this conclusion, the NRC staff further concludes that the proposed amendment is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Ohio State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (69 FR 32074; June 8, 2004). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The NRC staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: N. Patel
H. Garg

Date: August 9, 2006