

August 28, 2008

Mr. Mark B. Bezilla
Site Vice President
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SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT NO. 1 - ISSUANCE OF
AMENDMENT RE: TSTF-476, "IMPROVED BANKED POSITION
WITHDRAWAL SEQUENCE CONTROL ROD INSERTION PROCESS," PER
THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS (TAC NO.
MD8194)

Dear Mr. Bezilla:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 150 to Facility Operating License No. NPF-58 for the Perry Nuclear Power Plant, Unit No. 1. This amendment revises the Technical Specifications in response to your application dated February 20, 2008 (Agencywide Documents Access and Management System Accession No. ML080580409).

This amendment revises an Applicability footnote in Technical Specification (TS) Table 3.3.2.1-1, "Control Rod Block Instrumentation," permitting the use of an improved optional Banked Position Withdrawal Sequence (BPWS) reactor shutdown process. As stated in your February 20, 2008, letter, the corresponding changes are made to the Bases of TS 3.1.6, "Control Rod Pattern," and the Bases of TS 3.3.2.1, to reference the new BPWS shutdown method. The February 20, 2008, letter states, and the NRC staff found that the proposed changes are consistent with Technical Specification Task Force (TSTF) Traveler TSTF-476-A, Revision 1, "Improved BPWS Control Rod Insertion Process (NEDO-33091)," and the Consolidated Line Item Improvement Process Notice of Availability dated May 23, 2007.

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/

Cameron S. Goodwin, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-440

Enclosures: 1. Amendment No. 150 to NPF-58
2. Safety Evaluation

cc w/encls: See next page

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**Via e-mail

*By Memo ML082250198

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FIRSTENERGY NUCLEAR OPERATING COMPANY

FIRSTENERGY NUCLEAR GENERATION CORP.

OHIO EDISON COMPANY

DOCKET NO. 50-440

PERRY NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 150
License No. NPF-58

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for license amendment filed by FirstEnergy Nuclear Operating Company, et al., (FENOC, the licensee) dated February 20, 2008, 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-58 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 150 are hereby incorporated into this license. FENOC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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/

Russell Gibbs, Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications and Facility Operating License

Date of Issuance:
August 28, 2008

ATTACHMENT TO LICENSE AMENDMENT NO. 150

FACILITY OPERATING LICENSE NO. NPF-58

DOCKET NO. 50-440

Replace the following pages of the Facility Operating License and 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

License NPF-58
Page 4

TSs
3.3-19

Insert

License NPF-58
Page 4

TSs
3.3-19

renewal. Such sale and leaseback transactions are subject to the representations and conditions set forth in the above mentioned application of January 23, 1987, as supplemented on March 3, 1987, as well as the letter of the Director of the Office of Nuclear Reactor Regulation dated March 16, 1987, consenting to such transactions. Specifically, a lessor and anyone else who may acquire an interest under these transactions are prohibited from exercising directly or indirectly any control over the licenses of PNPP Unit 1. For purposes of this condition the limitations of 10 CFR 50.81, as now in effect and as may be subsequently amended, are fully applicable to the lessor and any successor in interest to that lessor as long as the license for PNPP Unit 1 remains in effect; these financial transactions shall have no effect on the license for the Perry Nuclear facility throughout the term of the license.

- (b) Further, the licensees are also required to notify the NRC in writing prior to any change in: (i) the terms or conditions of any lease agreements executed as part of these transactions; (ii) the PNPP Operating Agreement; (iii) the existing property insurance coverage for PNPP Unit 1; and (iv) any action by a lessor or others that may have an adverse effect on the safe operation of the facility.
- C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now and 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 reactor core power levels not in excess of 3758 megawatts thermal (100% power) in accordance with the conditions specified herein.
 - (2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 150, are hereby incorporated into the license. FENOC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.
 - (3) Antitrust Conditions
 - a. FirstEnergy Nuclear Generation Corp. and Ohio Edison Company

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 150 TO FACILITY OPERATING LICENSE NO. NPF-58
FIRSTENERGY NUCLEAR OPERATING COMPANY
FIRSTENERGY NUCLEAR GENERATION CORP.
OHIO EDISON COMPANY
PERRY NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-440

1.0 INTRODUCTION

By letter to the U.S. Nuclear Regulatory Commission (NRC, the Commission) dated February 20, 2008, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML080580409), FirstEnergy Nuclear Operating Company, et al. (the licensee) requested changes to the technical specifications (TSs) for the Perry Nuclear Power Plant (PNPP), Unit No. 1. The proposed changes would revise an Applicability footnote in TS Table 3.3.2.1-1, "Control Rod Block Instrumentation," to permit use of an improved optional Banked Position Withdrawal Sequence (BPWS) reactor shutdown process. The licensee's letter further states that corresponding changes are made to the Bases of TS 3.1.6, "Control Rod Pattern," and the Bases of TS 3.3.2.1, to reference the new BPWS shutdown method. Per the letter, the proposed changes are consistent with Technical Specification Task Force (TSTF) Traveler TSTF-476-A, Revision 1, "Improved BPWS Control Rod Insertion Process (NEDO-33091)," and the Consolidated Line Item Improvement Process (CLIIP) Notice of Availability dated May 23, 2007.

2.0 REGULATORY EVALUATION

The control rod drop accident (CRDA) is the design basis accident for the subject TS changes. In order to minimize the impact of a CRDA, the BPWS process was developed to minimize control rod reactivity worth for boiling-water reactor plants. The proposed improved BPWS further simplifies the control rod insertion process, and in order to evaluate it, the staff followed the guidelines of Standard Review Plan Section 15.4.9, and referred to General Design Criterion (GDC) 28 of Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, as its regulatory requirement. GDC 28 states that the reactivity control systems shall be designed with appropriate limits on the potential amount and rate of reactivity increase to assure that the effects of postulated reactivity accidents can neither (1) result in damage to the reactor coolant pressure boundary greater than limited local yielding nor (2) sufficiently disturb the core, its support structures, or other reactor pressure vessel internals to impair significantly the capability to cool the core.

3.0 TECHNICAL EVALUATION

In its safety evaluation for Licensing Topical Report NEDO-33091-A, "Improved BPWS Control Rod Insertion Process," dated June 16, 2004, (ADAMS Accession No. ML041700479) the NRC staff determined that the methodology described in TSTF-476, Revision 1, to incorporate the improved BPWS into the standard TS, is acceptable.

TSTF-476, Revision 1 states that the improved BPWS provides the following benefits: (1) allows the plant to reach the all-rods-in condition prior to significant reactor cool down, which reduces the potential for re-criticality as the reactor cools down; (2) reduces the potential for an operator reactivity control error by reducing the total number of control rod manipulations; (3) minimizes the need for manual scrams during plant shutdowns, resulting in less wear on control rod drive (CRD) system components and CRD mechanisms; and, (4) eliminates unnecessary control rod manipulations at low power, resulting in less wear on reactor manual control and CRD system components.

PNPP has been approved to use the improved BPWS, and the potential for a CRDA with power below the low power setpoint (LPSP) has been eliminated. The NRC staff previously reviewed the Licensing Topical Report NEDO-33091-A, "Improved BPWS Control Rod Insertion Process," dated June 16, 2004, (ADAMS Accession No. ML041700479) provided by the TSTF to support the staff's review and approval of the subject. The NRC staff's safety evaluation (SE) for NEDO-33091-A, Revision 2, explained that the potential for the CRDA will be eliminated during plant shutdowns if appropriate detailed operational procedures are established to implement this license amendment.

The licensee's February 22, 2008, letter states, "As part of the implementation process for the license amendment that revises Technical Specification Table 3.3.2.1-1 footnote (c), appropriate detailed operational procedures will be established prior to implementation of the controls included in Section 4, "Safety and Technical Evaluations," and Section 5, "Plant Implementation," of NEDO-33091-A, Revision 2, "Improved BPWS Control Rod Insertion Process." The letter further states, "A summary of those controls, taken directly from the Model Application published in the Federal Register Notice dated May 23, 2007, is provided below." Per the letter, "additional controls are included in Sections 4 and 5 of the NEDO, which also apply and will be proceduralized (e.g., how control rods are "confirmed" to be coupled, etc.):"

1. Before reducing power to the low power setpoint (LPSP), operators shall confirm control rod coupling integrity for all rods that are fully withdrawn. Control rods that have not been confirmed coupled and are in intermediate positions, must be fully inserted prior to power reduction to the LPSP. No action is required for fully-inserted control rods.

If a shutdown is required and all rods which are not confirmed coupled, cannot be fully inserted prior to the power dropping below the LPSP, then the original/standard BPWS must be adhered to. The original/standard BPWS can be found in Licensing Topical Report (LTR) NEDO-21231, "Banked Position Withdrawal Sequence," January 1977, and is referred to in NUREG-1434.

2. After reactor power drops below the LPSP, rods may be inserted from notch position 48 to notch position 00 without stopping at the intermediate positions. However, GE Nuclear Energy recommends that operators insert rods in the same order as specified for the original/standard BPWS as much as is reasonably possible. If a plant is in the process of shutting down following improved BPWS with the power below the LPSP, no control rod shall be withdrawn unless the control rod pattern is in compliance with standard BPWS requirements.

In addition to the procedure changes specified above, the staff previously verified during its review of NEDO-33091-A, Revision 2 that no single failure of the boiling water reactor CRD mechanical or hydraulic system can cause a control rod to drop completely out of the reactor core during the shutdown process. Therefore, the proper use of the improved BPWS will prevent a CRDA from occurring while power is below LPSP.

FENOC stated in their application that they have reviewed NEDO-33091-A, Revision 2, and the NRC staff's SE on the NEDO dated June 16, 2004, as well as TSTF-476-A, Revision 1, and the model SE published on May 23, 2007 (72 FR 29004) as part of the CLIIP Notice of Availability, and FENOC concluded that the basis is applicable to PNPP, and supports their adoption of the TSTF changes into the PNPP TS.

The NRC staff also reviewed the TSTF-476, Revision 2 basis, and similarly concluded that the basis for the TSTF is applicable to PNPP, and therefore, the TSTF is appropriate for adoption by the licensee. In addition, the NRC staff reviewed the licensee's proposed changes against the corresponding changes made to the Standard Technical specifications by TSTF-476-A, Revision 1, which the NRC staff has found to satisfy applicable regulatory requirements, as described above. The NRC staff found that the proposed changes are consistent with the changes approved by the NRC staff in TSTF-476-A, Revision 1. The NRC staff, therefore, finds these changes acceptable.

The NRC staff finds the proposed TS changes in the licensee's amendment request properly incorporate the improved BPWS procedure into the STS, and that the licensee accurately adopted TSTF-476 and the requisite procedural changes. Therefore, the NRC staff approves the licensee's license amendment request to adopt TSTF-476, Revision 1.

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. 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding

(73 FR 21659 dated April 22, 2008). Accordingly, this 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 this amendment.

6.0 CONCLUSION

The Commission 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 Contributor: R.P. Grover

Date: August 28, 2008