

March 7, 2003

Mr. William R. Kanda  
Vice President - Nuclear, Perry  
FirstEnergy Nuclear Operating Company  
Perry Nuclear Power Plant  
P.O. Box 97, A200  
10 Center Road  
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT 1 - ISSUANCE OF AMENDMENT  
(TAC NO. MB7032)

Dear Mr. Kanda:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 124 to Facility Operating License No. NPF-58 for the Perry Nuclear Power Plant, Unit 1. This amendment revises the Technical Specification (TS) in response to your application dated October 30, 2002.

This amendment deletes TS 5.5.3, "Post Accident Sampling System (PASS)," and thereby eliminates the requirements to have and maintain the PASS at the Perry Nuclear Power Plant, Unit 1. The amendment also addresses related changes to TS 5.5.2, "Primary Coolant Sources Outside Containment."

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 P. Sands, Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-440

Enclosures: 1. Amendment No. 124 to  
License No. NPF-58  
2. Safety Evaluation

cc w/encls: See next page

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DISTRIBUTION:

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**ADAMS ACCESSION NUMBER: ML030630828** \*See previous concurrence

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**OFFICIAL RECORD COPY**

Perry Nuclear Power Plant, Unit 1

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FIRSTENERGY NUCLEAR OPERATING COMPANY

DOCKET NO. 50-440

PERRY NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 124  
License No. NPF-58

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the FirstEnergy Nuclear Operating Company (the licensee) dated October 30, 2002, 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. 124 are hereby incorporated into this license. The FirstEnergy Nuclear Operating Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 180 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Anthony J. Mendiola, Chief, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: March 7, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 124

FACILITY OPERATING LICENSE NO. NPF-58

DOCKET NO. 50-440

Replace the following page of the Appendix "A" Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove

Insert

5.0-7

5.0-7

5.5 Programs and Manuals

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5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

- c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with, the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the Low Pressure Core Spray System, High Pressure Core Spray System, Residual Heat Removal System, Reactor Core Isolation Cooling System, hydrogen analyzer portion of the Combustible Gas Control System, Post-Accident Sampling System, (until such time as a modification eliminates a PASS penetration as a potential leakage path), Reactor Water Cleanup System Return to Feedwater line, and Feedwater Leakage Control System, including the Feedwater System motor-operated containment isolation valves. The program shall include the following:

- a. Preventive maintenance and periodic visual inspection requirements; and
- b. Integrated leak test requirements on each system at refueling cycle intervals or less.

5.5.3 Post Accident Sampling

Deleted.

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(continued)

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 124 TO FACILITY OPERATING LICENSE NO. NPF-58  
FIRSTENERGY NUCLEAR OPERATING COMPANY  
PERRY NUCLEAR POWER PLANT, UNIT 1  
DOCKET NO. 50-440

## 1.0 INTRODUCTION

By application dated October 30, 2002, FirstEnergy Nuclear Operating Company (the licensee) requested changes to the technical specifications (TSs) (Appendix A to Facility Operating License No. NPF-58) for the Perry Nuclear Power Plant, Unit 1. The proposed changes would revise the TSs by eliminating the requirements to have and maintain the post accident sampling system (PASS).

In the aftermath of the accident at Three Mile Island (TMI), Unit 2, the Nuclear Regulatory Commission (NRC) imposed requirements on licensees for commercial nuclear power plants to install and maintain the capability to obtain and analyze post-accident samples of the reactor coolant and containment atmosphere. The desired capabilities of the Post Accident Sampling System [or Station] (PASS) were described in NUREG-0737, "Clarification of TMI Action Plan Requirements." The NRC issued orders to licensees with plants operating at the time of the TMI accident to confirm the installation of PASS capabilities (generally as they had been described in NUREG-0737). A requirement for PASS and related administrative controls was added to the TS of the operating plants and was included in the initial TS for plants licensed during the 1980s and 90s. Additional expectations regarding PASS capabilities were included in Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants To Assess Plant and Environs Conditions During and Following an Accident."

Significant improvements have been achieved since the TMI accident in the areas of understanding risks associated with nuclear plant operations and developing better strategies for managing the response to potentially severe accidents at nuclear plants. Recent insights about plant risks and alternate severe accident assessment tools have led the NRC staff to conclude that some TMI Action Plan items can be revised without reducing the ability of licensees to respond to severe accidents. The NRC's efforts to oversee the risks associated with nuclear technology more effectively and to eliminate undue regulatory costs to licensees and the public have prompted the NRC to consider eliminating the requirements for PASS in TS and other parts of the licensing bases of operating reactors.

The staff has completed its review of the topical report submitted by the Boiling Water Reactor Owners Group (BWROG), that proposed the elimination of PASS. The justifications for the proposed elimination of PASS requirements center on evaluations of the various radiological and chemical sampling and their potential usefulness in responding to a severe reactor accident or making decisions regarding actions to protect the public from possible releases of radioactive

materials. As explained in more detail in the staff's safety evaluation (SE) for the topical report, the staff has reviewed the available sources of information for use by decisionmakers in developing protective action recommendations and assessing core damage. Based on this review, the staff found that the information provided by PASS either is unnecessary or is effectively provided by other indications of process parameters or measurement of radiation levels. The staff agrees with the owners group that licensees can remove the TS requirements for PASS, revise (as necessary) other elements of the licensing bases, and pursue possible design changes to alter or remove existing PASS equipment.

## 2.0 BACKGROUND

In its letter dated November 30, 2000, the BWROG submitted for the NRC staff's review, Topical Report NEDO-32991, "Regulatory Relaxation for BWR Post Accident Sampling Stations (PASS)," for eliminating PASS requirements from BWRs. The NRC staff's SE for the BWROG topical report is dated June 12, 2001 (ADAMS Accession Number ML011630016). The BWROG proposed that relaxation of the PASS requirements be incorporated into the standard TSs by submitting TSTF-413.

The NRC staff prepared this SE relating to the elimination of requirements on post accident sampling for BWRs and solicited public comment (66 FR 66949, dated December 27, 2001) in accordance with the Consolidated Line Item Improvement Program (CLIIP). The use of the CLIIP in this matter is intended to help the NRC to efficiently process amendments that propose to remove the PASS requirements from TS. Licensees of nuclear power reactors to which this SE apply were informed (67 FR 13027, dated March 20, 2002) that they could request amendments conforming to the SE, and, in such requests, should confirm the applicability of the SE to their reactors and provide the requested plant-specific verifications and commitments.

## 3.0 EVALUATION

The ways in which the requirements and recommendations for PASS were incorporated into the licensing bases of commercial nuclear power plants varied as a function of when the plants were licensed. Plants that were operating at the time of the TMI accident are likely to have been the subject of confirmatory orders that imposed the PASS functions described in NUREG-0737 as obligations. The issuance of plant-specific amendments to adopt this change, which would remove PASS and related administrative controls from TS, would also supersede the PASS specific requirements imposed by post-TMI confirmatory orders.

The technical evaluations for the elimination of PASS sampling requirements are provided in the SE dated June 12, 2001, for BWROG Topical Report NEDO-32991. As described in its SE for the topical report, the staff finds that the post-accident sampling requirements for the following may be eliminated for BWR plants:

1. Reactor coolant dissolved gases.
2. Reactor coolant hydrogen.
3. Reactor coolant oxygen.
4. Reactor coolant chlorides.
5. Reactor coolant pH.
6. Reactor coolant boron.
7. Reactor coolant conductivity.
8. Radioisotopes in the reactor coolant.
9. Containment hydrogen.

10. Containment oxygen.
11. Radioisotopes in the containment atmosphere.
12. Suppression pool pH.
13. Chlorides in the suppression pool.
14. Boron in the suppression pool.
15. Radioisotopes in the suppression pool.

The staff agrees that the sampling of radioisotopes is not required to support emergency response decisionmaking during the initial phases of an accident because the information provided by PASS either is unnecessary or is effectively provided by other indications of process parameters or measurement of radiation levels. Therefore, it is not necessary to have dedicated equipment to obtain this sample in a prompt manner.

The staff does, however, believe that there could be significant benefits to having information about the radioisotopes existing post-accident in order to address public concerns and plan for long-term recovery operations. As stated in the SE for the topical report, the staff has found that licensees could satisfy this function by developing contingency plans to describe existing sampling capabilities and what actions (e.g., assembling temporary shielding) may be necessary to obtain and analyze highly radioactive samples from the reactor coolant system (RCS), suppression pool, and containment atmosphere. (See Item 4.1 under Verifications and Commitments.) The contingency plans for obtaining samples from the RCS, suppression pool, and containment atmosphere may also enable a licensee to derive information on parameters such as hydrogen concentrations in containment and the pH of water in the suppression pool. The staff considers the sampling of the suppression pool to be potentially useful in confirming calculations of pH and confirming that potentially unaccounted for acid sources have been sufficiently neutralized. The use of the contingency plans for obtaining samples would depend on the plant conditions and the need for information by the decisionmakers responsible for responding to the accident.

In addition, the staff considers radioisotope sampling information to be useful in classifying certain types of events (such as a reactivity excursion or mechanical damage) that could cause fuel damage without having an indication of a loss of reactor coolant inventory. However, the staff agrees with the topical report's contentions that other indicators of failed fuel, such as radiation monitors, can be correlated to the degree of failed fuel. (See Item 4.2 under Verifications and Commitments.)

In lieu of the information that would have been obtained from PASS, the staff believes that licensees should maintain or develop the capability to monitor radioactive iodines that have been released to offsite environs. This information would be useful for decisionmakers trying to assess a release of and limit the public's exposure to radioactive materials. (See Item 4.3 under Verifications and Commitments.)

The staff believes that the changes related to the elimination of PASS that are described in the topical report, related SE, and this proposed change to TS are unlikely to result in a decrease in the effectiveness of a licensee's emergency plan. Each licensee, however, must evaluate possible changes to its emergency plan in accordance with 10 CFR 50.54(q) to determine if the change decreases the effectiveness of its site-specific plan. Evaluations and reporting of changes to emergency plans should be performed in accordance with applicable regulations and procedures.

The staff notes that containment hydrogen concentration monitors are required by 10 CFR 50.44 and are relied upon to meet the data reporting requirements of 10 CFR Part 50, Appendix E, Section VI.2.a.(ii)(3). The staff concludes that these hydrogen monitors provide an adequate capability for monitoring containment hydrogen concentration during the early phases of an accident. The staff sees value in maintaining the capability to obtain grab samples for complementing the information from the hydrogen monitors in the long term (i.e., by confirming the indications from the monitors and providing hydrogen measurements for concentrations outside the range of the monitors). As previously mentioned, the licensee's contingency plan (see Item 4.1 under Verifications and Commitments) for obtaining highly radioactive samples will include sampling of the containment atmosphere and may, if deemed necessary and practical by the appropriate decisionmakers, be used to supplement the hydrogen monitors.

The TS includes an administrative requirement for a program to minimize to levels as low as practicable, the leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident. The program includes preventive maintenance, periodic inspections, and leak tests for the identified systems. PASS is specifically listed in TS 5.5.2 as falling under the scope of this requirement. The applicability of this specification depends on whether or not PASS is maintained as a system that is a potential leakage path.

The licensee has stated that a plant change might be implemented such that PASS would not be a potential leakage path outside containment for highly radioactive fluids (e.g., the PASS piping that penetrates the containment might be cut and capped). The modification would not be made during the implementation period for this amendment. The licensee has proposed to add the following phrase to the reference to process sampling in TS 5.5.2:

"... [Post-Accident Sampling System] (until such time as a modification eliminates a PASS penetration as a potential leakage path), ..."

The above phrase would make clear that TS 5.5.2 remains applicable to the PASS as long as it is a possible leakage path and reflects that the actual modification of the piping system may be scheduled beyond the implementation period for this amendment. Requirements in NRC regulations (10 CFR Part 50, Appendix J) and other TS provide adequate regulatory control over the licensee's modification to eliminate PASS as a potential leakage path. Following the modification to eliminate PASS as a potential leakage path, the licensee may elect (in order to maintain clarity and simplicity of the requirement) to revise TS 5.5.2 to remove the reference to PASS, including the phrase added by this amendment.

#### 4.0 VERIFICATIONS AND COMMITMENTS

As requested by the staff in the notice of availability for this TS improvement, the licensee has addressed the following plant-specific verifications and commitments.

- 4.1 Each licensee should verify that it has, and make a regulatory commitment to maintain (or make a regulatory commitment to develop and maintain), contingency plans for obtaining and analyzing highly radioactive samples of reactor coolant, suppression pool, and containment atmosphere.

The licensee will develop contingency plans for obtaining and analyzing highly radioactive samples of reactor coolant, suppression pool, and containment atmosphere. The licensee has committed to maintain the contingency plans within the Emergency Plan or related

implementing procedures. The licensee will implement this commitment within 180 days after the approval of this license amendment and no later than concurrent with the implementation of the amendment.

- 4.2 Each licensee should verify that it has, and make a regulatory commitment to maintain (or make a regulatory commitment to develop and maintain), a capability for classifying fuel damage events at the Alert level threshold (typically this is 300  $\mu\text{Ci/ml}$  dose equivalent iodine). This capability may utilize the normal sampling system and/or correlations of radiation readings to radioisotope concentrations in the reactor coolant.

The licensee has established a capability for classifying fuel damage events at the Alert level threshold. The licensee has committed to maintain the capability for the Alert classification within its Emergency Plan. The licensee will implement this commitment within 180 days after the approval of this license amendment and no later than concurrent with the implementation of the amendment.

- 4.3 Each licensee should verify that it has, and make a regulatory commitment to maintain (or make a regulatory commitment to develop and maintain), an I-131 site survey detection capability, including an ability to assess radioactive iodines released to offsite environs, by using effluent monitoring systems or portable sampling equipment.

The licensee has verified that it the capability to monitor radioactive iodines released to offsite environs. The capability is described within the Emergency Plan and related implementing procedures. The licensee has implemented this commitment.

The NRC staff finds that reasonable controls for the implementation and for subsequent evaluation of proposed changes pertaining to the above regulatory commitments are provided by the licensee's administrative processes, including its commitment management program. Should the licensee choose to incorporate a regulatory commitment into the emergency plan, final safety analysis report, or other document with established regulatory controls, the associated regulations would define the appropriate change-control and reporting requirements. The staff has determined that the commitments do not warrant the creation of regulatory requirements, which would require prior NRC approval of subsequent changes. The NRC staff has agreed that Nuclear Energy Institute 99-04, Revision 0, "Guidelines for Managing NRC Commitment Changes," provides reasonable guidance for the control of regulatory commitments made to the NRC staff. (See Regulatory Issue Summary 2000-17, Managing Regulatory Commitments Made by Power Reactor Licensees to the NRC Staff, dated September 21, 2000 [ADAMS Accession Number ML003741774].) The commitments should be controlled in accordance with the industry guidance or comparable criteria employed by a specific licensee. The staff may choose to verify the implementation and maintenance of these commitments in a future inspection or audit.

## 5.0 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.

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the 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 effluents 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 (68 FR 2803). 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 amendments.

## 7.0 CONCLUSION

The 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: W. Reckley

Date: March 7, 2003