



# THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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MURRAY R. EDELMAN  
VICE PRESIDENT  
NUCLEAR

November 9, 1984

Mr. R. F. Warnick, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects  
U.S. Nuclear Regulatory Commission, Region III  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Re: Perry Nuclear Power Plant  
Docket Nos. 50-440; 50-441

Dear Mr. Warnick:

This letter is to acknowledge receipt of Inspection Report 50-440/84-15; 50-441/84-14 attached to your letter dated October 10, 1984. This report identifies areas examined by Messrs. J. A. Grobe and J. W. McCormick-Barger during their inspection conducted July 1 through September 10, 1984, at the Perry Nuclear Power Plant.

Attached to this letter is our response to the Notice of Violation dated October 10, 1984. This response is in accordance with the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations.

Our response has been submitted to you within thirty days of the date of the Notice of Violation as you required. If there are additional questions, please do not hesitate to call.

Very truly yours,

Murray R. Edelman  
Vice President  
Nuclear Group

MRE:db  
10/X/1  
Attachment

cc: Mr. J. A. Grobe  
USNRC Site

U.S. Nuclear Regulatory Commission  
c/o Document Management Branch  
Washington, DC 20555

Mr. W. S. Little, Chief  
Engineering Branch  
Division of Reactor Safety  
U.S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

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## RESPONSE TO ENFORCEMENT ITEMS

Below is our response to the Notice of Violation appended to United States Regulatory Commission I.E. Report 50-440/84-15; 50-441/84-14.

### I. Noncompliance 440/84-15-02

#### A. Severity Level IV Violation

10CFR50, Appendix B, Criterion XI, as implemented through the applicant's Corporate Nuclear Quality Assurance Program, Section 1100, Revision 4, requires that testing to demonstrate that systems will perform satisfactorily in service shall be performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The Final Safety Analysis Report (FSAR), Section 1.8, requires that acceptance testing of the P52 instrument air system shall conform to Section C.5 of Regulatory Guide 1.80, Revision 0, "Preoperational Testing of Instrument Air Systems." Regulatory Guide 1.80, Revision 0, Section C.5, requires that the ability of the instrument air system to meet system cleanliness requirements with respect to oil and particulate matter contained in the product air shall be verified by test through analyzing the air using either continuous flow or discrete sampling techniques. The FSAR, Section 9.3.1, as modified by the response to FSAR question Q410.17, requires that the P52 Instrument Air System shall meet the system cleanliness requirements of ANSI MC11.1-1975 (ISA S7.3), "Quality Standard for Instrument Air." ANSI MC11.1-1975, Sections 4.2 and 4.3, specify that the maximum particulate size in the air stream shall be 3 micrometers and the maximum oil/hydrocarbon content in the air stream not exceed 1 part per million.

Contrary to the above, the Unit 1 P52 Instrument Air System was tested and turned over to the operations department without demonstrating that the system would perform satisfactorily in service. The FSAR instrument air cleanliness specifications had not been verified by test through quantitative analysis of the air stream. The cleanliness specifications had not been incorporated into the written system test specifications, system test procedure or system flush procedure.

#### B. Response

##### 1. Corrective Action Taken

Upon identification of this problem, a review was conducted of the PNPP Final Safety Analysis Report (FSAR) requirements as modified by FSAR question Q410.17 and the NRC Safety Evaluation Report (SER) for PNPP against Regulatory Guide 1.80, Revision 0, and ANSI MC11.1-1976 (ISA S7.3).

It was concluded that, as stated by FSAR Table 1.8-1, PNPP conforms to Section C.5 of Regulatory Guide 1.80, Revision 0, which requires that the ability of the instrument air system to meet system cleanliness requirements with respect to oil and particulate matter contained in the product air shall be verified by test through analyzing the air at the end of each main feeder line using either continuous flow or discrete sampling techniques.

The cleanliness of the instrument air system was verified during the Initial Check-Out and Run-In (IC&R) testing phase in accordance with PNPP instruction, Nuclear Test 61-0507. Air blows were performed through a clean pillowcase at all distribution manifold drains throughout the plant. The acceptance criteria for the pillowcase samples were no visual particulate, oil, or moisture. The P52 Instrument Air System met all acceptance criteria as defined by Regulatory Guide 1.80 during these test air blows.

It also was concluded, relative to the FSAR Section 9.3.1, System Description, as modified by FSAR question Q410.17 and SER Section 9.3.1 that the system design meets the guidelines of ANSI MC11.1-1976 (ISA S7.3). However, the particle size requirement imposed by ANSI MC11.1 was regarded as only a periodic operational test criterion for the after filters and not identified as an acceptance test requirement.

In response to FSAR Q & R, Q410.17, CEI had committed to meet the 3 micron particle size and perform operational surveillance tests. The response states that "Air from the Instrument Air System will be tested after the filter discharge at least yearly for dewpoint and particulate contamination. Acceptable air quality for these will be in accordance with ANSI MC 11.1 (including 3 micron particle size)." The PNPP Safety Evaluation Report reflects the Q & R response by stating that, "The instrument air system's design to supply clean, dry, oil-free air is in accordance with ANSI Standard MC 11.1-1976 (ISA S7.3). The instrument air quality will be tested at least yearly at the filter discharge for dewpoint and particulate contamination. Acceptable air quality will be in accordance with ANSI MC 11.1-1976. In failure to meet acceptable air quality, branch lines will be tested to determine the extent of problems and corrective action needed."

During our investigation, it was determined that the instrument air system meets the requirements of ANSI MC11.1-1976, with the exception that allowable particulate size has been determined based on equipment supplier recommendations and engineering analysis. Safety-related equipment using instrument air has been verified to be provided with either an appropriately sized, local, in-line filter or the particulate limits for components not provided with individual filters have been investigated. After consultation with the equipment suppliers, it has been determined that a limit of no visible particulate (i.e., no particles greater than 40 microns) will ensure long-term reliable operation of each component. An FSAR Change/Request for Section 9.3.1 is in process to define the system performance requirements for the maximum allowable particle size for air to safety-related equipment as 40 microns.

An instruction is under development to provide for yearly analysis of the instrument air quality at the filter outlet. The analysis will be performed for particle size utilizing an air particle counter in accordance with the system performance requirement and will be part of the operations program.

The air particle counter will also be used to confirm that the "no visible particulate" acceptance criteria utilized during the P52 Instrument Air System test air blows corresponds to the revised FSAR commitment for maximum allowable particle size.

The IP52 Instrument Air System meets the allowable oil content guidelines specified in ANSI MC11.1-1976 due to the following design features and therefore, no analysis for oil is required.

- . The centrifugal air compressor used in the instrument air system is designed to be oil free. The impeller shaft seal system provided is capable of assuring zero oil leakage into the compressed air stream.
- . After the compressor discharge are two pre-filters (100% capacity parallel trains) which remove 99% (by weight) of all particles including oil droplets, before the oil reaches the filter element by impingement and centrifugal action. Any failure of the compressor seal system would be identified during the daily blowdown of the pre-filters and the failed compressor would be isolated.

- . Downstream of the pre-filters are two 100% instrument air dryers. Any minute quantities of oil which passed through the pre-filter would be adsorbed by the desiccant in the dryer.
- . Downstream of the air dryers are two 100% high efficiency (3 micron) particulate after-filters. These filters would pick up any desiccant carry over and are the final filter for air entering the system. Also, these filters are blown down daily and any problems would be immediately identified.

2. Corrective Action to Prevent Recurrence

The Test Program Manual through Instruction TPI-27, "Release for Test: Preoperational and Acceptance Tests," requires a documented pretest review to ensure in part, that the test procedure reflects the latest design revisions, commitments, and as-built configurations.

The preoperational test for the P57 Safety-Related Instrument Air System, includes verification of particulate size no greater than 40 microns.

3. Date when Full Compliance will be Achieved

The confirmatory use of the air particle counter described in (1) above will be performed by February 28, 1985.

The FSAR change described above will be included in Amendment 15, which is expected to be issued in January 1985.