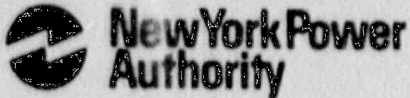


James A. FitzPatrick
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William Fernandez II
Resident Manager

May 9, 1990
JAFP 90-0396

United States Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333
INSPECTION NO. 90-11

Gentlemen:

In accordance with the provisions of 10CFR2.201, the Authority submits this response to the Notice of Violation transmitted by your letter dated April 10, 1990. This refers to the inspection conducted by Mr. Richard A. Plasse of your office during the period January 30 through February 7, 1990 at the James A. FitzPatrick Nuclear Power Plant.

NOTICE OF VIOLATION

As a result of the inspection conducted on January 31 through February 7, 1990, the following violation was identified:

- A. Facility Operating License No. DRP-59, Section 2.C.(1) authorizes NYPA to operate FitzPatrick at a thermal reactor power not to exceed 2436 megawatts (100 percent power of rated power).

Contrary to the above, NYPA operated FitzPatrick at a thermal power in excess of 2436 megawatts between October 1988 and November 1989. Based on calculated errors, NYPA operated the reactor at a power level up to 101.4 percent of rated power. This occurred due to errors in the calculation of feedwater flow transmitter calibration settings regarding static pressurization effects and feedwater flow nozzle characteristics.

This violation has been categorized as Severity Level IV (Supplement 1).

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The Power Authority agrees with this finding but has established that the actual steady state power level did not exceed 101%.

The fundamental causes of this violation were:

Previously unidentified vendor design errors and an error introduced as a result of a plant modification. At no time did the Authority knowingly exceed its authorized thermal power limit of 2436 MW.

Vendor Errors

The original feedwater venturi flow to differential pressure correlation was based on an incorrect flow nozzle thermal expansion coefficient and an incorrect input for the density of feedwater at operating conditions. In 1984, the flow venturis' were replaced. This resulted in correction of the expansion coefficient but the density error was not identified.

The Authority was not aware of these correlation errors prior to January 1990 since the plant normally operates below turbine nameplate (1.0% - 2.3%) and no turbine performance acceptance test had been performed on the unit to identify any discrepancy.

Modification Error

The second error was introduced during a feed flow differential pressure transmitter replacement in October 1988. The replacement transmitter vendor had quantified the span and zero shift effects due to operating line pressure and provided a compensation method in the vendor technical manual. This compensation was not included in the calibration of the replacement transmitters. The reason that the compensation was not included in the calibration procedure was an inadequate review of the vendor manual and a weakness in the administrative controls for minor modifications.

During 1988, modifications were controlled by plant procedure, WACP 10.1.6, "Control of Modifications, Component Changes and Safety and Environmental Impact Evaluation", as either a major modification or as a minor modification. The details of review, tracking, and document update, etc. differed between the two types. Major modifications require a formal document tracking form which documents the need for procedure changes (i.e. instrument procedures) and tracks this for completion. The procedure states that department superintendents are responsible for updating their own procedures with the modification's responsible engineer to provide assistance. The minor modifications did not require a document tracking form nor is it as explicit on procedural assistance by the responsible engineer.

During the 1988 refuel outage, the feedwater transmitter replacement was controlled as a minor modification since it was basically a change in vendor equipment with no change in function. Conversely, a separate modification for reactor water level instrumentation, which involved a different model Rosemount transmitter, was performed as a major modification. The instrument calculations and instrument procedures associated with this major modification were thoroughly reviewed by the responsible engineering organization and I&C personnel. The minor modification procedures/calculations were incompletely reviewed by different I&C personnel and the modification responsible engineer did an inadequate review of the technical manuals for the replacement flow transmitters. The concept of "an exact replacement" component resulted in a less thorough review of the technical manual.

A review of several major modifications involving instrument calculations and calibration procedure changes did not identify any similar oversights.

The immediate corrective actions for this violation were:

1. Vendor Errors

The modification error was identified and corrected prior to discovery of the vendor flow nozzle errors. After the modification error was corrected, the investigation continued during power operation. New transmitters were ordered to assure that the transmitter calibration was correct. At about the same time, a discrepancy was identified concerning the flow nozzle calibration curve. Since the Authority could not duplicate the vendor calibration curve, the Authority requested the calibration inputs from the flow nozzle vendor in order to resolve this discrepancy. Previous to this, the Authority had requested all inputs to the calibration curve in order to validate them. Since this was not forthcoming, the most conservative inputs were used for the new transmitters calibration.

On January 29, 1990 the new transmitters were installed which led to an overpower indication. Core thermal power was immediately reduced. The indicated overpower was determined to be 0.55% based on the transmitter change-out.

On January 30, 1990, the nozzle vendor supplied the nozzle calibration inputs. With this new information, the Authority determined that approximately half of the indicated overpower was attributed to overconservatism in the calibration input parameters.

On March 8-10, 1990, a Na 24 tracer test was performed to confirm the feedwater flow measurement indication. The results were that the feedwater flow indication was high by approximately 0.7%. The Authority is evaluating how this information can be used to ensure that the feedwater flow measurement is as correct as possible.

2. Modification Error

A review of other Rosemount transmitters revealed the balance of the transmitters were installed during the 1985 ATTS upgrade. No static pressure adjustment was included originally, but the Authority modified calibration procedures to include span pressure shift compensation after receipt of NRC IE Notice 85-100 and Revision C of Rosemount Technical Manual. These calibration procedure revisions did not include zero pressure shift compensation because of the small magnitude of the effect and the inability to predict the direction of the change. The small zero span effect has been included in instrument setpoints associated with the reactor water level modifications in 1988.

The transmitter static pressure compensation error was identified and corrected during startup after a brief outage in November, 1989. This had resulted in a nonconservative error of approximately 0.9% core thermal power.

Additional corrective actions include:

- a. Modification procedures will be revised to clearly assign responsibility for generating calculated values for calibration points, spans, and setpoints.
- b. Modification controls will be reviewed to ensure that the modification responsible engineer or system engineer is closely involved with post-modification testing and procedural updates.
- c. A training program for management, instrument and control, and technical support personnel will be instituted in order to increase the staff's awareness of the feedwater instrument loop design and its effects on the plant thermal power calculation.

Full compliance was achieved on January 29, 1990 when the static pressure compensated transmitters were installed and calibrated using corrected feedwater flow nozzle correlation values.

NOTICE OF VIOLATION

As a result of the inspection conducted on January 31 through February 7, 1990, the following violation was identified:

- B. 10CFR50, Appendix B, Criterion XVI, requires in part that measures shall be established to assure that once identified prompt corrective action is taken for conditions that are adverse to quality.

Contrary to the above, NYPA failed, following identification by GE, to take prompt corrective action on various feed water transmitter calibration errors, known to have existed at similar boiling water reactors. Failure to take action led to the operation of the plant above the licensed core thermal power for an extended period time. This information, provided by GE in October and November 1988, did not get adequately reviewed until November 1989.

This violation has been categorized as Severity Level IV (Supplement 1).

RESPONSE TO NOTICE OF VIOLATION

The Power Authority agrees with this finding.

The fundamental cause of this violation was:

Improper prioritization of the associated General Electric Service Information Letter (SIL) was the fundamental cause of the violation.

Two elements led to the incorrect prioritization of this SIL. One element was a weakness in the Operating Experience Program. Also contributing was a failure on the part of the GE Service Information Letter (SIL) to characterize the importance of the potential problem.

Operating Experience Program Weakness

In early 1989 several weaknesses in the FitzPatrick Operating Experience Program were identified and actions were taken to correct them. One of these weaknesses was inconsistent prioritization of documents for review and action. No hierarchy for operating experience document type had been formally established. In addition, no formal screening guide existed.

Improper Characterization of the SILs Importance

A contributing cause of the violation was an inadequate characterization of the importance of the SIL by the originating organization. With the hundreds of operating experience documents requiring review and the limited number of knowledgeable reviewers, the priority assigned to their reviews was sometimes based on the source's implication of importance.

The associated SIL (RICSIL and SIL 452S1) indicated these potential calibration errors were "not considered to be a safety concern". Consequently, manpower was directed to operating experience issues of more obvious importance.

The corrective actions for this violation were:

Weaknesses in the operating experience review program were corrected in July 1989.

The governing procedure (PSO-28) was revised to establish priority levels and to include a screening guide for significance. This additional guidance will assure that reviewers focus their attention on issues which are more likely to have a significant effect on plant operations and safety. INPO Good Practice 82-003, "Significant Event Evaluation and Information Network Program Description", was used to prepare significance screening criteria.

The use of system engineers/experts to review a significant percentage of operating experience documents has resulted in more prompt and thorough reviews.

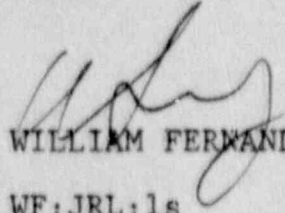
In March 1990 a review was performed to ensure that all "Priority 1 (high priority)" operating experience documents were given an initial review for significance and applicability.

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Any questions may be directed to Robert Liseno of my staff at
(315) 349-6011.

Very truly yours,



WILLIAM FERNANDEZ

WF:JRL:ls

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