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June 14, 1991
JAFF 91-0359

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 90-09
RESPONSE TO NOTICE OF VIOLATION

Enclosure: (1) Response to Notice of Violation

Gentlemen:

In accordance with the provisions of 10CFR2.201, the Power Authority submits its response to the Notice of Violation transmitted by your letter dated May 10, 1991. The response to the subject violation is contained in the enclosure to this letter.

Very truly yours,



WILLIAM FERNANDEZ

WF:VMW:ls
Enclosures

Distribution:

NRC Regional Administrator - Region I
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ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Notice of Violation A

- A. *10CFR50, Appendix B, Criterion XVI (Corrective Actions) requires, in part, that measures shall be established to assure that conditions adverse to quality such as deficiencies and nonconformances are promptly identified and corrected.*

Contrary to the above, on two occasions, conditions adverse to quality were not promptly identified and corrected, as evidenced by the following two examples:

1. *On October 29, 1989, during post-modification testing, a technician identified that the "Torus Bulk Temperature High" control room annunciator would not actuate on an open or shorted reading and that a 100% differential between bulk and individual RTD readings was not achievable. An engineering work request was issued to address these design deficiencies in October 1989, but no action to correct these conditions was initiated until December 7, 1990, when the inoperable condition of the torus water bulk temperature monitoring system was identified during corrective maintenance for another work request on that instrumentation.*
2. *On August 1, 1990, the maintenance department issued an adverse quality condition report identifying numerous electrical cable penetrations not in conformance with the three-hour fire resistance rating criteria required by the FitzPatrick Facility Operating License DPR-59, as amended by Amendment No. 47, paragraph 2.C.3. Action to properly assess the significance of the penetration degradation was not initiated until December 1990.*

This is a Severity Level IV violation (Supplement I).

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Response to Notice of Violation A

The Authority agrees with this violation. The reasons for this violation were:

Example 1: A lack of knowledge of the torus temperature monitor instrument design and its use in plant operations resulted in the plant staff not correctly assessing the effect of deficient test results on instrument operability. As a result of this incorrect assessment, the engineering work request prepared to address this issue did not identify the deficiency as potentially affecting instrument indication and therefore operability. A similar misunderstanding of the instrumentation design by the engineering staff resulted in the failure of engineering to promptly resolve the problem.

At the time of the identified violation, the normal work request operability review was performed but did not identify the significance of the issue. There was no detailed operability assessment and prioritization process for engineering work requests which could have promptly exposed the significance of the problem. Consequently, the engineering work request did not receive the proper level of technical review and prompt attention.

Example 2: The Adverse Quality Condition Report (AQCR) prepared on 8/1/90 addressed damaged or missing penetration damming material. These discrepancies were mistakenly interpreted as not affecting fire barrier integrity since the penetrations were sealed with fire stop material and not open. Consequently, the issue of fire barrier integrity was not correctly assessed. The reason for this mistake was that inspection criteria did not identify the need for the damming material to be in place in order to achieve a three-hour fire rating.

The timeliness of the technical review was affected by a very large amount of inspection data involving significant review and some additional inspections to correctly characterize the deficiencies. This technical review identified discrepancies regarding the requirements for permanent damming material on two vendor penetration seal drawings. Because one of these drawings did not identify the need for permanent dam on a significant number of the previously identified deficient penetrations, these discrepancies did not seem to be significant. This technical review was further hampered because the original penetration seal design vendor was no longer in business and communications on this issue had to be handled with a secondary company who had difficulty in obtaining the original design records.

Assessment of the significance of the penetration discrepancies actually commenced in October 1990 and not December 1990 as stated in the Notice of Violation.

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Response to Notice of Violation A (cont'd.)

Corrective Actions Taken and Results Achieved

1. The corrective actions taken to resolve the technical issues and operability of the torus bulk temperature monitoring system are stated in the Response to Notice of Violation B.
2. The corrective actions taken to resolve the identified fire penetration sleeve configuration discrepancies are stated in the Response to Notice of Violation C.
3. The following actions have been taken to ensure that conditions identified which are adverse to quality are promptly identified and corrected:
 - a. The use of the existing Occurrence Report system has been highlighted to applicable personnel to ensure that any surveillance test result, problem or concern which could have an impact on required system or component operability are identified. Occurrence reports are reviewed by the Plant Operating Review Committee and engineering (when requested) to assess operability issues or safety significance if this cannot be clearly assessed by the licensed Operations personnel.
 - b. The Adverse Quality Condition Report (AQCR) system has been revised to include an immediate operability assessment of each reported adverse quality condition. The significance of the identified non-conformance is established and confirmed by the action department.
 - c. An immediate documented operability assessment of each engineering work request is now being performed upon receipt by engineering management. This assessment is confirmed by the assigned responsible engineer. The backlog of engineering work requests has also been assessed for operability issues.
 - d. In addition to the existing Operations Department review for operability issues, each maintenance work request generated during a bi-weekly period now undergoes a documented operability assessment of the identified condition by engineering.

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Response to Notice of Violation A (cont'd.)

Corrective Actions Taken to Avoid Future Violations

1. The documented operability assessment of engineering work requests will be incorporated into procedures by 8/1/91. This operability assessment will provide a significant input to the engineering work request prioritization process currently under development.
2. The documented operability assessment of maintenance work requests will be incorporated into procedures by 8/1/91.
3. An integrated corrective action program is being developed with implementation scheduled for late 1991. This program combines existing independent elements into a cohesive program which addresses a thorough review for operability, reportability, causal factors, and event trending.

These corrective actions will ensure that deficiencies are promptly identified and corrected to ensure that regulatory and design requirements are met. These corrective steps will avoid further violations in this area.

Date When Full Compliance Will Be Achieved

As a result of these actions, full compliance with the regulation for the examples cited in the violation has been achieved.

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Notice of Violation B

- B. *10CFR50, Appendix B, Criterion III, Design Control, requires, in part, that measures shall be established to assure the adequacy of safety-related system designs including testing to verify that safety-related system design changes are adequate.*

Contrary to the above, the measures established by New York Power Authority (NYPA) did not assure the adequacy of the torus bulk temperature monitoring system design to provide accurate information to the control room operators (since NYPA did not fully evaluate the functioning of the microprocessor). The testing, conducted in October 1989 following a modification to the microprocessor, did not verify that the torus bulk temperature monitoring design change was adequate, (since the testing failed to cause the identified design deficiency to be corrected).

This is a Severity Level IV violation (Supplement I).

Response to Notice of Violation B

The Authority agrees with the violation. The reasons for the violation were:

1. Authority engineering personnel responsible for implementing the modification did not fully understand how the system worked. Although the Nuclear Safety Evaluation per 10CFR50.59 was revised to address the change in the deviation setpoint from 10% to 100% of the instrument span, the implications of the setpoint change on the torus temperature averaging calculation, on the resulting temperature indication, and on the Technical Specification requirements were not thoroughly evaluated.
2. Since the actual change of the deviation setpoint from 10% to 100% was a change to microprocessor software, the engineers did not consider it an engineering design change and proceeded to accomplish it through the normal work request process. The change was not handled through the modification process. Therefore, it was not accomplished using the normal engineering controls associated with design changes. These controls include the issuance of an appropriate engineering document which has undergone the appropriate engineering design verification.
3. Instrument Surveillance Procedure ISP-28, used for post-work testing of the setpoint change, did not provide an adequate quantitative verification that would have shown the torus bulk temperature calculated by the microprocessor was lower than actual torus bulk temperature. The surveillance test determined that the alarm would not work, but it did not provide an acceptance criteria to correlate the failed alarm to the resulting temperature indication.

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Response to Notice of Violation B (cont'd.)

Corrective Actions Taken and Results Achieved

The lack of proper design controls for this modification resulted in the indicated torus water average temperature being non-conservatively low, and rendered this instrumentation inoperable when the modification was installed in October 1989. The corrective steps that have been taken to restore the operability of the torus water temperature instrumentation include:

1. Elimination of the false temperature signal from the missing RTD. It was replaced by inputting the signal from a functioning RTD twice into the average calculation program. The RTD used twice is physically located in the torus bay adjacent to the missing RTD. This corrective action was completed in December of 1990, with the implementation of JAF Plant Temporary Modification No. 90-206.
2. Re-evaluation of the design basis for the quantity and locations of the torus water temperature RTDs, and calculation of the total instrument loop error due to individual loop components. As a result of this more rigorous analysis of the original design basis, JAF Plant Minor Modification No. M1-91-088, and associated Nuclear Safety Evaluation No. JAF-SE-91-038, were completed in April of 1991.

This minor modification added a positive temperature bias in the average calculation program for the Torus Water Temperature Monitoring System, to correct potential inaccuracies resulting from the following:

- a. Utilizing only 15 out of 16 RTDs to determine torus bulk temperature.
- b. Differences between local and bulk temperature.
- c. Instrument accuracy of the measurement system.

The measurement system with the temperature bias ensures that the Torus Water Temperature Monitoring System will provide a reasonable measure of bulk temperature in accordance with NUREG-0783 requirements.

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Response to Notice of Violation B (cont'd.)

The minor modification was prepared in accordance with the requirements of NYPA's Modification Control Manual Procedure MCM-5, "Minor Modifications". The temperature bias was calculated (JAF-CALC-PC-00246) in accordance with NYPA's Design Control Manual DCM-2, "Preparation and Control of Calculations and Analyses". The temperature bias calculation methodology is in accordance with NYPA's Engineering Standards Manual IES-3, "Instrument Setpoints, Limits and Accuracy Calculations". This calculation standard follows the guidelines of ISA-RP 67-04, "Methodologies for Determination of Setpoints for Nuclear Safety-Related Instruments", and NRC Regulatory Guide 1.105, "Instrument Setpoints for Safety-Related Systems". These procedures were not in effect during implementation of the setpoint change.

3. Added daily surveillance requirements to detect possible future RTD failures to Operations Surveillance Test Procedure ST-40D to include daily reading and recording of individual torus bay temperatures. Also, Instrument Surveillance Procedure ISP-28 was revised to include the temperature bias and to calculate the torus bulk temperature from individual temperature readings and compare the result against the bulk temperature calculated by the microprocessor. The revised ST-40D and ISP-28 procedures were approved by JAF PORC on April of 1991.

Corrective Actions Taken to Avoid Further Violations

The following corrective actions will be taken by the Authority to avoid further violations:

1. New NYPA Modification Control Manual (MCM) procedures, approved for use by PORC in December 1989 (after implementation of the improper setpoint design change in October 1989), are used to control design changes and to assure their adequacy.

Specifically, Procedure MCM-11, "Preparation of Modification Test Requirements", requires that test requirements, test procedures, and test acceptance criteria be specified for every modification. Procedures MCM-5, "Minor Modifications", and MCM-23, "Design Equivalent Modifications", define setpoint changes as minor or equivalent design modifications, requiring implementation through a formal modification process.

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Response to Notice of Violation B (cont'd.)

2. Minor Modification No. M1-91-081 has been initiated to evaluate and determine the correct alarm deviation setpoint for the Torus Water Temperature Monitoring System, and to develop test methodology for the alarm circuit and the microprocessor software. Completion date is scheduled for the next refueling outage.
3. The Authority will permanently correct or modify the RTD deviation circuit. Expected completion date is the next refueling outage.
4. The Authority will restore the sixteenth RTD during the next outage in which the torus is drained.

Date When Full Compliance Will Be Achieved

Full compliance for the JAF Torus Water Temperature Monitoring System was achieved on 4/12/91 upon successful completion of the post-work testing for Minor Modification M1-91-088.

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Notice of Violation C

- C. *10CFR50, Appendix B, Criterion XI, Test Control, requires that measures shall be established to assure that applicable regulatory requirements and acceptance limits contained in design documents are correctly translated in written tests.*

Contrary to the above, for an unknown period after completion of Modification F1-80-007 in 1981, electrical cable penetrations were not maintained in their three-hour rated design configuration, required by the FitzPatrick Facility Operating License DPR-59, as amended by Amendment No. 47, paragraph 2.C.3. Further, acceptance limits contained in the electrical cable penetration design was not correctly translated into a written test, because the three-hour design ratings of the barriers were not verified.

This is a Severity Level IV violation (Supplement I).

Response to Notice of Violation C

The Authority agrees with the violation. The reasons for the violation were:

1. A small group (< 3%) of electrical cable penetrations had missing or damaged damming material which was required to be permanently installed to maintain the required three-hour design fire rating. These deficiencies are attributed to:
 - a. Inspection personnel removed dams during installation or surveillance activities. The personnel did not realize the dams were to be permanent so they were not replaced.
 - b. Some damming material may be pushed out of the penetration while the sealing material is curing (expanding).
 - c. The electrical penetration seal installation specification or original modification installation documents may not have been clearly understood as to the need for retaining damming as part of the final configuration of certain penetration seals.
2. The requirements for the permanent damming material to achieve the required three-hour fire rating were not clearly established in the surveillance procedure.

ENCLOSURE (1) - RESPONSE TO NOTICE OF VIOLATION

Response to Notice of Violation C (cont'd.)

Corrective Actions Taken and Results Achieved

1. All identified electrical cable penetration deficiencies have been corrected to establish their required three-hour fire rating.
2. The electrical and mechanical penetration seal installation specifications have been revised to more clearly specify the requirements for permanent dams. The inspection acceptance criteria are now clearly stated in these installation documents.

Corrective Actions to Avoid Further Violations

1. An engineering position to specifically address fire protection system and program technical issues will be permanently assigned to the Technical Services Systems Engineering Group. In the corporate nuclear engineering design organization, an engineer dedicated to addressing fire protection issues has been added to the staff.
2. The next required performance of the penetration barrier surveillance test will include an engineering baseline inspection to confirm and document the presence of three-hour rated design configurations in all required fire barriers. This inspection may require some damming removal and replacement to confirm configuration. This inspection will serve as a basis for future barrier visual inspections. Strict fire barrier configuration control between future inspections in conjunction with an external surface barrier surveillance inspection will ensure future compliance.

To support this inspection, the existing surveillance procedures will be revised to clearly state the required configuration criteria to ensure a three-hour rated penetration design.

Date When Full Compliance Will Be Achieved

Full compliance for known deficient fire barrier penetrations was achieved on March 17, 1991 by which time all penetration seal repairs had been accomplished.