James A. FitzPatrick
Nuclear Power Plant
268 Lake Road
P.O. Box 41
Lycoming, New York 13093

315-342-3840

NewYorkPower Authority

Michael J. Colomb
Site Executive Officer

April 19, 2000
JAFP-00-0095

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

Subject: James A. FitzPatrick Nuclear Power Plant
Docket NO. 50-333
Reply to Notice of Violation 2000-001

References:
1. NRC Integrated Inspection Report 05000333/2000001 and Final Significance Determination on a White Finding, dated March 20, 2000
2. NRC Inspection Report 05000333/1999009; White Finding, dated December 29, 1999

Dear Sir:

Enclosure 1 to the Reference 1 Inspection Report is a Notice of Violation (NOV) of the Requirements of 10CFR50 Appendix B, Criteria XVI, "Corrective Action". The NOV identifies three instances where the New York Power Authority failed to identify and promptly correct problems with hydraulic oil pressure, spring tension, and general degradation of the HPCI governor control. The significance of the conditions resulting from these instances was determined to be "White".

The Power Authority agrees with this violation and the significance determination for this violation. The reason for each instance, corrective action and results achieved to date and action taken to preclude further violations as well as the date when full compliance will be achieved is presented in the attachment.

IE01

If you have any questions regarding this matter, please contact Mr. George Tasick at (315) 349-6572.

Very truly yours,

MICHAEL J. COLOMB
Site Executive Officer

MJC:MA:las

Attachments as stated

STATE OF NEW YORK
COUNTY OF OSWEGO
Subscribed and sworn to before me
This 19 day of April, 2000

Nancy B. Czerow
Notary Public

NANCY B. CZEROW
Notary Public, State of New York
Qualified in Oswego County #4884611
Commission Expires 1-26-01

cc: Regional Administrator
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Office of the Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 136
Lycoming, NY 13093

United States Nuclear Regulatory Commission
Mr. Guy Vissing
Project Directorate I
Mail Stop OWFN 8C2
Washington, D.C. 20555

Attachments:
Reply to Notice of Violation

Reply to Notice of Violation 2000-001

Violation

"Between May 1997 and February 2000 several changes were made to the HPCI hydraulic oil operating pressure; however, NYPA did not identify the proper operating pressure as specified in industry information. The hydraulic oil pressure was set improperly high, which caused speed transients to occur at normal operating reactor pressure. This condition was not identified and corrected until February 5, 2000."

Cause

The cause of this condition was reported in Licensee Event Report (LER) 00-002 as a defective procedure. The procedure was defective because the overall effect of the increased oil pressure on the HPCI control system during the startup transient was not understood and therefore the procedure did not properly address this parameter.

The defective procedure was due to a knowledge-based error in the technical review of the procedure revision, which changed the turbine speed-oil pressure operating relationship. Specifically, the technical review conducted for this procedure change did not recognize that the change would adversely affect the HPCI control system. As stated, the overall effect of the increased oil pressure on the HPCI control system during the startup transient was not understood; therefore this constituted a knowledge-based error.

When viewed generically, this event constituted a lack of recognition of the effect of changing a critical parameter in the working fluid of an automatic control system. Had this been properly considered, the procedure review process would have prompted a more in-depth analysis in support of the procedure change. It is reasonable to conclude that, had this analysis been performed, the analysis and the associated cross-disciplinary review process would have properly addressed the effect of changing the turbine speed-oil pressure operating relationship.

Immediate Corrective Action and Results

The turbine speed-oil pressure operating relationship was adjusted, the system was tested and is currently operable.

Corrective Action to Preclude Recurrence

As stated earlier, this event was caused by a lack of recognition of the effect of changing a critical parameter in the "working fluid" (Oil, Water, Air, Mechanical Linkage, and Electrical Signal) of an automatic control system and was therefore constituted a knowledge-based error.

This event will be viewed generically and the extent of condition will therefore consider potential changes to critical parameters in automatic control systems.

Training will be developed to identify the different types of control systems in use at the plant, the working fluids associated with each control system type and the critical parameters associated with each working fluid. This training will be given to applicable plant staff members who perform procedure technical reviews and 10CFR50.59 screens.

The intent of this training will be to provide the technical insight necessary to identify when a change (procedure, modification etc.) has the potential to change a critical parameter in a working fluid in an automatic control system and therefore impact the function of plant systems and equipment.

Full Compliance

The oil pressure was reset to its proper value on February 5, 2000 therefore restoring full compliance.

With regard to the Corrective Actions to preclude recurrence, The Power Authority is currently in full compliance with 10CFR50.59. The corrective action identified is intended to preclude similar knowledge-based errors.

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Violation

"On February 4, 2000, NYPA identified that the governor lever spring tension deviated from the plant drawings. However, this deviation was not considered when the hydraulic oil pressure was corrected on February 5, 2000. With the governor lever spring tension out of specification, there was no assurance, although the hydraulic oil pressure was set in accordance with industry information, that the control valves would function properly to control turbine speed."

Cause

The cause of this condition was personnel error. During the course of troubleshooting the HPCI Turbine speed control anomaly, a non-conforming condition was identified but the condition was not formally entered in the plant corrective action system. The troubleshooting team consisted of plant staff from the maintenance and system engineering organizations as well as an industry expert on HPCI turbine design, operation and maintenance.

During the troubleshooting evolution, the team disassembled the HPCI governor linkage. During the disassembly process, as-found configuration measurements were taken. When the linkage was reassembled, the as-found configuration was restored.

During the reassembly process, the team recognized the spring tension dimensions were not in agreement with the tension dimensions on a diagram in the turbine vendor manual. At this point in the troubleshooting process, the team had recognized that the oil pressure setting was the most probable cause of the observed turbine characteristics and the team made a decision to keep the spring tension constant (as-found conditions) and therefore change one variable at a time. The deviation in initial spring tension represented a nonconforming condition with respect to the vendor manual.

The Team informally evaluated the effect of the deviation in spring tension from that indicated in the vendor manual and concluded the effect to be negligible. The team proceeded to test the turbine and evaluate its response with the oil pressure reset and neglected to formally identify the deviation in initial spring tension in the plant corrective action system. The HPCI system was successfully surveillance tested and declared operable in this condition.

This decision to perform a surveillance test and declare the HPCI system operable based on the surveillance test results without formally evaluating the effect of the non-conforming initial spring tension constitutes a personnel error.

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Immediate Corrective Action and Results

To date, the spring tension has not been adjusted to agree with the vendor manual. The equivalent system hydraulic oil pressure required to compensate for the difference in the as left spring tension has been quantified.

Surveillance test procedures which direct checking, and adjusting the HPCI system oil pressure have been revised to reflect this compensating factor in the acceptance criteria for system oil pressure. The maintenance procedure which directs checking, and adjusting the HPCI system oil pressure has also been revised to reflect this compensating factor in the acceptance criteria for system oil pressure.

The HPCI system remains operable with this nonconforming condition.

Corrective Action to Preclude Recurrence

As stated earlier, this condition was due to personnel error. The expectation to identify degraded and nonconforming conditions is well documented in plant standards and procedures. The individuals involved in this event did not meet this expectation.

The expectation that degraded and nonconforming conditions be formally identified in a timely manner is periodically reinforced via all hands meetings. The next All Hands Meeting will reinforce this expectation as well.

This event will be used as a case study in the need to identify degraded and nonconforming conditions and this case study will be presented to applicable plant staff via formal training. The purpose of this training will be to heighten awareness and reinforce expectations.

Full Compliance

The initial tension of the springs will be returned to the configuration identified in the vendor manual prior to restart from the fall 2000 refuel outage.

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Violation

"Prior to October 14, 1999, HPCI system performance monitoring was ineffective as evidenced by the failure of NYPA to identify the problems with the hydraulic oil pressure, and general degradation of the system and components."

Cause

The Reference 2 Inspection Report identified an Apparent Violation of 10CFR50 Appendix B, Criterion XI, "Test Control". As your staff acknowledged in the Reference 1 report, this criterion was not, in fact, violated. In researching the cause of this apparent violation, the Power Authority conducted a formal Root Cause Investigation of the events leading up to the apparent violation. The scope of the analysis considered the design and implementation of the system-monitoring program at JAF as it evolved from beginning of the system engineering program. This investigation concluded the cause of ineffective HPCI system performance monitoring was Inadequate System Monitoring Program Design.

The program design was inadequate in that the effectiveness was highly dependent on the knowledge and skill of the individual System Engineer(s). The program documents did not account for staff turnover and the possibility of different or weaker job skills and knowledge.

Immediate Corrective Action and Results

The Post Transient Evaluation Procedure has been revised to require a review of ECCS system response to ensure system operability requirements are satisfied.

Corrective Action to Preclude Recurrence

System Monitoring is currently conducted in accordance with System Monitoring Plans prepared and maintained by the respective System Engineers. These System Monitoring plans will be reviewed and a self-assessment will be performed to ensure that each monitoring plan consistently identifies performance degradation to the component level, as appropriate, so that corrective action can be initiated prior to system performance degradation.

Full Compliance

The JAF System Monitoring Program is in full compliance; however, this event has heightened the awareness of the plant staff regarding the challenges and importance of system monitoring to identify degraded conditions. The review and assessment of System Monitoring Plans described above will further strengthen the System Monitoring Program. This assessment is scheduled to be complete March 3, 2001.