U.S. NUCLEAR REGULATORY COMMISSION
REGION I

DOCKET/REPORT NO. 50-333/94-04

LICENSEE: New York Power Authority

FACILITY: James A. FitzPatrick Nuclear Power Plant
Scriba, New York

DATES: February 2-4, and April 6 8, 1994

INSPECTOR: Leonard J Prividy 5/19/94
Leonard Prividy, Sr. Reactor Engineer Date
Systems Section
Division of Reactor Safety

APPROVED BY: Harold L Gregg 5/19/94
for Eugene Kelly, Chief Date
Systems Section
Division of Reactor Safety

Areas Inspected: An announced inspection was conducted to verify that design changes and plant modifications were being conducted in accordance with controlled procedures and in accordance with NRC requirements. Other engineering activities were also reviewed to assess the effectiveness of the engineering organization.

Results: The program for controlling design changes and plant modifications was being adequately controlled with detailed administrative procedures. One non-cited violation was identified concerning the failure to properly document the basis for an assumption in an engineering calculation supporting the screenwell level alarm setpoints. The licensee's corrective actions regarding this violation were comprehensive.

DETAILS

1.0 INSPECTION SCOPE

A well implemented design change and modification program is essential in order to assure that changes to the plant do not degrade safety systems, structures, and components. The objective of the inspection was to verify that changes to plant systems, which are described in the final safety analysis report, are implemented per controlled administrative procedures that satisfy regulatory requirements. This objective was accomplished by reviewing several modifications. A sample of deviation event reports issued during the past year was reviewed to assess engineering involvement and resolutions to identified plant problems. Several related engineering organization activities were also reviewed.

2.0 INSPECTION FINDINGS

2.1 Design Changes and Modifications (37700)

Plant modifications are prepared, reviewed, approved, and implemented in accordance with specific procedures provided in NYPA's modification control manual (MCM). For example, MCM-3, "Modification Package Preparation, Review, and Approval," is the procedure used to define base documents, which are then translated into detailed installation and testing documents comprising the plant modification. Other engineering procedures in NYPA's design control and engineering standards manuals also control design changes for plant modifications. The modifications discussed below were reviewed.

2.1.1 Modification No. M1-92-187, Screenwell Level Instrumentation

The inspector reviewed this modification, which had been installed and made operational in December 1993. The scope of the modification was to provide a screenwell level sensor, which would provide level indication and alarm functions on the plant process computer (EPIC). These functions were to be provided locally and in the control room. This new instrumentation is important to safety, especially for potential icing conditions during the winter season.

The inspector reviewed the modification package and walked down the actual installation with the responsible engineer. Actual screenwell level observed locally and in the control room was 245 ft., which is the normal water level. Control room personnel demonstrated the appropriate EPIC computer display of screenwell level, and demonstrated how the computer can display a prior 2-hour level trend. The instrumentation had been functioning satisfactorily since initial operation.

Initial calibration procedures were discussed with the I&C supervisor, who performed the post-modification operational test. Detailed work instructions were provided on the work order assigned for the job. As-left test data was reviewed and found to be satisfactory.

High and low-level alarm points were set at 248 ft. and 243 ft., respectively, with the overall indicator span established from 238 ft. to 252 ft. The licensee stated that they planned to implement a 4-year calibration frequency, which was based on the vendor's recommendation.

Upon reviewing the level alarm setpoints, the inspector noted that Calculation JAF-CALC-CWS-01380 had been performed, and it included an assumption of 1% error for the overall instrument loop inaccuracy. The inspector learned that this assumption was based on a phone conversation between the responsible engineer and the vendor, which was not documented as required by the licensee's design control manual (DCM) procedures. The inspector noted that this information may not be the appropriate value for bounding this calculation. The licensee issued Deviation Event Report (DER) 94-0082 on February 2, 1994, to address this issue for corrective action, in accordance with established plant administrative procedures. The licensee determined, during phone conversations with the vendor on February 3, 1994, that a 2% error for the overall instrument loop inaccuracy was a more appropriate value for this calculation. The licensee then documented this information in accordance with the design control manual procedure (DCM-2), and also conducted a lessons learned training session with all site engineering department personnel. Site engineering promptly revised Calculation JAF-CALC-CWS-01380 to include the 2% error. This revision did not result in any setpoint changes. The licensee also randomly sampled at least seven site engineering calculations recently performed. No similar deviations from established DCM procedures were found during the review of these calculations. Based on these findings, the licensee concluded that the undocumented assumption information in the original version of Calculation JAF-CALC-CWS-01380 was an isolated instance and not a generic concern. Accordingly, the licensee closed out DER-94-0082 on March 9, 1994. The inspector considered that this issue had low safety significance, and that the licensee took prompt and thorough corrective actions to resolve the problem and prevent its recurrence. The inspector considered that the licensee's corrective actions and other conditions regarding this item met the provisions outlined in 10 CFR 2, Appendix C, Section VII.B.2, of the NRC Enforcement Policy for noncited violations.

2.1.2 Modification No. M1-93-096 RHR Torus Spray Line Annubar Flow Element Replacements

The purpose of this modification was to replace the RHR torus spray flow elements. This modification was being installed during the current outage. The original flow elements included annubars with flanged connections, which required type "B" LLRTs, per Appendix J of 10 CFR 50. This modification will provide the same annubar flow elements (Dieterich Standard Model XANR-76) with all welded in lieu of flanged connections, thus eliminating the type "B" Appendix J test. These elements provide torus spray flow indications in the control room for loops A and B. The variables for this accident instrumentation are not considered to be Category A variables, per Regulatory Guide 1.97.

The inspector reviewed the modification package and discussed it with the responsible engineer. The modification safety evaluation performed by the licensee appeared to be

satisfactory. The inspector reviewed the Preoperational Test Procedure (POT), POT-10AZ, which had been prepared for placing this equipment into operation. POT-10AZ was prepared to establish RHR spray flow and then compare the in-plant annubar flow indication to a temporary ultrasonic flow measuring device. The acceptance criteria in POT-10AZ stated that the two readings should not vary more than 5%. The inspector learned that the 5% acceptance criteria was based upon information provided in the POT performed in 1988 for the original flow elements. However, the licensee was unable to provide a documented engineering basis for this 5% value. The inspector considered this to be a weakness attributed to the lack of thorough engineering work to support the original modification. Subsequent to the exit meeting, the licensee informed the inspector that corporate engineering had performed a formal loop calculation, which concluded that the annubar and ultrasonic flow measurements should be accurate within 4.25%, which bounds the 5% acceptance criteria in the POT.

The inspector had telephone discussions with the licensee on April 20 and 25, 1994, regarding the preliminary results from POT-10AZ. The 5% acceptance criteria had been exceeded for both tests, with the maximum error for loops A and B being about 17% and 20%, respectively. The licensee issued a DER, and was troubleshooting and discussing the problem with the instrument vendor. One of the possible causes may be attributed to improper installation of the flow element in the RHR piping. The licensee considered that they had properly implemented the installation requirements included in the vendor instruction book. The annubar had been installed in the RHR piping by providing several pipe diameters of straight piping with no flow disturbances upstream and downstream of the annubar. However, the licensee's preliminary troubleshooting efforts and discussions with the vendor indicated that additional installation details for the annubar may be required to resolve the instrument error being seen in POT-10AZ. Although problems were experienced with obtaining a satisfactory post-modification test, the inspector considered that the licensee's corrective actions in attempting to resolve these problems were appropriate. The licensee was pursuing a timely resolution of the problem using the DER process. The inspector had no further comments.

2.2 Modification Prioritization

The inspector noted that the licensee's engineering prioritization committee recently recommended to cancel Modification M1-90-167, "Replace 10MOV89-A&B Gate Valves with Globe Valves." This recommendation had not yet been approved by the resident manager. The inspector further noted that the NRC had reviewed this proposed modification in Inspection Report 50-333/91-04, wherein the RHR system engineer discussed the need for changing the valves from gates to globes. Operational problems had been experienced since 1985 concerning the throttling of system flow using the 10MOV89 gate valves.

After further discussion with the licensee, it was apparent that Modification M1-90-167 may be approved. However, the modification installation date was indeterminate. The inspector concluded that this item exemplified the need to improve the follow-through actions emanating from the modification prioritization process.

2.3 Engineering Organization Review

The inspector reviewed several aspects of the onsite design engineering and technical services departments. This review included discussions concerning staffing levels and experience, control of engineering work, training needs, and independent assessments of engineering activities. The technical services department review also included discussions with several system engineers regarding their current responsibilities.

2.3.1 Design Engineering

The site engineering department (SED) is the onsite representative for the corporate design engineering organization, which is located in White Plains. Typically, the SED executes minor modifications and provides various technical assistance to support site activities. Major modifications are generally the responsibility of the White Plains design and project engineering organization.

The inspector observed that the SED had been fully staffed for the past 1-2 years with experienced personnel. The SED had functioned reasonably well, despite the recognized need in the overall engineering organization to formulate a systematic management tool for the effective control of daily engineering work. The licensee was reviewing methods for improving its engineering work management, including engineering organization changes which could involve the placement of additional design personnel to the site.

The SED is an active participant in the monthly engineering meeting, which has served to provide good focus and corrective actions to important plant problems. The SED also continues to coordinate a biweekly telephone conference call between site and corporate engineering personnel to enhance communications.

The inspector reviewed the results of an independent assessment of its equipment qualification (EQ) program performed in January 1994. This EQ audit was performed by a qualified contractor. No significant negative findings developed during the audit. Several good recommendations were provided to enhance the EQ program's auditability in the future. The results of the audit provided good assurance regarding the accuracy of the EQ program.

2.3.2 Technical Services

The technical services department is the onsite engineering organization that provides the necessary technical assistance to address daily or emergent plant problems. When design engineering assistance is needed, this department interfaces with the SED and corporate design engineering, as necessary. A major component of the technical services department is the system engineering group.

In general, the technical services department is not currently staffed with highly experienced personnel. Fifteen engineers have been newly hired by the licensee in the past two years. The technical services manager has been in his position a little over six months. Most of the new engineers have received their initial engineering support personnel training. It appears that a major challenge for the technical services management is to develop a stable organization by further training and guidance to the relatively new personnel.

The inspector had discussions with the system engineers for the central control room (CCR) ventilation and service water (SW) systems. Both system engineers had been assigned to these systems in the past year. The CCR ventilation system engineer was in transition to these duties, receiving direction and transfer of responsibilities from a lead engineer. The SW system engineer appeared to be well versed with the variety of problems to be expected with SW systems. He was very familiar with the licensee's Raw Water Systems Program Plan and his specific responsibilities, as delineated therein.

The technical services manager indicated that an independent assessment of the residual heat removal system was to be done in mid-1994. This assessment would be performed similar to an NRC-performed safety system functional inspection.

2.4 Review of Deviation Event Reports (DERs)

The inspector reviewed a sample of DERs to assess engineering involvement and technical resolution of problems. No safety concerns were identified in the DERs reviewed. However, the inspector noted that several DERs issued in the last six months affected various parts of the modification process. For example, DERs were issued involving installation problems with safety-related cable trays and control room equipment. A DER had also been issued regarding receipt inspection problems for emergency diesel generator equipment. The inspector discussed these DERs with the SED manager, indicating that these DERs may signify a possible negative trend in the modification process. The SED manager indicated that he was aware of these DERs and their potential impact on the modification process. He indicated that he was responsible for conducting an internal review of the modification process later this year where such DERs would be evaluated. The purpose of the internal review will be to develop modification process improvements. The inspector had no further comments.

2.5 Component Classifications

As documented in NRC Inspection Report 50-333/93-82, regarding a review of the Component QA Classification Upgrade Evaluation Procedure, EDP-31, the operational safety inspection team observed that a backlog of 5,200 component evaluations had not yet been completed. The team concluded that, "additional management attention was necessary to ensure that the 5,200 component evaluations were completed in a timely manner." The necessary work to complete this major task has been accomplished by the technical services department. This work entailed a systematic review and elimination of the component evaluation backlog. This work was documented in Licensee Report JAF-RPT-MISC-01413, which was approved by the plant onsite review committee in January 1994. The inspector considered that these actions satisfactorily addressed the operational safety inspection team's request for additional management attention regarding the backlog of component evaluations.

2.6 Generic Letter (GL) 89-10 Motor-Operated Valve (MOV) Program

The licensee stated that they recognized, in late 1993, the need for a course correction regarding the allocation of resources for its GL 89-10 MOV program efforts. Consequently, they devoted additional manpower to this program, and stated that these changes should enable them to meet their current GL 89-10 commitments. The licensee was differential pressure-testing 12 MOVs during the current outage. They expected to complete the remainder of MOV testing during the fall refueling outage.

3.0 CONCLUSION

The inspector concluded that the design change and modification program was being controlled adequately with detailed administrative procedures. Based on the modification packages reviewed, the engineering products provided the necessary guidance to safely modify the plant.

4.0 MANAGEMENT MEETING

The inspector met with those listed in Attachment A, on April 8, 1994, to discuss the preliminary inspection findings, which are detailed in this report.

Attachment: Persons Contacted

ATTACHMENT A

Persons Contacted

New York Power Authority

* B. Barrett, General Manager - Operations
* M. Colomb, General Manager - Support Services
* R. Converse, Senior Assessment Engineer
  S. Cornish, Site Engineering Department
* F. Edler, Manager, Technical Services
* J. Erkan, Supervisor, Project Engineering, SED
* J. Hoddy, BWR Licensing
* D. Holliday, ORG, Licensing
* J. Kaucher, Director, Nuclear Operations & Maintenance
* D. Lindsay, General Manager, Maintenance
  M. McCormick, Site Engineering Department
  T. Moskalyk, Supervisor, Mechanical/Civil, SED
  D. Ruddy, Manager, SED
* H. Salmon, Jr., Resident Manager
* T. Savory, Supervisor, Electrical/I&C
* G. Tasick, QA Manager
  A. Zaremba, ORG Manager

Nuclear Regulatory Commission (NRC)

  W. Cook, Senior Resident Inspector, FitzPatrick
* J. Tappert, Resident Inspector, FitzPatrick

* Denotes attendance at the exit meeting held at James A. FitzPatrick Nuclear Power Plant on April 8, 1994.