U.S. NUCLEAR REGULATORY COMMISSION
REGION 1

DOCKET/REPORT NO: 50-333/95-05

LICENSEE: New York Power Authority (NYPA)
Lycoming, New York 13093

FACILITY NAME: James A. FitzPatrick Nuclear Power Plant (JAF)

DATES: February 13-17, 1995

INSPECTOR: Peter Drysdale, Sr. Reactor Engineer — Date: 4/10/95
Systems Section
Division of Reactor Safety

APPROVED BY: Eugene M. Kelly, Chief — Date: 4/11/95
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SUMMARY: The NYPA corporate engineering groups were recently reorganized, and most corporate engineering functions dedicated to JAF will be moved to the site throughout the next year. Communications within the JAF corporate engineering groups were viewed as a potential difficulty since the transition of White Plains engineering personnel to JAF has been extended to June 1996. The corporate and site technical groups continue to improve both performance and support to site organizations. Overall, the engineering programs and controls to prepare design changes and modifications for installation were adequate. A senior engineering management assessment of post-maintenance testing was viewed as a positive initiative. Thorough follow-up actions to NRC Information Notices were observed. One previous violation was closed and one deviation was updated.

DETAILS

1.0 INSPECTION SCOPE

The objective of this inspection was to continue an NRC evaluation of the effectiveness of the engineering and technical organizations at the J. A. FitzPatrick (JAF) site, and to verify that design changes to plant components and systems described in the final safety analysis report (FSAR) were installed and tested in accordance with controlled procedures.

2.0 ENGINEERING AND TECHNICAL SUPPORT ORGANIZATIONS (37550)

The inspector focused on the two organizations that provide onsite engineering support, the JAF Design Engineering organization and the Technical Services Department. During the evaluation, the inspector discussed prioritization and control of engineering work on plant modifications during the ongoing 1994-95 refueling outage, and performed assessments of other engineering activities.

2.1 Organization

The JAF Design Engineering organization is NYPA's onsite corporate design authority within the Nuclear Engineering Department (NED). An October 1993 evaluation of the Nuclear Engineering Department concluded that engineering support to the JAF plant could be improved by relocating most corporate engineering functions to the site. This recommendation was expected to take two to three years to implement. As of this inspection, the reorganization of NED was ostensibly complete. The internal structure of the former Site Engineering Department was realigned during the current outage and NYPA adapted an transition organization that was structured like the final planned JAF Design Engineering organization. NYPA had originally planned to relocate all plant modification and engineering activities to the JAF site after the 1994-95 refueling outage.

The transition of corporate personnel to the site will take longer than originally anticipated. Over the next year, a partial relocation of corporate engineering personnel will be completed by June 1995. The remainder will continue working in the White Plains corporate offices, but will report to the Director of JAF Design Engineering at the site. NYPA currently plans the final transition of all JAF Design Engineering personnel by June 1996. The inspector noted that the interim design organization could experience some difficulty with communication and performance given the physical separation of personnel within the same working groups. NYPA considered that frequent management visits and contacts within the two offices are intended to mitigate such potential problems.

2.2 Workload, Prioritization, and Backlog

NYPA was developing a plan established in May 1994 to integrate the engineering work management and performance measurement systems. Engineering performance will be measured by assigned work tasks, work quality, work quantity, and schedule performance. As of this inspection, these programs are still in development. JAF Design Engineering currently issues a monthly report of performance indicators that includes trends in the number of open and backlogged modifications, and the number and trends in modification

closeouts, engineering work requests, document change requests, and engineering change requests. At the beginning of the 1994-95 refueling outage, the trends in these areas all showed a constant decrease in the size of Design Engineering's overall workload over the previous year.

Reduction of the large backlog of plant equipment and engineering discrepancies over the past year required significant engineering resources, and made it difficult to complete all engineering preparations for outage modifications. Although no outage modifications were deferred beyond the current outage, planning and preparation for outage work challenged both site technical groups. However, out of the 51 planned outage modification packages, all but 3 had engineering design preparations completed before the outage began. The relay room CO_2 modification was one example of the impact of the engineering backlog on preparations for installation of modifications during the 1994-95 refueling outage. A relatively high number of deficiencies and engineering change notices were initiated for this modification during installation and testing.

About 17 new modifications were initiated after the outage started, but only 2 (one minor modification and one design equivalent change) could have been anticipated in advance and preplanned. Nonetheless, NYPA expected all the preplanned and new modifications to be installed before the refueling outage ended, and no outage modifications were expected to be deferred.

3.0 MODIFICATION PROCESS (37550)

The inspector reviewed NYPA's modification installation process at JAF. These process were controlled by the Modification Control Manual (MCM) and Design Change Manual (DCM) procedures. The inspector reviewed selected design change packages and their applicable 10 CFR 50.59 evaluations, and also reviewed ongoing modification activities since the last inspection conducted in this area in October 1994.

In January 1995, NYPA's Independent Safety Engineering Group (ISEG) and the corporate Quality Assurance Division both conducted assessments of the JAF modification installation and post-modification testing processes. Both assessments contained critical reviews of modification installations and their associated work packages. Several Deficiency/Event Reports (DERs) and Engineering Change Notices (ECNs) were initiated during these assessments after several instances were found where modification packages did not adequately specify proper post-modification functional and/or operability testing. The assessments noted a general need to improve integrated component and system testing to assure modifications met their original design intent.

The Director of JAF Design Engineering subsequently conducted a review of all ongoing outage modifications and concluded that 17 of 49 modification and equivalent design change packages did not have adequate testing specified. Additional DERs, ECNs, and other recommendations were issued to assure proper functional and operability testing were specified in these packages.

3.1 Major Modifications

F1-92-377, Control Room/Relay Room CO_2 and HVAC System

This modification changed the relay room CO_2 vent path so that the required gas concentration will be maintained throughout the room during CO_2 discharge. It also provides for isolation of the relay room HVAC system during CO_2 discharge to prevent entrainment into the control room. A pre-outage test of the system demonstrated that CO_2 could enter the control room through ventilation duct work shared with the relay room. The modification dedicated the CO_2 vent path from the relay room to the outside atmosphere, and also improved the CO_2 system control logic. The dedicated vent path included a motor-operated damper that opens prior to CO_2 discharge and close after discharge to maintain the concentration in the relay room.

The design change package for this modification was issued prior to the beginning of the refueling outage. However, reduction of the engineering backlog over the past few years had a noticeable impact on preparations for installation of this modification. Preparations for the installation also experienced some planning and coordination difficulties, such as the "fan pressure test" for the relay room ventilation duct work. Also, some engineering prerequisites for post-installation functional testing were not complete. As of this inspection, a total of four DERs and 44 ECNs had been written against the modification package, mostly during the ISEG and QA audits in January 1995. Two DERs reported conditions adverse to quality and the 44 ECNs included 146 detailed items. Of these, one represented a "design error," eleven represented "inadequate design detail," and ten represented "inadequate walkdown/constructability reviews." Most of the remaining items were administrative in nature, and were attributed to personnel error; however they all related to the technical content and quality of the modification package.

The inspector reviewed these discrepancies with the responsible design engineer and the Director of JAF Design Engineering. These individuals did not fully agree that they were all actual deficiencies. However, all items were fully addressed and resolved by JAF Design Engineering. The inspector noted that some discrepancies appeared to represent a lack of control over contractor activities. For example, part of the modification involved a new penetration made through the relay room floor that cut into existing rebar. One DER was written because contractors failed to drill pilot holes before core drilling and another for failure to obtain operations department approval prior to drilling.

During this inspection, additional testing for control room habitability and proof of design had not yet been fully determined or completed. An "SF_6" test was undergoing review for feasibility to determine if it could be used as an alternate test for operability in lieu of a full CO_2 discharge test. The licensee anticipated that this tests would be feasible, however, the technical evaluations were still underway during this inspection.

Prior to the 1994-95 outage, this modification had been in preparation since 1992. The ongoing problems with installation and testing appeared to be a direct result of incomplete preparations. In light of the relatively high number of DERs and ECNs, the inspector concluded that this modification lacked detailed guidance during pre-installation testing.

3.2 Minor Modifications

M1-87-069, Emergency Diesel Generator (EDG) Air Start Solenoid-Operated Valve (SOV) Filters

Modification M1-87-069 was installed in the EDG air start system because several air start solenoid valves had stuck open due to the presence of rust particles. Failure of these valves can cause internal damage to the air start motor pinion gears. The modification added stainless steel filters, bypass check valves, and associated tubing to the air start solenoid valve supply lines. The use of stainless steel components avoided the replacement of major carbon steel components in the system such as accumulator tanks and piping.

The inspector reviewed the engineering package for this modification and performed a field walkdown of the installation with the responsible design engineer. The filter, tubing, and bypass valve components were installed in a well protected area on the diesel engine skid, and were placed in a compact arrangement with relatively easy access. The engineering package was detailed and well developed; however, the inspector noted that several additions were made to the package to include bypass line air flow and filter differential pressure testing necessary to confirm operability that were not originally included. DER 95-0239 had been written against this modification to identify this discrepancy. The DER further noted that the deficiency had been identified earlier through the engineering oversight process, but that it had been missed during the normal modification review process. An ECN was subsequently issued to revise the package.

All new tubing was leak tested and the EDGs were operationally tested in accordance with existing surveillance procedure ST-9B. The filter installation was designed to permit the diesel to start and carry its required load within its required start time of ≤10 seconds. Post-installation testing confirmed that the EDG start times were within the maximum specification and varied from 7.0 - 7.4 seconds. The inspector concluded that this modification was fabricated and installed in a quality manner, and that it was eventually tested appropriately for its intended design function.

M1-88-238, Cross Connect from the Fire Protection (FP) Header to the Emergency Service Water (ESW) Supply to the Emergency Diesel Generators (EDGs).

This modification installed a removable cross-connection from the main FP header to the ESW supply to the EDGs. The modification provides an alternate means to supply cooling water (≈1100 gpm) to the EDGs and was installed as a result of a commitment made after the JAF Individual Plant Examination (IPE) study was completed in August 1991. The modification installed new 4-inch

branch lines with manual butterfly isolation valves and fire hose adapter fittings on both the main FP header and the ESW supply line. The installation was made where the two lines pass nearby in the screenwell pump room.

The inspector reviewed the engineering package prepared for this modification and performed a field walkdown of the installation with the responsible design engineer. In general, the modification package was well prepared and the installation was accomplished as designed. However, the inspector noted certain information missing from the package and from the drawing (DSK-46P) used for the modification. The drawing indicated that all piping shown was "Class 151," "Q.A. Category I," and "Seismic Class I." Although these classifications were appropriate for the installation of all new components, the Q.A. Category I classification did not apply to the FP piping. The modification package stated that the connection to the FP loop header is designated Q.A. Category M, the connection to the ESW line is Category I, and the flexible hose is Category II/III. However, this information was not depicted on the drawing and no Q.A. Classification breaks were shown. Although the ESW valve will not be subjected to ASME Section XI inservice testing, it was also not apparent from the drawing if the valve and branch line were to be maintained as safety-related plant components. In addition, the connecting fire hose did not have a component ID tag installed and had not been entered into a plant component classification database. It was also not identified on the cabinet label where the hose was stored. The inspector further noted that no periodic test of the fire hose had been specified.

NYPA agreed that all component classifications and classification breaks should be shown on the drawing, and that the fire hose should have a component ID label. The licensee further indicated that there was an initial hydrostatic test of the new hose. However, no periodic hydrotest requirements were applicable since use of the cross-connection is essentially outside the design basis of the plant. The fire hose will be visually inspected every six months.

The licensee stated that the classification break between the FP and ESW piping would be determined and added to the drawing. Also, a component ID tag would be installed on the fire hose, and the storage cabinet label would be changed to indicate the presence of the hose. NYPA indicated that these items would be resolved and incorporated prior to closeout of the modification and plant startup.

3.3 Temporary Modification (TM) Procedure

During NRC inspection 94-25, inspectors expressed concerns related to administrative requirements that were not reflected in the actual practices within the Operations Department for the control of temporary modifications. Also, the licensee had submitted several procedure change requests (PRCs) to address procedure weaknesses that had not been incorporated. As a result, the licensee fully revised administrative procedure AP-05.02, "Control of Temporary Modifications," (Rev. 2) in November 1994 to establish enhanced

requirements for the control of temporary modifications. The inspector noted that several weaknesses in the previous revision (see NRC IR 94-25) had been addressed in the current revision, and the following changes were incorporated:

- The procedure now contains a means to ensure that TMs installed longer than initially estimated were identified and their continued installation justified. A new requirement has been added to review TMs weekly, quarterly, and annually to ensure that the need exists for continued installation, and that plant status does not impact the technical and safety reviews in effect for each installed TM.

- The revision corrected several inconsistencies regarding PORC reviews for TMs installed greater than six months, and for the extension of the TMs installed greater than six months. The requirement for PORC to review and approve TMs with an expected duration of greater than 6 months was considered unnecessary and was deleted. However, the requirement for PORC to approve an extension beyond six months was retained. A cover sheet has been added to the TM Control Form to identify and record those TMs that require a PORC review prior to installation.

- The procedure now provides guidance regarding the testing of TMs after installation or system restoration. A checkoff has been added to the TM Form to ensure that required functional testing for installation and removal is properly identified and specified prior to placing a TM in service.

- The procedure now provides guidance regarding the promptness of control room drawings updates. For TMs that require control room drawing updates, the procedure now requires that TMs with an estimated installation of greater than 30 days be posted in the "Revision In Process Log" for affected control room drawings. Also, Operations will be notified to transfer TM drawing updates when new prints are issued.

The Nuclear Operations Section from the NYPA corporate office performed an audit of the temporary modification program at JAF from October 18-20, 1994. Other improvements to AP-05.02 resulted from this audit. The inspector concluded that AP-05.02 was substantially enhanced by its latest revision and that it constituted an improvement in the technical and administrative control of TMs.

3.4 Number of Installed Temporary Modifications

Administrative Procedure AP-05.02, outlines expectations for the TM program at JAF and states that TMs shall be installed for the shortest time necessary, normally less than 3 months. During NRC inspection 94-25, inspectors noted that the station's goal was to have less than 52 TMs installed at any one time. However, the "FitzPatrick Jumper Summary Count," dated October 14, 1994, indicated that there were 61 TMs installed. Of these, 16 TMs had been installed greater than one year. The inspector reviewed the current list of active TMs and determined that 50 were installed as of

February 17, 1995. The permanent modifications installed during the 1994-95 refueling allowed NYPA to replace a significant number of installed TMs. As of this inspection, 24 of the 50 TMs were expected to be removed before startup. This included most of the older TMs.

JAF made a significant reduction in the number of TMs installed since October 1994. Over 100 were installed after October 1994, mostly as a direct result of the outage. By February 17, 1995, approximately 115 TMs had been removed from the plant since October 1, 1994. Permanent modifications completed during the outage would remove or replace most TMs currently installed, and about 26 TMs are expected to remain after startup. NYPA expected most of these to be removed by the summer of 1995 as a result of permanent non-outage modifications. The inspector concluded that the licensee has made good progress in reducing the overall number of TMs installed in the plant and should be able to maintain their target goal of no more than 52 installed during normal plant conditions.

4.0 RESPONSES TO NRC INFORMATION NOTICES

The inspector reviewed the licensee's system for responding to NRC Information Notices (INs) and selected several response packages for detailed review. NYPA's process for identifying, tracking, and following up on INs was well managed. As a general practice, the licensee issues a Deficiency/Event Report (DER) for all INs that represent potential deficiencies or adverse quality conditions. The technical evaluations performed to resolve the issues reviewed were mostly thorough and well documented.

IN 94-71; Degradation of Scram Solenoid Pilot Valve Pressure and Exhaust Diaphragms

IN 94-71 was issued in October 1994 to alert all boiling water reactor (BWR) licensees to the potential failure of scram solenoid pilot valve (SSPV) diaphragms to function throughout their service life. Premature hardening and subsequent diaphragm failures have been experienced at several U.S. BWRs in recent years. These resulted in reactor control rod scram times greater than allowed by technical specifications during surveillance testing. The IN referenced specific model/serial numbers for SSPV repair kits that were manufactured after early 1989, and listed previous industry and NRC communications such as General Electric (GE) RICSIL-069, GE SIL-575, NRC Generic Letter 91-15, et al.

In February 1994, NYPA contacted other BWR owners who had experienced SSPV diaphragm failures, and investigated the recent repair and replacement history of SSPVs at JAF. Nineteen SSPVs in stock at JAF were manufactured in April 1989 and were mentioned in RICSIL-069. Further review of maintenance and procurement records for all 274 SSPVs installed in the plant indicated that 134 were changed out in the 1992 outage using diaphragm kits assembled in April 1989. No SSPVs at JAF were associated with model/stock codes assembled during 1990 and 1991. JAF's surveillance test records indicated that no control rods had experienced out-of-specification scram times.

NYPA had originally planned to rebuild half (137) of the SSPVs during the 1994-95 refueling outage and the remainder during the 1996 outage. However, due to the increased concerns related to sudden and unpredictable diaphragm failures, NYPA initiated DER 94-0443 on 5/17/94 to pursue appropriate corrective actions. As a result, NYPA overhauled all 274 SSPVs at JAF using new Viton diaphragm kits during the 1994-95 outage. The inspector considered this prompt and comprehensive approach to a Notice only 6 months old reflected well on NYPA's sensitivity to the scram function at JAF.

IN 94-69; Potential Inadequacies in the Prediction of Torque Requirements For and Torque Output of Motor-Operated Butterfly Valves

IN 94-69 was issued in September 1994 to alert licensees of several problems regarding inadequate predication of the torque requirements and the available torque output of Generic Letter 89-10 motor-operated butterfly valves. In recent years, several butterfly valve failures have occurred due to a low torque switch settings, reductions in torque output from high internal valve friction, and the inability to fully seat some valves under design basis conditions.

NYPA initiated DER 94-0882 in October 1994 to address this potential deficiency. Only four butterfly valves at JAF are included in the Generic Letter (GL) 89-10 program, and all four are in a plant air system that exposes them to relatively low design basis differential pressures. The valves are not subject to the greater torque output requirements associated with high flows and pressures, turbulence, valve seat and bearing degradation, or high packing friction.

The inspector evaluated the engineering methodology and analyses used by the JAF motor-operated valve (MOV) group for predicting torque requirements and torque output capability of butterfly valves. NYPA's torque calculations were based on guidance provided in EPRI NP-7501, "Application Guide for Motor-Operated Valves in Nuclear Power Plants." The inspector also reviewed NYPA Report JAF-RPT-MISC-01873, Rev. 0, "Motor-Operated Butterfly Valve Torque Window Determination for Compressible Flow Conditions," and calculation JAF-CALC-CAD-01764, Rev. 0, "Torque Limits for 27MOV-113." These documents contained a detailed methodology for determining design basis torque requirements and torque calculations for valve 27MOV-113. NYPA conservatively assumed a valve packing friction coefficient of 0.2 and a valve bearing friction coefficient of 0.25 in calculating the torque output capability and torque switch setting for this valve. In addition, the calculations accounted for parameters such as maximum differential pressure, maximum dynamic flow effects, bearing torque, degraded voltage, and high ambient temperatures.

NYPA scheduled static baseline diagnostic tests of the butterfly valves during the 1994-95 outage. DER 94-0882 was closed following NYPA's review of the GL program activities for predicting and verifying butterfly valve torque. The inspector considered NYPA's torque requirements analysis to be technically sound, and the response to IN 94-69 to be thorough and well documented.

IN 94-41: Problems With General Electric Type CR124 Overload Relay Ambient Compensation

IN 94-41 was issued in June 1994 to alert licensees of the potential for out-of-tolerance ambient temperature compensation in certain configurations of General Electric (GE) Type CR124 overload relays. Relay models CR124K028, K128, L028, and L128 manufactured before October 1990 may have their temperature-compensating bimetallic elements installed upside down, and could adversely effect the trip timing of the relays. These overload relays are typically used with starters or motor controllers serving safety-related functions, and all installed at JAF are not bypassed during accident conditions.

NYPA previously evaluated this issue in 1990 after GE issued a 10 CFR Part 21 Notice regarding the defective relays, and after subsequent correspondence between GE and NYPA regarding actual relay failures at JAF. In 1989 and 1990, NYPA experienced several failures of multiple relay types during maintenance testing normally performed before placing relays into service. In January 1992, NYPA conducted an evaluation and determined that 255 Type CR124K028 and 15 Type CR124L028 relays were installed in safety-related applications in the JAF plant. The maintenance history of the installed relays revealed that all but 3 had been tested for ambient temperature compensation. NYPA also reviewed the JAF warehouse stock and found 16 Type CR124L028 relays that were affected. The 3 installed relays were subsequently tested satisfactorily, but 5 of the stock relays failed their tests and were removed from the inventory.

The inspector reviewed JAF Maintenance Procedure MP-056.01, Rev. 27, "AC Motor Control Center Maintenance and Subcomponent Replacement," to evaluate the overcurrent test conditions for the relays. Section 8.8 contained detailed specifications for overcurrent testing of all types of relays at JAF, and included instructions for the proper environmental test conditions. A heated test box is used for overcurrent testing with air temperatures of 30-50°C and a standard 300% overload test current. The relays are "soaked" at the elevated temperature and their trip time is measured after the high current is applied. Each type relay has a predetermined acceptable trip time range specified in the test procedure.

NYPA's maintenance engineers considered that this test was adequate to detect defective relays with improperly installed bimetallic compensators. However, the inspector noted that GE had recommended that a room temperature test should also be performed to determine if the "cool" trip time is within 10% of the "warm" trip time. IN 94-41 also endorsed a warm and cool trip time comparison for these relays. JAF Technical Services and Maintenance Department engineers indicated that any relay that failed the warm test was automatically rejected for any reason. They further believed that a relay with an inverted temperature compensating element would fail both a warm test and a 10% warm/cool test comparison. Although NYPA did not formally address the additional test recommended by GE and the IN, site technical personnel maintained that all relays effected by the Part 21 Notice were satisfactorily tested. However, NYPA stated they would contact GE and would review their technical basis for not conducting a room temperature trip test. NYPA

subsequently reopened actions to follow-up on IN 94-41 and indicated that the need for relay trip testing under warm and cool conditions would be formally evaluated and documented. The inspector considered that these actions were appropriate.

5.0 UNRESOLVED ITEMS OF PREVIOUS NRC CONCERN (92903)

5.1 (Closed) 92-80-14, Emergency Lighting Surveillance Testing

The inspector reviewed the status of Violation 92-80-14. This issue concerned the emergency lighting surveillance and test procedures that lacked vendor recommended maintenance and testing of emergency lighting units. This issue was previously updated in Inspection Reports (IRs) 50-333/93-06, 93-26, and 94-25. Final closure of this item depended upon documented justification for omissions or deviations from vendor recommendations for maintenance and testing of the lighting units.

In December 1994, the licensee completed a contractor evaluation of the emergency lighting surveillance and testing programs to define in detail the differences between JAF's maintenance and surveillance practices, and those of the equipment manufacturers and vendors. The evaluation also compared JAF and vendor practices to those depicted in EPRI/NMAC Report TR-100249. Specific vendor and EPRI recommendations were examined that included emergency lighting maintenance frequencies, lighting unit functional tests, battery discharge performance tests, float voltage checks, lamp alignment and obstruction tests, and visual inspections.

The detailed comparisons resulted in conclusions for recommended changes and justifications for existing practices at JAF. The licensee regarded the differences between the vendor and EPRI recommendations as "guidance" and not requirements; however, several JAF procedure changes resulted from the evaluation. For example, surveillance procedure 76-16J-1 thru -5 were changed to ensure lamps are aligned properly, and maintenance procedure MP-076.07 was changed to ensure re-aiming and marking of lamp positions were proper. Many justifications for existing practices were based on JAF's unique emergency lighting equipment and the plant's experience with these units. The justifications were detailed and provided sufficient bases to permit future revisions if necessary. The inspector considered the evaluation to be thorough and to support the maintenance and testing of emergency lighting in progress at JAF. Therefore, this violation is closed.

5.2 (Update) Deviation 92-81-01, Emergency Service Water Flow Rates

During a safety system functional inspection of the emergency service water (ESW) system in April and May 1992, the NRC identified a deviation from the minimum required service water flow to each crescent area unit cooler as specified in the FitzPatrick Final Safety Analysis Report (FSAR). On a number of occasions in 1991, some crescent area coolers were provided with less than the FSAR required flow of 24 gpm during ESW surveillance testing.

NYPA responded to this deviation in a letter dated August 4, 1992, committed to the following actions to correct the deviation: 1) revise the FSAR to include both the design and operability flow requirements for crescent area coolers; 2) review internal procedures used to update and maintain the FSAR; 3) enhance the process for revising the FSAR to reflect the current plant configuration and design basis documents; and 4) formally document the FSAR deviation in accordance with plant procedures. NYPA had initially intended to change the FSAR from requiring a minimum flow to each area cooler, to an overall heat removal capacity for each ESW crescent cooler train. However, the NRC considered that NYPA should also evaluate the effects of individual crescent area temperature profiles because each cooler was originally sized to accommodate different heat loads within specific areas.

NYPA contracted the Stone and Webster Engineering Company (SWEC) to revise the analytical model used to compute the post-LOCA temperature distributions within the crescent areas. The model did not previously credit each unit cooler with its full heat removal capacity because it used arbitrary and conservative boundaries for the areas effected by each cooler. The revised model credited each cooler with its full thermal capacity and redefined the effected spaces based upon more realistic assumptions for air flows within each crescent area. The revised model permitted the accident heat load analysis to predict that 4 out of 5 unit coolers available in each crescent area was sufficient to limit the post-LOCA area temperatures to $\leq$110°F. NYPA retained the design flow rate of 24 gpm specified in the FSAR; however, the definition of crescent area cooler operability was revised to reflect actual heat transfer capacity available and not the design flow rate.

Based upon the SWEC analysis of crescent area unit cooler thermal performance capabilities and NYPA's subsequent revision of the FSAR, commitment items 1) and 4) above are complete, and the technical aspects of this deviation have been effectively resolved. However, NYPA's actions to revise internal procedures and to enhance the FSAR to reflect the actual plant configuration and design basis documents (items 2) and 3) above) were not yet complete. NYPA anticipated that these items will be finished by July 31, 1995. Therefore, this deviation remains open pending the applicable procedure and FSAR revisions and subsequent NRC review.

6.0 MANAGEMENT INVOLVEMENT AND OVERSIGHT

The inspector noted examples of good management involvement and oversight of the JAF engineering and technical programs. The management and QA assessments of post-modification testing were good initiatives and demonstrated close management attention. However, deficiencies identified in the relay room CO_2 modification could have been avoided through closer management oversight during preparation of this modification. Regular meetings and close interactions between the design engineering and technical services groups, and with other site organizations, continued to reflect direct involvement and active participation at all levels of the engineering and technical organizations.

7.0 MANAGEMENT MEETINGS

The scope and purpose of the inspection were discussed at an entrance meeting conducted on February 13, 1995.

During the course of the inspection, the findings were discussed periodically with managers, supervisors and other licensee representatives during the course of this inspection including operations, technical, quality assurance, and administrative personnel. An exit was conducted on February 17, at which time the preliminary findings were summarized and the conclusions were presented. The licensee acknowledged the preliminary findings and conclusions of this inspection with no exceptions taken. Further, the bases for the conclusions did not involve proprietary information.

The following individuals attended the exit meeting held at the JAF site on February 17, 1995.

B. Baker, Sr. Technical Advisor
F. Edler, Technical Services Manager
J. Erkam, Supervising Project Engineer
A. Halliday, Maintenance Manager
D. Lindsey, General Manager - Maintenance
T. Moskalyk, Plant Engineering Supervisor
D. Ruddy, Director, JAF Design Engineering
H. Salmon, Resident Manager
D. Topley, Acting General Manager - Support Services
A. Zaremba, Licensing Manager