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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Plant Performance Since July 31, 1989

Gentlemen:

The purpose of this letter is to summarize the performance of Turkey Point Units 3 and 4 since the last NRC Systematic Assessment of Licensee Performance (SALP) evaluation period, which ended on July 31, 1989. The SALP report covering that period (Inspection Report Nos. 50-250/89-36 and 50-251/89-36) noted that "performance [had] improved substantially in most areas" since the prior assessment period.

FPL's efforts have been directed toward maintaining the improvement in performance noted in the last SALP report. To assure continuation of this improvement, FPL has pursued an aggressive self assessment program at Turkey Point, including significant internal or outside assessments in the areas of operator performance, implementation of FPL's Independent Management Appraisal (IMA) commitments, training, maintenance, Emergency Operating Procedures, and other areas. Based upon the plant's operating history since July 1989, our performance indicators, and the results of NRC evaluations of Turkey Point during this SALP period, I believe these efforts have been successful. Performance highlights include:

- Operations. For the twelve months ending June 30, 1990, Units 3 and 4 have had equivalent availabilities of 62% and 76.6%, respectively. The Unit 3 performance is especially significant considering that Unit 3 had a 119 day refueling outage beginning on February 3, 1990. Outside contractors who have performed followup evaluations of operator performance after the discontinuance of the Management on Shift (MOS) program have noted continued improved performance since the program ended. The number of events triggering Licensee Event Reports (LERs) has declined from 46 during the last SALP period to 33 during the first 11 months of the current SALP period.
- Radiological Controls. The cumulative personnel exposure has dropped from 853 man-rem during the last 12 months of the previous SALP period to a projected 665 man-rem (based on current data) during the current SALP period. The number of personnel contamination events has dropped from 449 during the previous SALP period to 206 during the first 10 months of the current SALP period (a total of 225 is projected for the entire current SALP period). The amount of contaminated floor space was reduced from 18,149 square feet to 9,198 square feet between July 31, 1989 and June 29, 1990, a 49% decrease.

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- Maintenance/Surveillance. A systematic material upgrade program is being implemented for the Turkey Point units, and additional emphasis is being placed on predictive and reliability-centered maintenance. The average number of overdue preventive maintenance items per month has dropped by 37% compared to the end of the last SALP period. Maintenance overtime and turnover levels continue to decline (although there was some overtime increase during the Unit 3 refueling outage), and the percentage of corrective maintenance plant work orders more than 90 days old is below 50% (the INPO target level). The number of control room deficiency tags has dropped from 95 on July 31, 1989 to 47 on July 11, 1990.
- Emergency Preparedness. On November 20, 1989, FPL successfully conducted an emergency exercise including participation by the Turkey Point onsite and offsite organizations, Dade and Monroe county officials, and limited response by the State of Florida.
- Security. Significant portions of the extensive security upgrades being installed at Turkey Point have been completed, and the upgrades generally continue to proceed on schedule. Security performance indicators show improved or steady good performance. For example, the average number of compensatory post hours due to equipment failures has declined from 580 hours per month during January -July 1989 to 203.5 hours per month during August 1989 - May 1990. Security turnover and overtime levels have also declined significantly from the levels experienced during the last SALP period.
- Engineering/Technical Support. Engineering work for the Emergency Power System upgrades is proceeding on schedule and the drawing update program is progressing. The drawing update backlog has been reduced from approximately 28,000 items in February 1989 to less than 15,000 in mid-June 1990. Current forecasts project elimination of the backlog by the end of 1992. Training of system engineers has been completed and the system engineer program has resulted in several significant improvements in system and component reliability.
- Training. Results of recent examinations demonstrate that Turkey Point operator requalification training has improved and that operator initial license and SRO upgrade training remains strong. During the February - April 1990 series of requalification examinations, a 92% (45 of 49) pass rate was achieved. Pass rates of 100% were achieved on the Generic Fundamentals Examination conducted in October 1989 and on initial operator license and senior reactor operator license examinations held in November 1989.
- Safety Assessment/Quality Verification. Self-assessments have been made to identify areas requiring improved performance and actions have been taken in response to these assessments. Following self-assessments in the areas of Fire Protection, Maintenance, and Emergency Operating Procedures, major NRC team inspections in these areas identified generally good or improved performance and found few violations. Commitments resulting from the Independent Management Appraisal (IMA) have largely been implemented.

More specific information on performance in each of the areas rated in the October 19, 1989 SALP report is provided in Attachment A to this letter.


In addition to specific improvement actions, FPL has undertaken a major restructuring of its nuclear organization. In September 1989, a new Executive Vice President, Jerome H. Goldberg, was hired to oversee FPL's nuclear operations. In April 1990, a separate Nuclear Division was created within FPL to provide a management structure and accompanying resources focused solely on FPL's nuclear activities. Mr. Goldberg was named President of this division, and Kenneth N. Harris was named Senior Vice President responsible for nuclear operations at both the Turkey Point and St. Lucie nuclear units (Mr. Harris also currently remains the Site Vice President at Turkey Point). Also reporting to Mr. Goldberg are William H. Bohlke, Vice President of Nuclear Engineering and Licensing; James E. Geiger, Vice President of Nuclear Assurance; and C. Ashton Pell, Director of Nuclear Administrative Services.

Within the new Nuclear Division, there are organizations responsible for procurement, construction quality control, engineering, nuclear fuels, and personnel functions. In the past, these functions were performed by groups whose resources were shared with other parts of the company. FPL believes that having dedicated groups within the Nuclear Division will make them more responsive to the specific needs of nuclear power operations.

In sum, our overall performance has continued to improve. However, we recognize that further sustained effort is required. Several initiatives taken recently or planned for the near future are described in Attachment A. We believe that our ongoing efforts will foster further steady improvement.

Please call me should you wish to discuss any of these matters.

Very truly yours,


K. N. Harris
Vice President
Turkey Point Nuclear Plant

KNH/WEB:cas

cc:

Stewart D. Ebnetter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

ATTACHMENT A

This Attachment summarizes the performance of FPL's Turkey Point Units 3 and 4 since the last NRC Systematic Assessment of Licensee Performance (SALP) evaluation period, which ended on July 31, 1989. The performance of Turkey Point is described for each functional area that was evaluated in the NRC SALP report issued on October 19, 1989 (Inspection Report Nos. 50-250/89-36 and 50-251/89-36). Unless otherwise noted, page references in this Attachment are to that report. The descriptions in this Attachment of actions being taken or to be taken are based upon FPL's current plans and activities; some of these may change depending on future circumstances.

I. PLANT OPERATIONS

The units have operated well during this SALP period. During the twelve months ending on June 30, 1990, Units 3 and 4 have had equivalent availabilities of 62% and 76.6% respectively. This is especially significant for Unit 3 since it underwent a 119 day refueling outage commencing on February 3, 1990. Unit 3 ran continuously for 43 days from late June into early August, 1989, when it was taken off line for less than 1 day for a condenser tube leak. Unit 3 then ran continuously for 139 days until management shut down the unit for 8 hours to inspect the Main Steam Isolation Valve (MSIV) terminal boxes to determine whether corrosion existed in the boxes similar to that which had been found on Unit 4. Unit 3 then ran continuously for 40 more days until it was shut down for refueling on February 3, 1990. Unit 4 was shut down more often than Unit 3, but as noted above, had a 76% equivalent availability from August 1, 1989 through June 28, 1990, and achieved nearly 83% during the January 1, 1990 through June 28, 1990 time period. Performance of the units indicates that FPL's operational improvements, maintenance efforts and reliability programs are resulting in positive improvement.

Actions taken to address concerns noted in the October 19, 1989 SALP report for Turkey Point and to further improve performance in operations include:

o Management on Shift (MOS) Evaluations

Commencing in April 1989, following the termination of the continuous Management on Shift (MOS) program, FPL has utilized Westinghouse to conduct periodic independent evaluations of the effectiveness of operating shifts. All four (approximately quarterly) evaluations noted continued improvement in operations, coordination and cooperation within the plant staff, and plant material condition. Each of the four Westinghouse evaluators had spent considerable time as a MOS observer at Turkey Point approximately one year before they returned to perform their independent evaluations. Thus, they were comparing 1989 performance to their observations made in 1988 and their 1990 observations to those made in 1989. Each evaluation documented continued improvement since the observer's previous MOS visit,

demonstrating sustained improvement from 1988, through 1989, and into 1990.

o Operations Events

To increase operator attention to detail, Operations has increased its efforts to understand how different events occur and to implement corrective actions appropriate to the event. One of these efforts has been to conduct weekly open discussions with the Operating Crews on the events, the root causes, causal contributors, and what can be done to prevent a similar occurrence in the future. These shift meetings have helped to identify problem areas so that they could be acted on, and have provided personnel with a better understanding of the events and management's expectations in similar situations. As a result of the discussions and other corrective actions (i.e., procedure changes, self-check training, discipline), the operational error rate has dropped by approximately 85% in 1990 when compared to the same time frame in 1989:

January - May 1989: 34 equipment operational errors

January - May 1990: 5 equipment operational errors

Recent operational events indicate that further improvement in this area is needed. FPL will be providing additional emphasis on normal evolutions during simulator training over the next year.

o Component Identification (pp.7-8)

The component labeling program and implementing procedure have been reviewed and changes made to correct identified deficiencies. The changes have included procedure improvements in the areas of independent verification of labeling, qualifications of personnel involved in labeling, and an enhanced process for feedback from personnel on any labeling problems encountered in the field. Since the changes were implemented in late 1989, no mispositioning events due to mislabeling have occurred, and the number of components labeled has increased by approximately 28% (to about 90,000 items).

o Clearances (p. 7)

FPL is taking action to improve and streamline the clearance system. As a result of repeated separate procedure changes to resolve particular clearance control issues, an excessively complex and difficult to implement clearance process evolved. FPL has initiated a review of procedures governing clearances to identify ways in which these procedures could be simplified and made easier to implement. Based upon the results of this review, FPL has: (1) prepared a new procedure for handling equipment out of service; (2) transferred certain clearance-related requirements to other appropriate operating procedures so that clearance issues are clearly noted in those procedures; and (3) prepared a new, simplified clearance procedure. These changes are currently under review for approval and implementation. The revised clearance system is scheduled to be in place and tested prior to the dual-unit emergency power system upgrade outage.



o Continue Improving Overtime Rates (p.9)

At the beginning of 1989, new controls on overtime were established. These controls include requirements for pre-approval of expected overtime by department supervision, improved tracking of overtime and reconciliation of actual overtime against an overtime budget. As a result of these controls and other efforts, the overtime rates for Operations have generally declined since the beginning of 1989. Although overtime rates increased during the first four months of 1990 due to Unit 3 outage activities, they began to subside again at the end of April 1990. Operations overtime since the beginning of 1989 has been:

<u>1st Half 1989</u>	<u>2nd Half 1989</u>	<u>1st 4 Months 1990</u>	<u>May 1990</u>	<u>June 1990</u>
29%	26%	30%	24%	27%

It should be noted that about 30% of recent overtime in the operations department has been due to activities associated with the plant component labeling program. With the installation phase of this program approaching completion, overtime due to labeling is expected to decline. The installation phase is expected to be finished in September 1990 without increased overtime.

As of May 8, 1990, 98 individuals (46 non-licensed operator and 52 licensed operator candidates) were in training. As these operators are qualified, FPL should be able to expand shift coverage and reduce the need for overtime. The next group of licensed operators (currently 29) is expected to receive their licenses in December 1990. There continues to be more than sufficient licensed operators for a 5 shift rotation.

o Plan of the Day (POD) Effectiveness

The Planning/Scheduling group in the Operations Department began efforts to improve POD effectiveness (basically the percent of daily jobs/tasks started and worked as scheduled) in the latter part of 1988. The POD planning system provides information on manpower available, work items to be done by the maintenance disciplines, and necessary support requirements (i.e., required clearances and Radiation Work Permits). When jobs are not worked, an analysis is performed to determine the root cause and required corrective action. Examples of resulting corrective actions have included: (1) adding experienced operations assistance to the planning group; (2) adding Health Physics assistance to the planning group; and (3) requesting maintenance planners to re-evaluate planned job lengths when they prove inaccurate. These improvements have helped to make appropriate plant groups aware of work schedules and what support services are needed to more effectively plan their activities. Also, management has an improved understanding of the activities that can be accomplished in a given period.

Significant improvement in performing scheduled jobs has occurred. In late 1988, total effectiveness of the POD (which includes Operations, Maintenance and support groups) was approximately 70% with occasional dips

as low as 60%. By the end of the last SALP period (July 31, 1989) it was maintained at near 75% with some peaks around 90%. During the first half of 1990, POD effectiveness improved to approximately 80% with frequent peaks approaching 90%, aside from two brief instances in 1990 when POD effectiveness dipped to about 60% due to sudden unplanned outages. Our goal is to attain 90% effectiveness by the end of 1991; the trend since 1988 indicates that this goal is achievable.

- o Firemain Isolation Valves Affecting Ability to Perform Corrective Maintenance (p.10)

The "Annual Fire Main Post Indicator Valve (PIV) Leak Test and System Flush" procedure, which currently includes allowable leak rates based on overall fire water system operability, is now being revised to include leak rates which will also allow adequate isolation for system maintenance. The revised procedure is scheduled to be approved before July 31, 1990.

- o Tracking and Control of Fire Brigade Member Qualifications (p.10)

A process was implemented in 1989 to assure that fire brigade members stay current on their training and qualification. A computerized tracking system monitors items required for qualification for team members and team leaders. Based on these records, Fire Protection sends Operations a list of qualified people which is then used to establish the proper fire team composition for each shift. When an individual's qualification expires, he is automatically removed from the list. Qualification records are periodically reviewed by the Fire Protection department to assure their compliance with requirements.

II. RADIOLOGICAL CONTROLS

Radiological controls at Turkey Point have significantly improved since the previous SALP period. For example, the amount of contaminated floor space has been reduced by 49% since the close of the last SALP period and the cumulative personnel exposure expected by the close of the current SALP period is 22% lower than was experienced during the previous SALP period. Additional emphasis has been placed on upgrading Health Physics procedures and further reduction of contaminated floor space.

Actions taken to address the concerns in the October 1989 SALP report and to further improve performance in the area of radiological controls include:

- o Contaminated Floor Space (p.12)

FPL has undertaken extensive decontamination efforts during the past year, including the use of catch containments, systematic tracking and repair of leaks, and initiatives to increase awareness of the need for contamination control by plant personnel. As a result of these efforts, the total contaminated floor space was reduced from 18,149 sq. ft. (19%

of the total 97,344 sq. ft. of floor space tracked) at the end of the previous SALP period to 9198 sq. ft. (9.5%) on June 29, 1990. The amount of contaminated floor space should continue to decrease as additional plant floor coatings are repaired as part of the material condition upgrade program. The current goal is to reduce contaminated floor space to less than 9000 sq. ft (9.2%) by the end of the SALP period.

o Personnel Contamination Events (PCEs) (p.13)

During the previous SALP period a total of 449 PCEs occurred. Due to the extensive decontamination efforts and improved contamination control practices implemented during the current SALP period, there were only 206 PCEs between July 31, 1989 and May 31, 1990; a total of 225 are projected to occur by the end of the current SALP period. This would represent a reduction of nearly 50% from the previous SALP period.

o Personnel Exposure (p.13)

For the period of August 1989 through April, 1990, the collective radiation exposure was 566 man-Rem (283 man-Rem per unit). The cumulative exposure through the remainder of the SALP period (July 31, 1990) is projected to be 665 man-Rem. This represents a reduction of 22% from the 853 man-Rem during the last 12 months of the previous SALP period. This reduction in cumulative exposure is due to plant decontamination, decreased outage time, and better planning of activities in radiologically controlled areas.

o Periodic Training Programs for Contract Technicians (p.11)

Administrative procedures have been revised to require contract Health Physics technicians to participate in the Radiation Protection Man (RPM) continuing training program once the technicians have been on site for six months. The procedures have also been revised to require that training records be maintained for these individuals. Furthermore, a Health Physics Training and Procedure Coordinator has been appointed to ensure that all health physics personnel, including contract technicians, receive timely training on changes to the plant and in radiation protection procedures. The Turkey Point training program for health physics contract technicians is the same as that used at FPL's St. Lucie plant. The NRC has acknowledged several positive aspects of the St. Lucie program (see Inspection Report Nos. 50-355/90-07 and 50-389/90-07, pp. 3-4), and noted that the program is a licensee strength.

o Containment Entries (p.12)

The number of containment entries while at power has been reduced from 64 for both units during July 1989 (the end of the previous SALP period) to an average of 11 per month for both units during the first 10 months of this SALP period.

o Upgrade of Health Physics Procedures (p.12)

Since the end of the last SALP period, approximately 100 Health Physics

procedures have been revised and implemented. Another 17 of these procedures are scheduled to be updated by the end of the current SALP period, bringing the total of revised Health Physics procedures to 117 (or 77%). Remaining upgrades to the health physics procedures are scheduled to be completed by December 1991.

o Planning of Radiation Work Permits (RWPs) (p.12)

In order to reduce worker exposures, the Health Physics department has modified the computer software for access control to provide daily tracking of the manhours worked under each RWP. Health Physics is also evaluating how to better utilize historical manhour data for the planning of similar future activities in radiologically controlled areas. The RWP procedures are being revised to require prejob planning checklists and a post job evaluation of the actual manhours that were necessary to complete activities in radiologically controlled areas.

o ALARA Program (p.12)

Formal procedures implementing the ALARA concept have been prepared and approved. FPL has evaluated the effectiveness of the ALARA coordinating committee and, with the concurrence of the ALARA Review Board, has decided to disband the committee. The duties of the coordinating committee were found to duplicate the responsibilities of the Health Physics ALARA group and the ALARA Review Board, and these other groups were considered to be more effective in achieving ALARA objectives. Personnel contamination events and cumulative personnel exposure have declined substantially during this SALP period, as described on p.5 above.

o Fuel Reliability Indicator

Since 1983, Turkey Point has had a program to monitor the Fuel Reliability Indicator or FRI (the equivalent I-131 concentrations in primary coolant during steady state operations) and to replace failed fuel rods. The current goals for FRI are 2.0 E-3 uci/g for Unit 3 and 2.7 E-3 uci/g for Unit 4. As a result of the replacement of failed fuel rods during recent refueling outages, the FRI for Unit 4 has been reduced to approximately 2.5 E-4 uci/g in May of 1990. Similar reductions in FRI were not experienced on Unit 3. However, the fresh fuel that was loaded into Unit 3 during the March 1990 refueling outage has a debris resistant design. Debris resistant fuel will also be loaded into Unit 4 during the next refueling outage. The debris resistant fuel at Turkey Point is of the same design as the fuel utilized at St. Lucie, where significant reductions in FRI have been achieved. Similar reductions in FRI (and thus primary coolant contamination levels and personnel exposures) are expected for Turkey Point.

o Record Keeping

FPL is upgrading the Health Physics computers and software used for exposure record keeping. This will prepare Turkey Point to implement the changes to record keeping requirements contained in the upcoming revisions

to 10CFR20 in a timely manner.

o Self Assessment

The Health Physics Department is conducting a self-assessment of performance compared to INPO criteria (RP 88-010) and will develop action plans to strengthen weaker areas. These plans will guide improvement efforts through 1991.

III. MAINTENANCE/SURVEILLANCES

Maintenance performance has shown significant improvement since the last SALP period. Several maintenance performance indicators are showing improvement, and substantial initiatives are underway in such areas as plant material condition, predictive maintenance, and root cause analysis. The number of violations issued by the NRC in the area of maintenance declined from 9 during the last SALP period to 1 during the first 10 months of the current period; this is a substantial reduction even if non-cited violations are considered. Also, during the NRC's followup Maintenance Team Inspection, conducted in October - November 1989 (Inspection Report Nos. 50-250 and 50-251/89-48), it was noted that FPL "had developed and implemented corrective actions to address all of the maintenance related weaknesses that were identified in the NRC Maintenance Team Inspection" which was conducted during November and December 1988, and concluded that "[s]ignificant improvement was observed in all areas."

Actions to address the maintenance/surveillance concerns identified in the October 1989 SALP report and to achieve further improvement in this area include:

o Plant Material Condition

Although the material condition at Turkey Point has improved considerably, FPL recognizes that further improvement can be achieved. In October 1989, a Material Condition Upgrade Plan was adopted, encompassing both primary-side and balance of plant (BOP) systems and areas. This plan consists of the following stages:

- Walkdowns of areas of the plant by a plant management team to identify deficiencies in housekeeping, equipment condition, insulation, safety hazards and general appearance. During the walkdowns, a list of deficiencies is generated and assigned to the appropriate maintenance group.
- Use of the management walkdown lists by the appropriate maintenance groups to generate any necessary work documents, including PWOs, and performing maintenance work necessary to correct the noted deficiencies. Deficiencies that cannot be addressed at the time due to plant operating condition are tracked to be worked when conditions permit.
- Decontamination, where necessary, of floors, walls, equipment, and

piping in conjunction with the conduct of upgrade work.

- Painting of the walls, floors, equipment, and piping using appropriate color codings once material upgrade and decontamination are complete.
- Performance of a final walkdown of each area to ensure a satisfactory material condition.

This formal process supplements other periodic supervisor and management walkdowns during which plant material conditions are examined and unsatisfactory items noted for resolution.

In addition to the walkdown/material upgrade process, the Material Condition Upgrade Plan includes several other components:

- A schedule for plant change/modifications (PCMs) to be worked during plant outages;
- Reduction of the number of control room deficiencies;
- Reduction of the amount of contaminated floor space in the plant;
- A material condition upgrade plan for motor operated valves; and
- A schedule for other major upgrade projects.

In conjunction with these portions of the Material Condition Upgrade Plan, a number of significant upgrades have been completed during this SALP period, including:

- Overhauls of the Nos. 1 and 2 blackstart diesels (other diesels had previously been overhauled).
- Upgrading of the Unit 4 RHR pump room and heat exchanger room, the Unit 3 charging pump room and other areas.
- Reduction of the number of control room deficiency tags from 95 as of July 31, 1989 to 47 as of July 11, 1990.
- Reduction in the amount of contaminated floor space from over 18,000 sq. ft. as of July 31, 1989 to 9198 sq. ft. as of June 29, 1990.
- Overhauls of 54% (38 of 71) of the Unit 3 Motor Operated Valves (MOV's) during the Unit 3 1990 refueling outage.

During the recent Unit 3 refueling outage, more than 600 valves were repacked, 37 valve overhaul packages (some containing multiple valves) were worked, 34 valve test/inspection items (some involving multiple valves) were performed, and approximately 120 other valve work items were performed.

Based upon these efforts and ongoing programs, the Turkey Point material

condition will continue to improve.

o Preventive Maintenance

FPL has intensified its efforts to improve preventive maintenance. Even though more CM PWOs have been written and worked in recent months due to Material Condition Upgrade Plan and Unit 3 refueling outage activities, the amount of preventive maintenance work as a proportion of all maintenance work (PM/PM + CM ratio) has increased in recent months from 34.8% in January 1990 to 58.6% in June 1990. The number of overdue PMs has declined and has been kept low for the past several months. In the October 1989 SALP report, the NRC noted that the number of overdue PMs had dropped from approximately 300 to 32 in July 1989. Since that time, the average number of overdue PMs per month has been less than 20 through May 1990.

o Predictive and Reliability Centered Maintenance

FPL is aggressively pursuing predictive and Reliability Centered Maintenance (RCM) programs at Turkey Point. An additional maintenance technician for thermography has been hired for the predictive maintenance group. The thermography program is being upgraded to monitor both electrical and thermal high-energy connections (where line-of-sight access is available). In addition, the oil sampling and analysis program is being upgraded by adding on site the capability to perform ferrography, which allows analysis of particles in lubricating oil to determine equipment condition. Performing this process on site permits the analysis of radioactive (or potentially radioactive) oil samples.

With respect to reliability centered maintenance, in February 1990 FPL established a new RCM section within the planned maintenance group, consisting of four maintenance analyzers and a lead engineer. Items are selected for RCM analysis based upon their impact on plant availability and efficiency. Once analysis of how equipment reliability can be improved is completed, an RCM package is issued describing the results of the analysis and recommending programmatic and/or hardware changes to achieve better reliability. To date, the RCM section has completed two RCM packages, one for the Pressurizer Spray Valves and the other on the condenser tube cleaning system (the condenser tube cleaning RCM package is still under review for final approval). Modifications to this equipment and changes to equipment maintenance programs are being implemented in response to the results of these analyses.

The RCM group is currently performing RCM analyses for the reactor coolant pumps, the pressurizer heaters and controls, and the rod drive system.

o Maintenance Overtime Rates (p.14)

At the beginning of 1989, new controls to govern maintenance overtime were established, including pre-approval of overtime for Maintenance personnel

by responsible supervisors and tracking and reconciliation of overtime against overtime goals. As a result of these controls and other efforts to improve staffing and reduce overtime, overtime rates have generally declined since the beginning of 1989. Although overtime rates increased due to activities associated with the Unit 3 outage during the first four months of 1990, they resumed their declining trend at the end of April. Since the beginning of 1989, Maintenance overtime rates have been as follows:

	<u>1st Half 1989</u>	<u>2nd Half 1989</u>	<u>1st 4 Months 1990</u>	<u>May 1990</u>	<u>June 1990</u>
Mechanical:	36%	18%	44%	19%	12%
Electrical:	44%	33%	55%	26%	15%
I&C:	43%	26%	43%	20%	12%
All Maintenance: (Includes Reliability Group)	38%	22%	44%	20%	12%

o Maintenance Turnover Rates (p.14)

Turnover rates (including interdepartmental transfers) have steadily improved since the beginning of 1989:

	<u>1st Half 1989</u>	<u>2nd Half 1989</u>	<u>1st 5 Months 1990</u>
Mechanical:	15.8%	5.5%	7.0%
Electrical:	8.2%	6.6%	1.6%
I&C:	23.2%	9.6%	7.1%
All Maintenance: (Includes Reliability Group)	15.4%	6.3%	5.7%

o Supervisory Involvement in Maintenance Activities (p. 16)

FPL has sought to involve supervisors and managers more directly in field activities in order to make management expectations clear to maintenance personnel and reinforce those expectations. As noted in the report of the NRC's followup to the Maintenance Team Inspection (Inspection Report Nos. 50-250/89-48 and 50-251/89-48), there has been additional emphasis placed on walkdowns and work observation by management and supervisors. Supervisors have been instructed to spend more time observing and supporting work, and, along with the system engineers and management personnel, have been performing walkdowns to assure that plant equipment is properly maintained.

o Corrective Maintenance Backlog (p.15)

The corrective maintenance backlog was 1056 Plant Work Orders (PWOs) at the end of July 1989. As a result of efforts during the summer of 1989, the backlog was reduced to a low of 708 PWOs on September 15, 1989. The

backlog was 965 PWOs as of July 3, 1990. The increase in the backlog is largely attributable to the systematic material condition upgrade program for Turkey Point which was established in October 1989. As a result of this program (see pp. 7-8 above) and activities associated with the Unit 3 refueling outage in February-May 1990, larger numbers of CM PWOs were issued.

It should be noted that the increase in the backlog since September 1989 did not result from a decrease in the number of PWOs completed. During the period from September 1989 - May 1990, the total number of CM PWOs worked exceeded the number written by more than 400 (the reason the backlog nonetheless increased is that many of the CM PWOs worked during this period are not of the type that are counted when calculating the backlog per INPO guidelines - e.g., outage CM PWOs). Also, the percentage of CM PWOs more than 90 days old has been below 50% (the INPO target level) since the beginning of April 1990 and has not exceeded 54% during this SALP period.

o Control Room Deficiency Tags (pp. 15-16)

Since 1988, FPL has been engaged in an action plan to reduce the number of control room deficiencies. In December 1988, the number of control room deficiency tags ("green tags") was 115. As of July 31, 1989, the number had been reduced to 95, and was at 47 as of July 11, 1990.

o Spare Parts (pp.15-16, 18)

The procurement process and the availability of spare parts have shown continued improvement during this SALP period:

- Average spare parts procurement times have decreased from 111.5 days during September 1988 to March 1989 to 76.4 days during December 1989 to June 1990.
- The number of spare parts items below minimum stock levels (not including newly listed items) has been reduced from 3284 on July 31, 1989 to 2432 on June 1, 1990, a 26% decrease. During this same period, nearly 1300 newly listed items have been added to stores.
- Since June 1989 more than 724 dormant/obsolete spare parts line items have been eliminated from stores.

Despite these improvements, the number of CM PWOs on hold awaiting parts has increased from 115 as of August 1, 1989 to 179 as of June 14, 1990. This increase is attributable at least in part to the increased number of CM PWOs that have been written in recent months in connection with material upgrade efforts and the Unit 3 refueling outage. (see pp. 10-11 above).

o Quality of Procedures (pp.16-17)

The number of On-The-Spot-Changes (OTSC's) to maintenance procedures has declined substantially since the last SALP period. During January - July

1989, there were an average of 38.3 OTSCs per month. During August 1989 - May 1990, there have been an average of 21.5 OTSCs per month, a decrease of 44%.

o Tracking and Analysis of Causes for Rework (p.17)

In September 1989, a rework Maintenance Engineer position was established within each discipline in the Turkey Point Maintenance Department. These engineers are responsible for analyzing causes of recurring equipment problems, particularly those involving rework, and identifying ways to prevent their repetition. Engineers have been assigned to fill each of these positions and a revision to the Turkey Point root cause analysis procedure to reflect this change has been implemented. A rework performance indicator has been developed and has been incorporated into the Maintenance Department's monthly performance indicator report since September 1989.

Policy and procedure changes have also been made to improve root cause analysis and corrective action so that recurring problems are minimized. In December 1989, FPL issued corporate nuclear policy NP-700, which requires FPL's nuclear organization (including the Turkey Point Maintenance Department) to implement a process to identify the root cause and corrective actions to prevent repetitive equipment failure. Pursuant to this policy, reports are prepared identifying the problem, describing and analyzing its causes, and prescribing actions to correct the problems and prevent recurrence. Additionally, in October 1989, Turkey Point procedure ADM-509, "Root Cause Analysis", was revised to specifically identify the individuals and supervisors responsible for root cause analysis tasks. Also, a procedure (TDI-SE-004) providing detailed guidance to system engineers on how to perform root cause analysis was issued in October 1989. Procedure TDI-SE-004 has been authorized for use by the maintenance department. Recent significant root cause analyses performed by the Maintenance department and resulting improvements include:

- Repetitive spurious trips of the Charging Pumps were addressed by relocation of the Charging Pump Oil Pressure Trip Switch to a low vibration area and the installation of a trip switch with a more appropriate range. Since these changes were completed in January 1990, there have been no further trips due to spurious vibration signals.
- High failure rate (approximately one failure every three months) of the Process Radiation Monitoring System (PRMs) channel 15 detectors were corrected by the design and installation of detectors with tube shielding, improved sealing ability, tube supports and connectors. Since these measures were taken in May 1989, no failures of the detectors have occurred.
- Failures of the Steam Generator Feedwater Pump 3B were corrected after notifying the vendor of a generic welding problem and the revision of receipt and inspection criteria. Similar problems were corrected in other Steam Generator Feedwater Pumps at Turkey Point and St. Lucie.

o In Service Testing (p.17)

The procedures governing IST for valve stroke times have been revised to specify the necessary corrective actions to be taken when stroke time acceptance criteria are not satisfied. Plant procedures have also been revised to provide correct pressurizer safety valve ring settings. At the June 22, 1990 exit for NRC Inspection No. 50-250/90-22, 50-251/90-22 on In Service Testing, the NRC identified no violations, deviations or follow-up items. Several complimentary observations were made regarding the current IST program and its implementation. Also, the inspectors indicated that items 89-07-01 through 89-07-06 (some of which were discussed in the last SALP) would be closed.

IV. EMERGENCY PREPAREDNESS

On November 20, 1989, FPL successfully concluded an emergency exercise involving the Turkey Point onsite and offsite emergency organizations, full participation by Dade and Monroe County officials, and a limited response by the State of Florida. No violations or deviations were identified during the course of the NRC inspection of this exercise. The NRC concluded that FPL had "fully demonstrated the capability of implementing its Emergency Plan and procedures to provide for the health and safety of the public in a radiological emergency." NRC Inspection Report No. 50-250/89-50, 50-251/89-50, p. 2.

FPL has also taken action to address concerns raised by the NRC during the October 1989 SALP and the November 1989 emergency exercise, including:

o Declaration and Reporting of Short-Term Emergency Conditions (p.18)

The emergency procedures have been revised to specifically require declaration and reporting of short-lived emergency events that are terminated prior to the time they are required to be reported. These changes have been emphasized during training on the emergency procedures.

o Emergency Preparedness Task Training

Emergency Preparedness is performing an assessment of emergency training to ensure that sufficient guidance is provided for common tasks for support personnel (such as Technical Support, Security, Health Physics technicians, etc.). This review is scheduled to be completed in August 1990. Additional procedural guidance and retraining on emergency tasks is being prepared. For example, Security personnel are undergoing respirator training (IFI-50-250, 251/89-50-03) and procedures will be revised to define the function and responsibilities of the technical support groups (IFI-50-250, 251/89-50-02).

o Declaration of a General Emergency (IFI-50-250, 251/89-50-01)

The importance of the Emergency Coordinator's decision to declare the appropriate emergency classification, as well as the proper method for making the declaration, was reviewed during the critique conducted by FPL (which was attended by the Emergency Coordinator) following the 1989 emergency exercise. This issue will also be reviewed during the pre-exercise briefing for the 1990 emergency exercise. These actions will assure that emergency declarations are made in the proper manner.

V. SECURITY

As recognized in the October 1989 SALP report, FPL management has focused considerable effort on improving security at Turkey Point, including the appointment of a new Security Superintendent on September 1, 1989. The results of these efforts have been evident during the current SALP period. The number of cited violations in the area of security has declined from 9 during the previous SALP period to 1 during the first 10 months of the current SALP period. Recent NRC inspections have found the Turkey Point Security program and its implementation to be generally satisfactory (See, e.g., Inspection Report Nos. 50-250/90-17 and 50-251/90-17). FPL is also aggressively implementing security system hardware upgrades at Turkey Point, which will result in modern, more automated security at the plant. Performance in specific areas has been as follows:

o Security Upgrades (p. 20)

FPL is making major upgrades to the Turkey Point security system. These upgrades include:

- New protected area perimeter fences, and exclusion of the fossil units from the protected area
- A new electronic intrusion detection system.
- Closed circuit television cameras to replace existing manned defensive positions (towers).
- A new centralized access facility.

Nearly all of the engineering work and scheduling for the upgrades has been completed, and construction work on a number of the upgrades has been initiated. The new bridge is complete and roadway modifications to accommodate the new protected area perimeter are partially complete. The new access control/security administrative building will soon be finished and is expected to be ready for occupancy in August 1990. Installation of the remaining upgrades and startup testing to verify their operability are expected to be complete by December 1991.

o Access to Vital Areas/Compensatory Posts (p.20)

FPL has taken a number of actions to better control access to vital areas. These include the initiation of a preventive maintenance program for vital area doors that experience high traffic or have a history of problems, and the elimination of most compensatory posts. Unsecured vital area doors have been tracked as an indicator since October 1989 (the doors alarm when left unsecured for more than a specified period.) To reduce the number of unsecured doors, FPL is installing door closers on vital area doors that do not have them, has used the site video information system to remind personnel to make sure that vital area doors are closed behind them, and is developing a training video on the importance of assuring that vital area doors are secured. This video is scheduled to be ready for use by July 31, 1990. In addition, a disciplinary policy for individuals who repeatedly leave doors unsecured is under development and is scheduled to be issued by July 31, 1990.

FPL has also focused on maintaining equipment used to control access to vital areas in proper working order. As a result, compensatory post hours due to equipment failures have been reduced from an average of 580 hours per month during January-July 1989 to 203.5 per month during August 1989 - May 1990. This decrease is especially significant considering the amount of work on security equipment that is taking place in conjunction with the security upgrades.

o Adequacy of Vital Area Barriers (p. 20)

As part of the Security Upgrades being implemented at Turkey Point, the vital area barriers are being upgraded from chain-link fencing to heavy steel grating. Installation of the new barriers is scheduled to be completed in late 1991.

o Control of Safeguards Information (p.20)

In October 1989 a controlled document was determined to be missing from one of the Turkey Point security posts. In response to this event, immediate action was taken to assure that the missing information would not be useful to potential intruders. In addition, several actions were taken to improve control over safeguards documents, including:

- A safeguards training videotape covering the importance of and methods for controlling safeguards information was developed and viewed by security force personnel in April 1990. This tape was incorporated into the Turkey Point General Employee Training (GET) in May 1990.
- A requirement has been established for sign-out of safeguards information from a repository or storage location. These signouts are recorded on safeguards document control sheets.
- Inventory sheets listing the safeguards documents at each location have been revised to assure that each document has a separate distinguishing number.

- The safeguards material at each post has been limited to those documents necessary for post function.
- The safeguards procedure was revised in January 1990 to designate a security safeguards controller within each site department, a site safeguards coordinator, and to include more stringent requirements for the control of safeguards information.

Since the October 22, 1989 event, no instances of lost, missing or stolen safeguards information have been identified.

o Security Shift Level Supervision (p.21)

Since October 1988, five FPL security shift specialists have been on shift to provide FPL management supervision over contractor security activities on all shifts. A number of other actions were also taken late in the last SALP period and during the current SALP period to improve the quality of security contractor supervision, including:

1. In May 1989, security Sergeants, Lieutenants, and Captains were provided with supervisory skills training, including training on:
 - supervisory style development
 - motivating personnel
 - management of priorities
 - client/contractor relations
 - constructive disciplinary procedures
 - professional conduct/equal employment opportunities
 Based on the results of this training and feedback from participants, a training course on these topics for key security management personnel was developed and conducted on September 6-8, 1989.
2. On April 13, 1989, a new promotion policy was developed which specifies the eligibility and proficiency requirements for promotion to each level of security supervision. When a supervisory position becomes available, an interview is conducted during which a promotion board poses a series of questions to each eligible candidate seeking the position. This promotion policy was further expanded to include a written test.
3. On June 1, 1989, instructions delineating the responsibilities of groups within the security organization were issued to assure that personnel fully understand the functions of each group.
4. A series of self-study and classroom training courses is being developed to prepare security personnel for supervisory positions. Prior to becoming eligible for promotion to sergeant, lieutenant or captain, an individual must complete certain prescribed courses, including courses on leadership as well as specific courses dealing with the particular responsibilities of each level of supervision. The course for sergeant positions has been developed and issued; the courses for lieutenants and captains is expected to be ready by the end of 1990.

o Loggable Security Information Reports (p. 20)

The number of loggable security information reports (SIRs) has remained fairly steady between 47 and 60 since October 1989, with the exception of February 1989, when there were 77 loggable SIRs. In recent months approximately 28 to 36 (or about 60%) of loggable SIRs each month have been attributable to problems with unsecured doors (door alarm following failure of door to be closed properly). The February number is attributable to the commencement of the Unit 3 outage when large numbers of contractors and other personnel began requiring access to vital areas to perform outage work. FPL began systematically adding door closers to eliminate this problem in June 1990. This effort is expected to be completed in conjunction with the Security Upgrades described below. During June 1990, there were only 13 unsecured door events, and the total number of loggable SIRs was 36. Other recent actions to reduce the number of unsecured door incidents are described on p.15 above.

o Maintenance of Security Hardware

A maintenance crew has been dedicated to servicing security equipment in order to reduce equipment down time and the resulting compensatory posts. Also, security maintenance items that require compensatory measures have been upgraded from priority level A2, which allows 48 hours for work to be performed, to priority level A1, which requires that work be performed within 24 hours. The success of this approach in keeping security equipment available is reflected in the lower number of compensatory post hours due to equipment failure (see p. 15 above).

o Security Force Turnover (p. 20)

In January 1989, a survey was performed of security personnel to determine the reasons for excessive turnover. Survey results indicated the following as possible causes:

- Perceived supervisory insensitivity
- Lack of a clear promotion policy
- High overtime

The following actions have been taken to address these concerns:

- Supervisors were given training on personnel handling and sensitivity to employee concerns, which was completed in early May 1989. In addition, a security team was formed on July 6, 1989 which met weekly to address security force members concerns. The team included elected security force members from each shift, a contractor shift supervisor, management representative, and an FPL security shift specialist. Minutes of each meeting were kept and each concern was documented and the reasoning behind the disposition of the concern was provided.
- The security force contract was changed effective July 24, 1989 to provide for increased medical, dental, and retirement benefits. The

new contract also provides financial incentives for remaining with the security force and incentive bonuses for outstanding performance. Performance ratings are based upon personnel errors leading to loggable or reportable events, lost time due to accidents, attendance, and disciplinary actions.

- As noted on page 16 above, a new security contractor promotion policy was issued on April 13, 1989 which establishes clear promotion eligibility criteria and standards for choosing individuals to be promoted.
- Security overtime levels have been kept low during the current SALP period. Overtime has not exceeded 20% during any month since May 1989, and the average overtime since July 31, 1989 has been below 12%. Overtime levels rose as high as 19.8% during the recent Unit 3 refueling outage, but have begun to decline to more normal levels since the outage was completed.

As a result of these actions, turnover among security force personnel has dropped substantially, from an average annual rate of 32% during January - July 1989 to an average annual rate of 12% during August 1989 - May 1990.

o Attentiveness to Duty (p.20)

During the last SALP period, NRC violations were issued based upon sleeping or inattentive security personnel. No instances of inattentive security personnel on post have been identified during this SALP period.

VI ENGINEERING/TECHNICAL SUPPORT/TRAINING

A. Engineering

There have been several improvements in the Engineering area during this SALP period. As has been previously discussed in meetings with the NRC, Engineering's present major challenge involves completion of engineering work for the Emergency Power System (EPS) upgrades which will be implemented during the dual-unit outage, scheduled to start in November 1990. As we informed the NRC on May 16, 1990, we are currently meeting our overall Engineering schedule for this task.

Actions to address the concerns noted in the October 1989 SALP report and to further improve performance in Engineering include:

o Drawing Deficiency and Backlog Reduction (p.22)

In the October 19, 1989 SALP report, the NRC noted that FPL had implemented a comprehensive corrective action plan for updating plant drawings and that implementation of the plan was adequate. Satisfactory progress continues to be made. In February 1989, the backlog was over 28,000 drawing discrepancies. By July 31, 1989 the backlog had been reduced to approximately 22,000 and by mid-June 1990 the backlog was approximately

15,000. Despite the increased drawing change workload due to the Unit 3 outage, the decrease in the backlog of drawing discrepancies continues to closely match our forecast, which contemplates reduction of the backlog to about 6000 by the end of 1991 and elimination of the backlog by the end of 1992.

o Design Related ALARA Training (p.22)

Engineering Quality Instruction (QI) JPN-QI-3.13, "ALARA Design Requirements", was issued in January, 1990. This QI requires screening of design changes for potential impact on personnel radiation exposure. It specifies the ALARA design considerations to be examined for those design changes determined to have the potential for significant personnel radiation exposure. Training on QI JPN-QI-3.13 for appropriate FPL and contract personnel and selected Architect/Engineer employees was completed in February, 1990, and has been incorporated into initial indoctrination training for appropriate personnel.

o Changes Needed for Proper Implementation of Design Packages and Design Calculations (p.23)

The number of changes made to design packages during implementation has been reduced since the end of the last SALP period. During that period, there was an average of 8.0 Change Review Notices (CRN's) per design change package. For the period August 1, 1989 through early June 1990, there was an average of 4.6 CRN's per design change package, a 43% decrease. (These numbers do not include the extensive design change packages necessary for the security and Emergency Power System upgrades, which are being handled as separate projects.)

To enhance Design Calculation programs, FPL's major engineering contractors have upgraded their procedures, provided training on the revised procedures, and re-emphasized the importance of procedural compliance and attention to detail. For its own design work, FPL Nuclear Engineering has issued a new, more detailed, procedure, JPN-QI-6.5, which replaces a procedure formerly used for both nuclear and fossil plant calculations. These corrective actions also address issues relating to certain calculational errors identified during the NRC design validation inspection during September and October of 1989.

To improve the overall quality of engineering work associated with plant modifications, FPL Nuclear Engineering has also implemented a program of technical assessments of work performed by the architect/engineers; these assessments are performed primarily by the FPL engineering discipline managers. Under the program, the architect/engineers are periodically graded on the technical quality of their work and any identified calculational deficiencies are an input to these grades. Also, QA audits of the major architect/engineers have increased in frequency and Nuclear Engineering is supporting these audits with senior personnel. One of the results of these efforts has been the initiation of a calculation improvement program by FPL's major architect/engineering contractors.

o Post-Modification Testing Requirements (p.23)

The inconsistency in post modification testing found during the Maintenance Team Inspection was based on NRC review of Design Equivalent Engineering Packages (DEEPs), which are relatively simple because they essentially replace old components with "equivalent" new ones. In general, DEEPs only require routine post maintenance testing to demonstrate adequate function and operability. More complex modifications are accomplished by means of Plant Change Modifications (PC/Ms). To clarify the use of these mechanisms and associated post-modification testing, Engineering has issued quality instruction QI-3.7. During the follow-up maintenance team inspection (50/250 89-48 and 50/251 89-48) the inspectors reviewed QI-3.7 and several examples of PC/Ms for post-modification testing requirements and found no deficiencies.

o Replacement Parts Procurement and Engineering Evaluation

Nuclear Engineering has issued a series of Quality Instructions (QIs) which provide improved guidance for engineering personnel concerning their responsibilities in the procurement and evaluation of spare and replacement items. This action has helped expedite the engineering evaluation of replacement items. Included in this series of QIs is an enhanced Commercial Grade Dedication Program.

o Handling of Requests for Engineering Assistance (REAs)

Enhanced communications (frequent planning meetings) between outage Planning, Technical Staff and Engineering have greatly improved REA performance within Engineering, particularly for outage tasks. As a result of these efforts, Engineering was able to release 97% of outage related modifications 60 days or more prior to the recent Unit 3 outage, in accordance with the INPO Good Practice which suggests a target of 95%. Similar planning is occurring in preparation for the dual unit outage associated with the EPS and Security Upgrades, and Engineering expects to meet the 95% target for both units.

B. Technical Support

o System Engineer Program (p.22)

The need to strengthen the System Engineer program was originally identified in the Independent Management Appraisal (IMA). The October 19, 1989 SALP mentioned that the areas of weakness in the System Engineer program (training, changes in system assignments, system walkdowns, accountabilities of System Engineers, and other "programmatic and administrative weaknesses") had been addressed by the licensee and that action to correct these problems had been scheduled for completion. These areas have been addressed as noted in the IMA Inspection Report (50-250/89-44 and 50-251/89-44), which contained only one System Engineer follow-up

item (regarding the completion of training by the system engineers). At the time of the IMA inspection (October 1989), all System Engineers had started the training program. The System Engineers on site as of October 1989 have now completed courses providing comprehensive training on 10 CFR 50.59 Safety Evaluations, System Reliability, Root Cause Analysis, System Integration, Configuration Control and other topics. The System Engineers were certified by an Oral Board that tested their knowledge on assigned systems. This process was completed in late May 1990. Similar training is being provided to new System Engineers as they are hired and assigned responsibility under the program.

o Effectiveness of System Engineers

The IMA inspection report also noted that the primary goal for the System Engineers in 1989 was to reduce system LCO hours below target values and that "LCO hours for the monitored systems was greatly reduced in 1989." Through May 31, 1990, the LCO hour levels continue to be significantly lower than during early 1989. For example, the 12 month running average of LCO time for the Unit 3 Component Cooling Water (CCW) System was reduced from approximately .4 LCO hrs/hr of Unit operation in July of 1989 to .15 LCO hrs/hr of Unit operation in February of 1990. This resulted from the CCW System Engineer performing Root Cause Analysis and developing a chemical injection system to reduce the fouling rate of CCW Heat Exchangers. The total number of LCO hours per hour of operation for Technical Specifications systems has declined significantly since the end of the last SALP period. The twelve month rolling average has been lowered from approximately 1.4 to .81 (Unit 3) and from 1.2 to .84 (Unit 4).

Another example that demonstrates the effectiveness of the System Engineering program is the reduction in unavailability of the Emergency Diesel Generators (EDG). For example, the 12 month running average of EDG B unavailability was reduced from .0423 (1st Quarter of 1989) to .0197 (1st Quarter of 1990). For the A EDG, for the same period of time, the unavailability was reduced from .0284 to .0160.

C. Training

During the last SALP period, the NRC described FPL's training program as having "a strong initial licensing program and a weak requalification training program. Additionally, the plant simulator was identified as a high quality training resource which provided accurate simulation of the plant hardware and responses." (p.23). FPL has taken action to improve its requalification training program, as evidenced by the 92% pass rate (45 of 49) on the February-April 1990 annual requalification examination series, and has maintained good performance in other areas. Specific actions and results include:

o Requalification Training Program (pp.23-24)

Several improvements have been made to the requalification training program since the spring of 1989, including:

- The Licensed Operator Training Staff and licensed operators validated the Emergency Operating Procedures (EOPs) both on paper and on the simulator following major revisions to these procedures. This validation increased simulator training time and familiarity with the EOPs. EOP Job Performance Measures have been developed and validated and are used to evaluate operator performance. In addition, the QA department and General Physics, an FPL contractor, audited the EOPs against the FPL Turkey Point EOP program and NRC inspection criteria. The findings from these audits are being incorporated into the EOPs.
- The amount of simulator practice time was increased by 50% (from 60 to more than 90 hours) and simulator exercises now include complex scenarios, with multiple and compounding malfunctions during the scenario. The extra simulator training time provides additional opportunities for operators to practice required immediate actions. During the coming year, FPL is planning to shift some of its emphasis to the performance of normal evolutions based on input/feedback from Operations and Plant Management.
- In-house operator training tests include the use of the "open-reference" format that is used during requalification tests administered by the NRC.
- Training materials have been upgraded and unnecessary or redundant material has been eliminated, thus providing a better focus on important topics.
- Procedure 20101, "Duties of Emergency Coordinator" has been revised to provide improved guidance on emergency plan implementation. Classroom instruction on emergency plan implementation has been made more extensive, and procedure 20101 is used on a regular basis during simulator training for classifying simulated emergencies.
- Third party evaluations of the requalification training program have been performed by Westinghouse and INPO.
- Operations management now reviews and approves the content of Licensed Operator Training Schedules to assure that requalification training adequately meets operator needs. Operations management also participates in Training Review Committee meetings, which are held on a regular basis to discuss concerns and areas for improvement in training.
- Procedures AP-300, AP-301, and AP-311 have been revised to require that senior plant management (Operations Supervisor or above) participate in simulator evaluations.
- To assure that adequate training staff is available, the number of

contractor training instructors has been temporarily increased. Permanent personnel have been hired to supplement the training staff; 12 of these individuals are currently in training and are expected to receive SRO licenses in December 1990. FPL expects to phase out the contractor instructors in mid-1991.

These actions have produced positive results. One hundred percent (11 of 11) of the individuals who took the NRC requalification examination during the week of May 30, 1989 passed. More recently, during February - April 1990, 45 of 49 (92%) individuals passed the annual requalification examination on the first attempt. During this time period, the NRC specifically observed the examination of 16 operators of whom 14 passed. This 87.5% pass rate exceeds the NRC criteria for a satisfactory requalification program. Also, the NRC audit team observed a crew performing seven different scenarios during a January 1990 EOP team inspection and had no adverse comments on the quality of the scenarios.

o Quality of Training Instructors (p.24)

Actions taken to improve the quality of training instructors include:

- A goal has been set to have 80% of all FPL licensed operator instructors hold SRO licenses by 1992. Currently, 6 or 33% hold these licenses. Approximately 12 personnel hired to become instructors are expected to receive their SRO licenses in December 1990.
- Simulator instructors have been provided with additional training in student critique and evaluation methods.
- Hiring standards for training instructors have been revised to present instructor qualification and training requirements in more objective terms and to define the specific job and task elements to be included in instructor training.
- Instructors are required to demonstrate their instructional and technical competence at least annually by means of formal, structured instructor evaluations with written criteria and provisions for student feedback. Results of these evaluations are systematically evaluated to determine whether any remedial instructor training is required.

o Initial RO and SRO License Training

FPL's initial licensing training programs continued to achieve good performance during this SALP period. A group of 31 candidates achieved a 100% pass rate on the NRC Generic Fundamentals Examination (GFE) held in October 1989, 4 of 4 candidates passed the GFE in February 1990, and 9 of 9 (100%) candidates passed NRC initial and SRO upgrade examinations held in November 1989. To assure the adequacy of training of this group, prior to the examination FPL retained a contractor to evaluate their readiness for the examination. FPL plans to have a similar evaluation performed prior to the examinations scheduled for December 1990.

o Re-Accreditation

FPL's training programs for Non Licensed Operator, Reactor Operator, Senior Reactor Operator/Shift Supervisor, Licensed Operator Re-qualification, Shift Technical Advisor and Health Physics were re-accredited by the National Nuclear Accrediting Board on April 26, 1990.

o Other Training

Other training areas were not neglected, with new programs implemented for System Engineer training, Fitness for Duty training and New Employee training. Maintenance and Specialty programs are being revalidated with significant improvements being made. For calendar year 1989, approximately 275 people completed initial training, approximately 420 people completed continuing training for the year and over 2600 completed Fitness for Duty training. The approximately 275 initially trained included a 32 member Instrumentation and Control Specialist class and a 25 member Health Physics Technician class.

VII. SAFETY ASSESSMENT/QUALITY VERIFICATION

Several improvements have been made in the area of safety assessment and quality verification during the current SALP period. In recent months the Quality assurance (QA) and Quality Control (QC) groups have undergone a substantial reorganization in order to better centralize and coordinate their activities. This reorganization includes:

- On January 22, 1990 a new corporate Vice President for Nuclear Assurance was hired who has more than 30 years of QA/QC experience.
- As of April 2, 1990, the site QC organization no longer reports to the Plant Manager, but has been made part of the site QA organization which reports to the Vice President of Nuclear Assurance.
- Also as of April 2, 1990, the construction QC organization, which formerly reported to the non-nuclear construction group within FPL, has been made a part of the site QA organization, which reports to the Vice President for Nuclear Assurance.

The site QA organization consists of a Performance Monitoring and Regulatory Performance Group. Both execute aggressive performance based audits and contribute significantly to the Plant's overall self-assessment efforts. The QA organization has received favorable mention in several NRC inspection reports, and QA audit and monitoring activities have resulted in six (6) documented non-cited NRC violations (NCVs) during this SALP period.

The formation of a new organization, Nuclear Safety Speakout, reporting to the Vice President of Nuclear Assurance, was announced on January 2,

1990. This organization became fully operational at Turkey Point plant in April of 1990. The objective of the Nuclear Safety Speakout Program is to improve the quality of the nuclear sites by providing every employee with an opportunity to express concerns related to nuclear safety or quality without fear of harassment, intimidation, or retaliation. These concerns are investigated, and feedback is provided to the originator, if practicable. Positive results and comments were received during a recent NRC inspection (No. 50-250/9020 and 50-251/90-20).

Licensing has also revised its responsibilities to focus licensing activities at the plant site. A Superintendent of Plant Licensing who reports to the Turkey Point Site Vice President has been appointed and additional site licensing resources have been provided (two additional licensing personnel have been hired or assigned to Turkey Point). As this organization matures, even better performance should be achieved because of greater ease of communication with other site departments and the ability to communicate directly with the NRC concerning plant issues.

FPL has also taken a number of more specific actions to improve performance in the area of Safety Assessment/Quality Verification, including:

o Self Assessment

There have been many notable self assessment activities during this SALP period, several of which were favorably mentioned in various NRC reports. Significant assessments have included:

- To further supplement the assessments by QA and others, site management formed an independent team to review the implementation and completion of IMA commitments. Although the IMA self assessment team did find some weaknesses in implementation and documentation, it concluded that in general the plant staff had properly completed the IMA. During October 1989, an NRC inspection team reviewed FPL's implementation of the IMA. The NRC inspection team's findings (Inspection Report Nos. 50-250/89-44 and 50-251/89-44) included no violations or deviations and only two follow-up items.
- A similar effort was initiated by site management, utilizing several of the same personnel for the review team, to evaluate how well FPL had responded to concerns identified in the NRC's December 1988 maintenance Team Inspection. Following this assessment, the NRC conducted a followup maintenance team inspection in October - November 1989 (see Inspection Report Nos. 50-250/89-48 and 50-251/89-48). The NRC inspection report noted "Significant improvement was observed in all areas." This report also noted "[a]n increased, and apparently more effective, QC staff" which is one aspect of our improved ability to assess our performance.
- The NRC Fire Protection (Appendix R) team inspection (Inspection Report Nos. 50-250/89-37 and 50-251/89-37) noted the following strength: "[t]he licensee's self assessment QA audits, although completed only just prior to the NRC audit, were adequate enough to provide the licensee assurance

that their Appendix R modification program was complete and satisfactory."

- The NRC inspection of FPL's implementation of the PEP program (Inspection Report Nos. 50-250/89-41 and 50-251/89-41) specifically covered various aspects of QA/QC and there were no violations or deviations found. The report noted that many counter productive aspects had been removed from the programs and mentioned the hiring of qualified QA personnel, SRO training of QA personnel, and diversification of inspection activities as positive items.
- The NRC's January 1990 EOP audit noted that FPL had done both QA and outside specialist (contractor) audits of the EOPs which "identified the (NRC's) concerns noted above with the EOP revision program." These audits also were listed by the NRC as one example of Turkey Point's "notable" management responsiveness to the upgrading of EOPs.
- In March of 1990, an NRC inspection on Quality Verification functions was performed which identified no violations or deviations. One significant point in the report (Inspection Report Nos. 50-250/90-07 and 50-251/90-07) is that FPL conducted audits based on the NRC methodology used for SSFIs. The inspector reviewed three of our Vertical Slice audit reports to determine if we were meeting the Vertical Slice audit (and the SSFI) objectives in these audits and found no deficiencies.
- In addition to the normal INPO Evaluation of June 4-15, 1990, FPL requested INPO to perform Assistance Visits in the areas of Maintenance, Motor Operated Valves and the Human Performance Enhancement System. Also during this SALP period, Turkey Point Management directed performance of self assessments in the areas of Chemistry, Organization and Administration, the Operating Experience Feedback program, Operations, Maintenance and Emergency Planning.
- Commencing in April 1989, FPL had Westinghouse conduct periodic independent evaluations for the effectiveness of the operating shift. This was a commitment made upon eliminating the continuous Management on Shift (MOS) program. All four (approximately quarterly) evaluations noted continued improvement in operations, coordination and cooperation within the plant staff, and plant material condition. (These evaluations are discussed in more detail on pp. 1 above.)

o Safety Assessment

Several actions have been taken during the past year to strengthen the effectiveness of the Plant Nuclear Safety Committee (PNSC). A subcommittee has been assigned to perform additional reviews of both safety significant material and some of the routine non safety significant items. This makes the review process more thorough and allows the full PNSC to devote increased attention to safety significant issues. The PNSC members and their approved alternates have received formal training on 10 CFR 50.59,

the PNSC procedures, and Technical Specification requirements. To enhance the review of facility operations, periodic performance indicators are reviewed by the PNSC. The PNSC assigns action items based on trends in these indicators and in other areas where improvement is deemed to be needed. These action items are tracked until closed. In preparation for the upcoming Emergency Power System and the associated dual - unit outage, a Joint Test Group (JTG) has been formed as a subcommittee of the PNSC. The group will enhance the review of the numerous pre-operational test procedures needed in order to return the Turkey Point Units to service following the outage. The Revised Technical Specifications that have been submitted to the NRC include changes to the types of items that must be reviewed by the PNSC. Once implemented, these changes will result in better focus by the PNSC on those issues having safety significance.

FPL has also formulated plans to upgrade the Corporate Nuclear Review Board (CNRB). These actions include the appointment of a full time CNRB chairman, changing the membership of the CNRB to include additional nuclear executives, the selection of an outside CNRB member with significant experience on similar boards at other nuclear utilities, and having the Safety Evaluation Group (SEG) chairman at Turkey Point (as well as at St. Lucie) report to the chairman of the CNRB. These enhancements are expected to be implemented during the summer of 1990.

o Root Cause Analysis/Recurring Problems (p.25)

Several actions have been taken to improve the recognition and assessment of problems with similar root causes and to eliminate recurring problems. In December 1989, a new Nuclear Policy, NP-700, Problem Reporting, was issued defining a broad scope integrated program to identify and correct problems so as to prevent their recurrence. This policy directs that root cause analyses be performed not only for events such as automatic reactor trips, safety injection system actuations, containment integrity problems, and serious personnel injuries, but also for other items, such as:

- Repetitive equipment failures.
- Failure of engineered safeguards features to operate properly when called upon.
- Significant breakdown in QA (e.g., missed hold points; failure to perform required independent verifications; failure to follow verbatim compliance with written procedures).
- Improper valve lineups.
- Systematic failure to perform tasks consistent with requirements of administrative and/or procedural written programs.
- Failures to the reactor coolant system pressure boundary.
- Breakdowns in radiological control resulting in either excess exposure of personnel to ionizing radiation; or personnel violating, without proper authority, contaminated area boundaries; or failure to provide required notifications to the NRC of radiological problems in a timely manner.
- Breakdown in material control where there are mixups and/or loss of proper identity.
- Others as specifically directed by management.



Pursuant to this policy, reports are prepared identifying the problem, describing and analyzing its causes, and prescribing action to correct the problem and prevent its recurrence.

In addition to NP-700, other procedures have been revised or issued to better assure that appropriate root cause analysis is performed and corrective action to prevent recurrence is defined. For example, in October 1989, Procedure O-ADM-509 was revised to specify the individuals and supervisors responsible for root cause analysis on particular types of problems. In addition, a detailed root cause analysis procedure was issued in October 1989 for use by system engineers. This procedure has also been authorized for use by other site groups (such as maintenance rework engineers) who perform root cause analyses. Also, recently implemented procedure O-ADM-515 requires the tracking and trending of in-house events. Finally, other plant procedures are being revised to assure that the requirements of NP-700 are complied with.

In May 1990 the System Engineer training program, which includes root cause analysis training, was completed for those System Engineers who were on site as of last October. This training is also provided to new System Engineer hires as part of initial training.

These actions are resulting in the application of formal root cause analysis techniques to a broader scope of operational, hardware, and administrative problems, and in higher-quality analysis and corrective/preventive action definition.

o Timeliness of Submittals (p. 26)

In order to ensure timeliness of submittals, a continued emphasis has been placed on tracking of NRC commitments, of which submittals are a subset. In general, FPL believes that during this SALP period submittals have been made on time or, if an extension was necessary, a timely request for an extension was made to the NRC.

With respect to submittals relating to the Emergency Power System (EPS) upgrades, the scope and complexity of the project and associated submittals have taxed both FPL and NRC resources. FPL has assigned several full time engineers to help expedite and support NRC review of the EPS upgrade submittals. These individuals include a project lead for the upgrade licensing effort and two engineers stationed near NRC headquarters in Rockville, Maryland.
