ENCLOSURE

INITIAL SALP REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

REPORT NOS. 50-352/89-99
50-353/89-99

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

UNITS 1 AND 2

ASSESSMENT PERIOD: SEPTEMBER 1, 1989 - OCTOBER 15, 1990

BOARD MEETING DATE: NOVEMBER 28, 1990

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I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) is an integrated Nuclear Regulatory Commission (NRC) staff effort to collect observations and data and to periodically evaluate licensee performance on the basis of this information. The SALP process is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. SALP is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful feedback to the licensee's management to improve the quality and safety of plant operations.

An NRC SALP Board, composed of the staff members listed below, met on November 28, 1990 to review the collection of performance observations and data and to assess the licensee's performance at the Limerick Generating Station. This assessment was conducted in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance."

This report is the NRC's assessment of the licensee's safety performance at the Limerick Generating Station for the period September 1, 1989 through October 15, 1990.

The SALP Board for the Limerick Generating Station assessment consisted of the following individuals:

Chairman:

J. Wiggins, Deputy Director, Division of Reactor Projects, DRP

Members:

R. Cooper, Deputy Director, Division of Radiation Safety and Safeguards, DRSS
L. Bettenhausen, Chief, Operations Branch, Division of Reactor Safety, DRS
L. Doerflein, Chief, Reactor Projects Section 2B, DRP
T. Kenny, Senior Resident Inspector, DRP
W. Butler, Director, Project Directorate I-2, Office of Nuclear Reactor Regulation (NRR)
R. Clark, Project Manager, NRR

Others in Attendance:
R. Bores, Chief, Effluents Radiation Protection Section, DRSS
R. Conte, Chief, Boiling Water Reactor Section, DRS
L. Scholl, Resident Inspector, DRP
M. Evans, Resident Inspector, DRP
A. Lohmeier, Reactor Engineer, DRS
R. McBrearty, Reactor Engineer, DRS
C. Amato, Emergency Preparedness Specialist, DRSS
D. Chawaga, Radiation Specialist, DRSS

II. Summary of Results

II.A Overview

Overall, strong performance continued at Limerick during this assessment period. This is noteworthy due to the challenge of completing the Unit 2 startup testing program and the transition to two unit operation. Performance in each functional area was either maintained at previous levels or showed improvement. It was clear that management involvement and attention to the various functional areas was key to the success in maintaining and improving performance. Areas where management focused attention, such as emergency preparedness and engineering and technical support, showed significant improvement. In contrast, insufficient management attention and oversight contributed to the unsatisfactory licensed operator requalification program.

PECo management continued to demonstrate a commitment to the safe, quality operation of the facility. The strengths noted in previous assessment periods continued, such as active and effective review committees, the assessment center process, the excellent operational record, the outstanding ALARA program, and the very effective, performance-based security program. Some important factors which cut across several functional areas and contribute to the success of Limerick are the aggressive root cause analysis program, the critical self assessment capability, and aggressive management action to correct identified concerns/problems.

The experience this period regarding the operator requalification program and that last period regarding emergency preparedness and, to a lesser extent, engineering and technical support appear as noteworthy anomalies in an otherwise aggressive management approach to operations. For each of these areas, the licensee took prompt, thorough and complete corrective actions once the weaknesses were identified, with significant improvements noted as of the end of this period. However, these anomalies suggest the need for more thorough and focused assessments and reviews of critical operations-supporting programs to detect adverse trends before they result in programmatic problems.

II.B Facility Performance Analysis Summary

Functional Area	Rating, Trend Last Period *	Rating, Trend This Period **
Plant Operations	1	1
Radiological Controls	1	1
Maintenance/Surveillance	1	1
Emergency Preparedness	3	2, Improving
Security and Safeguards	1	1
Engineering/Technical Support	2	2, Improving
Safety Assessment/ Quality Verification	1	1

*Previous Assessment Period: May 1, 1988 through August 31, 1989
**Present Assessment Period: September 1, 1989 through October 15, 1990

III PERFORMANCE ANALYSIS

III.A Plant Operations

III.A.1 Analysis

Plant operations was rated Category 1 for the previous three assessment periods. Activities were observed to be well planned, coordinated and executed. A good safety perspective was evident. Management acted promptly to resolve identified problems. Root cause analysis was very good.

Performance of the licensed operators during day-to-day operations continued to be strong. No reactor trips or unplanned shutdowns occurred as a result of operator errors, building on the good performance exhibited in previous assessment periods. The operator response to plant trips and transients was generally good and continued to improve. Control rod positioning and staff response during a decreasing main condenser vacuum condition were not handled adequately during one shutdown; however, effective corrective actions were promptly implemented. Five Licensee Event Reports (LERs) were a result of errors by licensed operators. Although the errors were a result of inadequate communications or may have been prevented by additional attention to detail, no programmatic problems were evident. Numerically the number of personnel errors is a slight improvement over the previous period, however, the improvement is more significant in light of the fact that during this period the Unit 2 Startup Test Program was completed and commercial operation commenced.

The transition from single unit to dual unit operation was well managed. There were no instances where the safe operation of Unit 1 was jeopardized by Unit 2 startup testing activities. Prior to the performance of major tests on Unit 2, the shift operations crew trained for the evolution on the plant simulator. The extensive use of the simulator, coupled with a significant involvement of the operations department management in the oversight of the startup program, resulted in an essentially problem free transition into commercial operation.

PECo management continued to demonstrate a commitment to the safe, quality operation of the facility. Each deviation from normal operation received attention from appropriate management up to the site Vice President. Routinely, the licensee evaluated events and promptly informed the NRC in a free and open exchange. PECo performed detailed root cause analyses (RCA) in response to these events. The extensive use of root cause analysis continued to be a strength. PECo performed a RCA on all significant events and there was a dedicated individual who coordinates the effort. All of the analyses are documented and inspector reviews showed that the reports were self critical and accurate accounts of the investigated subject.

The requalification examination, which was given early in the assessment period to five reactor operators (ROs) and eight senior reactor operators (SROs) involving four crews, resulted in the determination that the program was unsatisfactory. This was based primarily on the individual failure rate of one RO and three SROs, although one crew also performed unsatisfactorily. The

NRC staff also noted a number of weaknesses with the requalification program(see section III.G). Initial examinations were given late in the assessment period to four ROs, two SROs and ten SROs limited to fuel handling (LSRO). All candidates passed the examinations with the exception of one LSRO candidate. Weaknesses were also identified during this initial exam review. One primary concern was the lack of feedback to the training program. A significant specific weakness was the LSRO poor overall knowledge of control room operations, technical specifications, emergency operating procedures and the emergency plan. Although a good number of positive elements were noted during these examinations, the weaknesses considered collectively indicated that the training program was not completely effective in certain areas. The LSROs were used for the first time during the third refueling outage for Unit 1 in September 1990. Problems were encountered during core alterations including movement of the wrong fuel bundles, due to limited experience of the LSROs and the maintenance personnel operating the refuel bridge. PECo management was very concerned about the potential safety impact of fuel bundle mishandling events and only authorized continued fuel bundle movements after understanding the events and implementing corrective actions.

Based on an emergency operating procedure (EOP) special inspection and various examinations including an NRC administered requalification examination, the NRC staff determined that PECo's transient response implementing procedures (TRIPs) were technically acceptable, generally able to be physically carried out in the plant, and able to be implemented by operators. PECo adequately implemented the revision 4 guidelines of the BWR owners group. However, upon initial review during the requalification examination, the NRC staff noted that the "satellite procedures" (T-200 series) were generally not clear and/or provided insufficient guidance needed to properly locate specific equipment such as relays in a logic panel. PECo's self assessment of the root cause of this problem was the lack of involvement of the product end users, the operators, and in part due to system engineer unfamiliarity with in-plant labelling. The special inspection also noted outstanding technical and human factors issues needing response and resolution by the licensee.

PECo was effective in resolving specific TRIP issues identified during the examination and the proposed solutions were found to be sound. As of the end of the SALP period, long term TRIP issues remained to be addressed by the licensee in a response planned for January 1991. Overall, PECo established an appropriate program for maintaining the TRIPs updated which incorporated essential elements of: input from operational and training experience; maintaining the integrity of emergency procedures, design and technical criteria; and maintaining consistent and usable format, structure and style of the TRIPs.

The fire protection program was well administered with combustible material well controlled. The fire protection equipment was available to perform its function. The fire protection personnel were knowledgeable and observed to function in a well structured and adequate manner during a fire brigade drill. Plant housekeeping program was also well administered. The plant was kept clean and orderly with a minimum of areas where radiological concerns restrict access.

The operations department has remained fully staffed while at the same time has provided alternate career paths for licensed operators. In the past SALP period, five licensed operators have transferred to or have been promoted to non-operations positions. This practice continued during this SALP period with the promotion of two shift managers, one to manage the outage scheduling department and the other to coordinate the root cause analysis effort. The shift manager candidates were evaluated using an Assessment Center process to ensure the most qualified, not simply the most senior, person was promoted. This process has been effective in maintaining a core of well qualified shift managers. A shift worker college degree program has also been established to provide additional career opportunities for licensed operators.

Summary

Overall, operation of the facility has been very good. Completion of the Unit 2 startup and test program and the transition to dual unit operation was well managed and executed in a very professional manner at all levels. Operations has a very good working relationship with other departments, as evidenced by the smooth completion of the Unit 2 startup and test program. Although there were personnel errors, some of which occurred in short intervals of time, there was constant management attention and continual adjustments to reduce the errors. The root cause analysis program significantly aids management capabilities to deal with all types of errors and continues to be a strength. Weaknesses were noted in both the operator requalification training program and the LSRO initial training program. Operations department management is aggressively pursuing training program changes to alleviate weaknesses identified in the requalification program. Management, at all levels, continues to act promptly in resolving safety concerns. This effort was reflected in the decrease in the number of events despite the transition to two unit operation.

III.A.2 Performance Rating: Category 1

III.A.3 Recommendations: None

III.B RADIOLOGICAL PROTECTION

III.B.1 Analysis

The radiological controls program at Limerick was rated Category 1 last assessment period based on excellent program performance despite adverse radiological conditions caused by poor fuel performance. Additional challenges were created by unanticipated outage problems and the tie-in of Unit 2. Although worker exposures in 1989 were higher than expected, and a radwaste shipping error occurred, the radiological controls programs remain fundamentally strong. The training programs continued to make significant contributions to the high level of performance of health physics (HP) programs. There was generally strong management involvement in assuring quality. Enforcement history (except for the radwaste shipping error) was excellent during the period. The licensee maintained an excellent level of technical depth and experience

Radiation Protection

PECO has devoted ample resources to assure continued quality of performance in radiological controls. A "Management by Walking Around Program" was initiated where management personnel in health physics are required to tour the facility on a regularly scheduled basis. The tours have been effective in improving professionalism, housekeeping practices and implementation of the health physics program in the field. Radiological control program audits were effective in identifying areas for program improvement and resolution of audit findings has generally been prompt and effective. Radiological Occurrence Reports (RORs) appeared to be complete, candid and adequately resolved for all cases inspected. No examples of persistent recurrence of similar events, which might indicate programmatic weakness, were identified during inspections. Management involvement in the assurance of quality was excellent during the period.

Technical health physics work was reviewed on several occasions during the assessment period. PECo's staff has been found to be well qualified to evaluate and resolve complex radiological problems (e.g., drywell shielding efforts). PECO has continued to initiate efforts to improve the existing health physics program during this assessment period. Some recent improvements include initiation of a new access control module in the computerized health physics data system, the pilot use of new protective clothing as a possible means of reducing radwaste volume, laser video disk system implementation for use during work planning, prefabrication of reusable temporary shielding supports, and implementation of a bar coding system for equipment inventory control.

No violations were issued in the area of health physics during the assessment period. Few events occurred which significantly impacted radiological controls at the facility. Events which did occur were thoroughly investigated and resolved to prevent recurrence.

Operational aspects of the health physics program were well performed. NRC data indicates that Limerick has the lowest three year average for total personnel exposure for BWRs in the United States. At the end of this assessment period, accumulated personnel exposure totals were below the PECo established goal. Exposure rates in readily accessible areas of the Radiologically Controlled Area (RCA) are generally low, which allows much of the facility to be toured without the expenditure of appreciable dose. This was indicative of good licensee efforts to minimize the impact of and prevent recurrence of the fuel degradation problems encountered during the last assessment period. Temporary shielding efforts were well managed and provided a net positive benefit in all cases inspected. For example, during the 1990 Unit 2 outage, upper drywell shielding was used to reduce local exposure rates to about half of the unshielded values. The design of this shielding package was well planned and minimized the exposure to the shielding installation crew. PECo has an effective ALARA manual which has been integrated into maintenance and engineering procedures, as evidenced during routine observations of field activities.

The Radiation Protection Department is well staffed with qualified and highly motivated personnel. The staff is considered effective. PECo has implemented an innovative process for evaluation of candidates for health physics supervisory positions. Technically qualified candidates are evaluated through the Assessment Center.

In addition to providing requisite training to personnel in their assigned discipline, PECO has provided many individuals with diversified training and experience in disciplines peripheral to their normally assigned duties. Three persons in radiation protection management have received Senior Reactor Operator certificates. Another individual has received Limited Senior Reactor Operator (LSRO) training. In general, the health physics staff is well trained in plant operations. However, some management personnel have received little or no training in power plant systems due to the large time commitment required to attend the lengthy courses which were offered in the past. In order to satisfy the training needs of these individuals without significantly impacting the health physics program performance, the PECo has scheduled specific personnel to attend modular courses of shorter duration. Other health physics management personnel are scheduled to enter Senior Reactor Operator courses in 1991. At the technician level, radiation protection personnel have been placed on long term assignment within the maintenance organization to assist with radiological work planning efforts. These initiatives have improved interdepartmental communication and cooperation and have expanded the experience and training available to personnel.

Radiological and Environmental Monitoring Program (REMP)

An effective REMP was implemented. The Environmental Group staff members understood the importance of the REMP and implemented the program professionally and effectively. The meteorological monitoring system was properly calibrated and maintained. An effective QC program was in place to assure the quality of REMP sample analysis. Objectives of the QA audit for REMP were excellent and performance of the audit was noteworthy in terms of its scope and technical depth. A system was in place to assure tracking of identified findings requiring resolution.

Radioactive Liquid and Gaseous Effluent Control Programs

Good radioactive liquid and gaseous effluent control programs were implemented. Effluent/process radiation monitors were calibrated and maintained as required. Effluent air cleaning systems were effectively operated. The installation of the duct air monitoring device to measure the air velocity in the duct of the reactor enclosure recirculation systems at any time was noteworthy. This real time monitoring device measures the air velocity of the reactor enclosure recirculation system and can be used to enhance the air cleaning effectiveness.

Transportation/Solid Radwaste Program

Assurance of quality for the transportation/solid radwaste program remains good, as demonstrated by the scope of the Nuclear Quality Assurance (NQA) surveillance program in this area, together with the scope and technical depth of audits. PECo took comprehensive corrective actions (administrative limits, management oversight, and technician training) in response to a violation identified near the end of the last assessment period, and in resolving items identified during the transportation and radwaste inspection. Staffing within the program remains strong, with all positions filled by competent professional personnel. Training of staff remains a licensee strength in this area.

Confirmatory Measurements (Chemical and Radiological)

PECo's performance with respect to NRC standard chemical and radiological sample measurements was good. All measurements were in agreement under the NRC criteria used for comparing results. This demonstrates the continuing strength of PECo's chemical and radiological measurements QA program. The last SALP report noted that high feedwater copper concentration levels at Unit 1 may have contributed to fuel failure during cycle 2. PECo closely monitored and controlled copper feedwater concentration levels during the current period. Maintenance of lower copper levels has been accomplished through frequent exchange of condensate demineralizer resins.

Summary

The PECo commitment to the radiological controls program has been well maintained during the period. In addition, PECo has shown continued improvement in specific areas of the health physics program. Some recent program improvements have included increased management involvement in daily activities, implementation of an innovative approach for screening supervisory candidates, and the use of newly acquired equipment. The staff is well qualified. Management actions have been timely and effective and a high level of professionalism is evident throughout the staff.

III.B.2 Performance Rating: Category 1

III.B.3 Recommendations: None

III.C Maintenance and Surveillance

III.C.1 Analysis

During the previous SALP period the maintenance/surveillance functional area was rated as a Category 1. That assessment concluded that management oversight of maintenance activities and surveillance testing continued to be strong. Support of day-to-day operation was excellent and included a strong focus on safety. Good supervisory involvement was evident and in-depth root cause analysis provided effective corrective action.

Maintenance

The Limerick maintenance program is well organized and adequate to maintain safety system operability. In general, maintenance procedures and work instructions were found to be adequate and appropriately followed. The fully staffed department, comprised of maintenance, Instrumentation and Control (I&C) and electrical workers and foremen, and maintenance engineers, was found to be knowledgeable and well trained through an accredited maintenance training program. Senior management was noted to be directly involved in plant maintenance activities.

Both unit and individual system availability have been maintained at a high level. Review of outstanding Maintenance Request Forms (MRFs) found that open work did not jeopardize safety system operability. The system engineers track the out-of-service times for safety systems and compare these times to those assumed in the Limerick Probabilistic Risk Assessment (PRA). The actual system unavailability times have been less than 60% of the times assumed in the PRA.

There were seven licensee event reports attributed to the maintenance area, of which two were a result of personnel error. Review of these events found no underlying programmatic weaknesses or deficiencies.

On a day-to-day basis, preplanning of routine and emergent safety system maintenance activities was very good. First line mechanical, electrical, and Instrument and Controls supervisors were observed to be very knowledgeable about the work activities for which they were responsible. Work activities were completed in a timely fashion with little rework required. For example, for the first time, diesel generator 18 month overhauls were performed with the units at power. Five of eight diesel generator overhauls were planned and performed. Planning and conduct of these overhauls were excellent. Also, the work associated with the replacement of two Residual Heat Removal Service Water valves was an example of excellent coordination which enabled completion of the task on an extremely tight schedule. However, it was noted that maintenance planning was less vigorous in the area of systems important to safety. Balance of plant

equipment problems which could cause a plant trip, transient or shutdown did not appear to receive similar attention to that received by safety related equipment bound by Technical Specification time constraints. Examples of these are stator cooling water system repairs, chronic control room chiller and instrument air and instrument gas system problems, and difficulties in maintaining cooling tower makeup pumps operable.

There were no maintenance related reactor trips or major plant transients during the period. However, a few events occurred during the period related to improper performance of maintenance and system restoration. One event occurred in January 1990 during restoration of the Unit 1 circulating water system and resulted in discharge of 40,000 gallons of water to the turbine building floor. A second event occurred in April 1990 when post maintenance testing discovered that an Emergency Service Water (ESW) check valve had been improperly reinstalled resulting in the ESW system being inoperable for a brief period. The primary root causes of these events were inadequate delineation of responsibility and lack of procedural detail for the experience level of the personnel, respectively. A maintenance-related violation was issued during the assessment period, for installation of the wrong solenoid valves in the Reactor Core Isolation Cooling system during maintenance. The root cause of this event was failure to follow procedure. Although these above events were areas of concern they were not indicative of programmatic weaknesses.

Initiatives started during the last assessment period and continued during this period were found to have strengthened the maintenance program. Conduct of evaluations to assess human performance problems in I&C and Maintenance to determine root causes is now fully implemented. In addition, an Assessment Center for promotion to first line supervision in the maintenance area has provided more informed supervisors who exhibit positive control over the work performed.

Surveillance

The surveillance program is administered by the site system engineering group and is tracked using a computerized scheduling program. Actual test performance is the responsibility of several site departments including operations, system engineering, maintenance, I&C, chemistry, HP, and security.

Review of surveillance testing in progress and completed test results found the overall surveillance program to be strong. In general, the surveillance tests were well written, testing was performed per the procedures, and results were adequately documented. However, weaknesses were noted during observation of testing activities. For example, during conduct of a main steam line radiation monitor test, administrative controls for surveillance testing were not implemented when the procedure was changed without the appropriate approval. Also, a violation was issued for the improper use of expanded differential pressure range limits during testing of safety related pumps. The cause of the violation was the misapplication of code requirements upon direction from the Nuclear Engineering Division (NED).

Overall scheduling of surveillance tests was very well controlled. During the period, only one test was not performed within the required interval due to a deficiency in the computer program which schedules the surveillance tests. The A-day/B-day logic channel test schedule continued to prevent coincident logic actuations thus avoiding plant scrams and system isolations. There were no plant scrams and only one significant plant transient, a recirculation pump trip caused by an I&C technician personnel error, associated with surveillance activities.

Eleven LERs were attributed to the surveillance testing program. Seven of these were caused by I&C personnel errors. Five personnel errors were caused by I&C technicians and resulted in Engineered Safety Feature actuations, while the other two involved administrative errors by the I&C Surveillance Test Coordinator and an I&C supervisor. Given the large number of surveillances performed by I&C technicians (approximately 550 surveillances per month) the percentage of personnel errors is small. Further, the error rate appears to have decreased from the last SALP period. Nevertheless, PECo management has shown great concern about these personnel errors and initiated extensive root cause analysis and corrective actions such as initiating a human factors review of the auxiliary equipment room, initiating a design change to eliminate the need for jumpers during surveillances, and relabelling of panels to clarify hardware locations.

Summary

Limerick's maintenance and surveillance programs continued to be carried out successfully. The activities within the programs were well scheduled, planned and implemented, with strong management oversight and focus on safety. No plant trips, and only one major plant transient resulted from maintenance and surveillance activities. The occurrence of personnel errors continued to be a weakness in this area; however, it appeared management was providing appropriate attention to this area.

III.C.2 Performance Rating: Category 1

III.C.3 Recommendations: None

III.D Emergency Preparedness

III.D.1. Analysis

During the previous SALP period, this area was rated Category 3. This rating was based on inadequate management of emergency preparedness functions and ineffective emergency preparedness training. Emergency Directors were unable to effectively classify fast breaking accidents and develop protective action recommendations (PARs). PARs when developed did

not consider plant conditions. An enforcement conference was held and a civil penalty imposed. The licensee instituted short term corrective action and undertook a root cause analysis. A long term improvement plan was adopted. A follow up inspection indicated the licensee made significant improvements in the emergency preparedness program.

During this assessment period, a partial participation exercise was observed, a routine inspection was conducted and changes to the emergency plan and implementing procedures were reviewed. During the partial participation exercise, PECo demonstrated several strengths including: use of Emergency Operating Procedures; conservative classifications; timely notifications; and effective radiological dose assessment capabilities. One weakness was identified regarding delay in transporting a contaminated, injured individual to a hospital.

During the previous assessment period, management had not clearly defined or assigned emergency preparedness responsibilities, and poor communications existed between staffs. Management appropriately addressed these issues. During this assessment period, responsibilities have been clearly defined, and a process established to ensure emergency preparedness findings are reviewed and the results reported up the management chain. Management from the Board of Directors to section managers was involved in assuring the quality of the emergency preparedness program. A Nuclear Group policy delineates intent, applicability, and defines implementation areas. The accountabilities and responsibilities of the emergency preparedness staff are contained in an administrative procedure. The Emergency Plan defines the responsibilities of each Emergency Response Organization member and outlines management responsibility. Managers track the status of the emergency preparedness program and the improvement plan at monthly, weekly or biweekly staff meetings. Individuals designated "selection managers" assign personnel to the Emergency Response Organization (ERO), and are responsible for the qualification and requalification of the person(s) selected. ERO responsibilities are included in the employee's position description and are an element of the annual appraisal. Commitment to quality was also demonstrated by the extensive and effective audit/review carried out to meet the requirements of 10 CFR 50.54(t).

Management also assured the effectiveness of the off-site emergency program. Staff were permanently assigned responsibilities to interface with off-site agencies. Quarterly coordination meetings and monthly interface meetings were held with the Commonwealth of Pennsylvania and counties. Two or three meetings a year are held with each of the 44 local governments and districts. A contractor was responsible for training emergency workers and training was current. Training modules have been developed including those for table tops and team training. Public Information Brochures were distributed to all households, school districts and institutions in the Emergency Planning Zone. Inserts, intended for transients, appear in telephone directories. The sirens were tested monthly; availability for last year was 99.4%. Emergency Action Levels and PARs were reviewed with off-site agencies and copies of the 10 CFR 50 audit/review were sent to them.

Resolution of technical issues was very good and demonstrated a commitment to quality. PECo reviewed and revised Emergency Plan Implementing Procedures stressing those for classification, protective action recommendations, and dose projection. To ensure response to rapidly breaking accidents, procedures for classification and PARs were combined. Predetermined PARs for sheltering or evacuation are associated with each General Emergency classification to ensure timeliness of the recommendations. PECo is also continuing work to develop a dose projection methodology common to both nuclear sites. In addition, PECo plans to construct a common Emergency Operations Facility (EOF) for Limerick and Peach Bottom.

The ERO staff was found to be well qualified with clearly defined authorities and responsibilities. There were at least four managers qualified for each managerial and decision making position. Staffing of the emergency preparedness program has improved. The program was fully staffed with individuals possessing the necessary technical expertise, industry and off-site experience. Reliance on contractor support has been considerably reduced, with key positions filled by permanent PECo personnel.

During the previous assessment period, the Emergency Preparedne[illegible]ining program and responsibilities for implementation were poorly defined. ERO [illegible]ation was based on classroom instruction, and performance based training was no[illegible]. ERO training was the responsibility of the Limerick Training Department which follo[illegible] the policies set forth in the Training Department Procedures Manual. Training was given b[illegible] qualified trainers who were not dedicated full-time to emergency preparedness training. Tr[illegible]ining is now well defined and applies to all members of the ERO. Training modules are based on job task analysis. The program has been revised to include performance based training. Drills and exercises are an integral part of the training. These drills cover reactor operations, health physics, medical response, and each emergency response facility, including the emergency news center. Drills are critiqued and the results provided to the training department, as well as all levels of management. Quarterly EP-Training Department action plan meetings are held to discuss items such as changes in procedures and plans, drill critiques, and ERO qualification status. Operator emergency preparedness training includes classroom, table top and simulator training. Simulator training for operators has been programmed to replicate fast breaking accidents. Senior operators are trained to: classify rapidly breaking accidents; make protective action recommendations; and recognize containment by-pass and interfacing system loss of coolant accidents (Event V). The effectiveness of the operator training was demonstrated by correct response to three actual Unusual Events.

Summary

PECo has committed substantial resources to improving Emergency Preparedness and responded to significant weaknesses in their program by initiating a long term improvement plan. This program has not yet been fully implemented; however, improvements were noted throughout this period and showed on-going management involvement and commitment to quality. The

Emergency Preparedness Program staff has been expanded and is staffed with the discipline mix necessary. Training is well developed. A good working relation is maintained with the Commonwealth, Counties and local governments with regular meetings, and frequent training.

III.D.2 Performance Rating: Category 2, Improving

III.D.3 Board Recommendations: PECo ensure that resources necessary to complete the long term emergency preparedness program improvement plan are maintained especially during the completion of the common Emergency Operations Facility for Limerick and Peach Bottom.

III.E Security and Safeguards

III.E.1 Analysis

During the previous assessment period, PECo's performance was rated as Category 1. That rating was based on the implementation of a highly effective security program that went beyond compliance with NRC requirements. Management attention to the program was very evident and the program appeared to be well-received by all plant personnel. Both PECo and contractor supervision were well qualified and experienced, and the security force training program was very effective. Equipment upgrades and program enhancements were implemented and additional enhancements had been undertaken.

During this assessment period, one routine physical security inspection was conducted by region-based inspectors. A Regulatory Effectiveness Review (RER) was also conducted. Routine inspections by the resident inspectors continued throughout the period. PECo continued to implement a very effective program that clearly indicated a thorough understanding of the NRC's security objectives.

The on-site nuclear security group and the corporate security organization worked well together providing the necessary oversight of the contract security force. For example, corporate security personnel participated in the analysis of proposed security system upgrades and security audits at the plant site. Nuclear security expertise was very apparent in all three of the groups. Corporate and site security management continued to actively participate in the Region I Nuclear Security Association and other groups engaged in nuclear plant security matters. In addition, they continued to actively interface and conduct on-site drills that included the involvement and participation of plant operations shift managers and other agencies, such as local law enforcement.

Staffing of the contract security force was consistent with program needs as evidenced by the limited use of overtime during the period. Effective supervisory oversight resulted in few personnel errors, none of which resulted in a reportable event, and no violations of NRC

requirements were identified. The security force training and requalification program was well-developed and administered by an experienced training staff. Security force members interviewed were knowledgeable of their duties and responsibilities.

Management support, in terms of funding, engineering work, and staffing, was apparent during this assessment period as evidenced by the continuing efforts to upgrade the security system. Some examples are: (1) the resurfacing of the asphalt between the two perimeter fences as a means to enhance assessment capabilities; (2) the installation of devices to improve the capability of intrusion detection systems; (3) the installation of obstruction devices on some structures to impede their use for intrusion purposes; (4) the training of security force members in tactical response; and (5) the conduct of tactical response exercises. During the Regulatory Effectiveness Review, the NRC team found several areas where program improvements could be effected, such as perimeter intrusion detection and assessment, but also noted several excellent initiatives such as those noted above that had recently been taken by PECo to improve the capabilities of security personnel and systems. The team also was impressed with the speed and effectiveness of the corrective or compensatory actions taken where applicable, and with PECo's excellent critique of the armed response drill. These efforts represent a proactive management approach to security and are indicative of a licensee with a commitment to a high quality and an effective program.

PECo's self-assessment program continued to be a very effective management tool to identify potential problems early and correct them effectively. This program, coupled with the very thorough, comprehensive and performance-based annual QA audit program, exceeded regulatory requirements and was further evidence of PECo's commitment to an effective program.

During the assessment period, PECo submitted two revisions to security program plans under the provisions of 10 CFR 50.54(p). These revisions were of high quality, technically sound and reflected well-developed policies and procedures. PECo continued to improve the quality of the program plans and actively sought NRC guidance to ensure that accurate and acceptable plan revisions were submitted.

Summary

PECo continued to maintain a very effective and performance-based security program. Significant enhancements were made to the program which demonstrated management (both corporate and site) attention to and interest in the program. PECo's initiative in identifying and correcting potential weaknesses in systems and equipment during this period were noteworthy and demonstrated PECo's commitment to maintain an effective and high quality program.

III.E.2 Performance Rating: Category 1

III.E.3 Recommendations: None

III.F Engineering/Technical Support

III.F.1 Analysis

Engineering and Technical Support was rated Category 2 in the previous SALP. Weaknesses identified during the previous assessment period were that responses to NRC concerns were not timely, communications between corporate and on-site engineering were less than adequate, and inadequate quality control was found on several modification packages. As a result, PECo established a task force which included representatives from Limerick (LGS), Peach Bottom (PB), Nuclear Quality Assurance (NQA), Nuclear Engineering Division (NED), and Nuclear Services (NS) to evaluate actions to improve NED performance. The SALP Board recommended PECo present a corrective action plan for self improvement. This plan was presented to NRC at the mid SALP cycle review meeting in March and at a management meeting in April of this year. Several other status review meetings were held during the year.

NED analyses and submittals to NRC were consistently of high quality and reflected an understanding of safety issues and regulatory concerns. A sound technical basis was determined for continued operation without repairs to the Unit 1 N2H recirculation inlet nozzle to safe end weld. Engineering evaluations related to licensing amendments and responses to NRC Bulletins and Generic Letters were technically sound. However, some weaknesses were noted this period including incomplete engineering disposition of nonconformance reports; misapplication of code requirements concerning inservice testing of pumps; and failure to involve operations personnel in EOP satellite procedure development resulting in unclear procedures concerning equipment location and identification.

The system engineers have become more involved and now provide the expertise on assigned systems. They influence the modification design process toward the needs of the plant, present the modification design package to the PORC and write the training packages for operator review following the design change. The system engineer also oversees the testing of the system after installation. This process has greatly improved the quality of design changes and their integration into plant operation.

During the period, a number of positive initiatives were taken by NED to improve performance. The engineering department was reorganized in January 1990 and, as a consequence, the alignment of site engineers is such that each department has an engineering staff assigned by the Technical Manager. Reduction in the participation of contract architect/engineers in PECo engineering programs and return of engineering documentation to the PECo offices has solidified engineering activity to within the company. Performance of engineers has been enhanced through a "Quality Expectations" document which outlined a personal responsibility for customer-oriented quality and performance expectations. An Engineering Assurance Task Force was formed and provided for establishment of a Design Review Board (DRB), technical auditing of engineering output, and analysis and trending of quality indicators. A DRB review of a selected modification was completed and a program initiated to complete 150 Design Basis Documents (DBDs) over a five year period. Monthly interface meetings are being held between

NED and LGS engineers to improve communications. An initiative of system walkdowns by system and NED engineers has been initiated to provide for joint participation of engineers in as built identification within safety systems. Initiatives were also noted in the area of self assessment (SA). Engineering provided SA of its support of each station at an SA session in July. Engineering is using performance indicators to track and measure performance and quality trends. SA serves to adjust the methods of operation of NED toward new ways of serving the operating stations.

An upgrading of engineer training was noted. NED engineers were assigned to System Training at LGS and Peach Bottom (PB) which included specific training in responding to nonconformance reports (NCRs) and Operability Determinations, which were areas of concern. Rotation of engineers between groups in a cross-training approach is planned for producing more well rounded engineers. Also, a seminar was developed to enhance team work between organizations (NED and LGS).

PECo's Material Management Section has a comprehensive procurement program which provides for a close interface with NED. Engineering provides a significant role in procurement, in product acceptance processes, and in source receipt testing programs, and thorough engineering-based dedication programs.

In the last SALP report, significant improvement in the quality of modification packages was noted and the improvement continued during the current period. Inspector observation of modification installations noted complete and effective design packages which, during implementation, required very little need for field changes.

On site engineering has formed a fuel reliability task force which meets monthly to discuss fuel problems identified at other facilities throughout the United States. Measures taken by engineering to correct fuel leakage problems identified in the last SALP period have been effective. For example, the recent inspection of Unit 1 fuel shows considerable improvement and no leaking fuel has been identified. The improvement has been attributed to close attention being given water chemistry control by changing cleanup resins frequently, utilizing improved resins and restricting power level changes when chemistry is out of specification requirements. Limerick station has recently altered fuel handling techniques from receiving to installation into the core, including licensing of maintenance personnel to handle fuel. The individuals are licensed by the NRC to load and unload the reactor core and to handle irradiated and new fuel. Reactor engineers provided the input for the fuel handling licensing training program.

Two reactor scrams of Unit 2 were the result of original design engineering errors (Section IV.D). The first, a calculation error involving the setting of main transformer phase differential relays, was not detected and resulted in a trip when full power was reached for the first time. The second design error concerned an oil drain pipe routed through the condenser without adequate support. The pipe separated at a weld and caused a low condenser vacuum scram. Corrective actions for both these problems were prompt and effective. In contrast, inspection of the Limerick design of the systems needed to comply with the anticipated transient without

scram (ATWS rule), 10 CFR 50.62, found that the design exceeded the requirements of the rule. In addition, the associated systems and procedures were in place and fully complied with the Technical Specification and Safety Evaluation Report. The two trips were thus found to be anomalies in an otherwise well executed startup program.

Summary

During the assessment period, management support for and attention to this area were clearly evident. The quality of engineering work was high. Significant improvement was noted with the modification process from design through installation. There were also notable improvements with the communications/interface between corporate and on-site engineering. Several initiatives were also taken to continue to improve the engineering and technical support for Limerick Generating Station. These included engineering department reorganizations, consolidation of engineering efforts to within the corporation, extensive engineering training programs, issuance of a quality expectations document, establishing a design review board, technical audits of design output documents, a program of design basis documentation, and performance indicator tracking of engineering work requests and nonconformance reports.

III.F.2 Performance Rating: Category 2, Improving

III.F.3 Recommendations: None

III.G Safety Assessment/Quality Verification

III.G.1 Analysis

The previous SALP rated Safety Assessment/Quality Verification as Category 1. Strengths noted were the active role management took in the assurance of quality, the proactive self-assessment program, the involvement of the consolidated Nuclear Quality Assurance Department, and the comprehensive and thorough evaluations by the Plant Operations Review Committee (PORC) and the Nuclear Review Board (NRB). A continuing weakness was the ineffective corporate support and oversight in the area of emergency preparedness and the quality of engineering/technical support to the site.

Management involvement and control to assure quality were evident throughout the assessment period. Site management exhibited a commitment to excellence in safety and provided the necessary policies, personnel, leadership and staffing. Site management took prompt corrective action for problems identified by the strong root cause analysis program. Significant assigned resources and plant modifications have corrected some of the identified procedural and personnel error problems and other design changes are in the process of engineering review for later implementation.

As discussed in th. other sections, excellent in-depth root cause analysis and effective corrective actions were generally taken by PECo. Twice a year, PECo conducts an in-depth self-assessment of all departments and develops corrective action programs to strengthen weaknesses. The Limerick Quality Division (LQD) and Independent Safety Engineering Group (ISEG) were generally successful in identifying potential weaknesses and initiating action to prevent them from becoming problems. PECo has implemented a Supervisor Development Program in most plant disciplines to improve the quality and effectiveness of first-line supervisors.

The review committees continued to be effective. The Nuclear Review Board (NRB) met every other month at Limerick and reviewed plant operations and significant operating events, special topics and engineering, quality assurance and licensing activities. In addition, the Board reviewed all NRC inspection reports and violations, including PECo responses. The inspectors have attended NRB meetings and reviewed NRB analyses and assessment of various activities. Based upon direct observation, the inspectors concluded that the NRB continued to execute its independent review role effectively. PORC continued comprehensive and thorough evaluations and met on a frequent basis.

The Independent Safety Engineering Group has become more widely visible at Limerick during this SALP period. A new Superintendent of ISEG, who holds an SRO license, was appointed in late 1989. The time ISEG members spent interfacing with the plant increased over the period as did the number of documented reviews performed. Routine reviews of the ISEG reports showed that ISEG's focus was not only to provide independent oversight of quality activities but also to contribute to the safe operation of the plant. The ISEG reports were comprehensive and received wide management distribution, including the NRB and the Nuclear Committee of the Board.

NED has undertaken a number of initiatives to improve the quality of engineering and technical support to Limerick. These included a newly established program which required the NED system engineers to meet regularly with their counterparts at Limerick and taking part in walk downs of plant systems, and an improved design change program which incorporated an on-site/off-site team concept. These actions have been effective in improving the modification process from design through installation. Early in the assessment period, the inspectors noted concerns regarding the adequacy of the technical justifications written by NED in support of site operations. PECo management's response to these concerns was aggressive and included revision of the NCR procedure and communication of the NCR Quality Expectations to all engineering personnel. Initial indication, through review of NCRs written toward the end of the period, is that the actions taken by PECo management have been effective. The above indicates there has been a significant improvement in the quality of engineering support for the station.

The Document Control process was found to be weak in that PECo did not have adequate control over the numerous documents affecting quality at the site and a violation was issued. The cause of this weakness was insufficient management oversight and inadequate administrative controls.

Initially PECo's response to the violation was too narrowly focused and NRC's review identified additional discrepancies. PECo site management took additional actions to resolve the additional discrepancies and to revise their initial response. By the end of the SALP period NRC noted a marked improvement in the document control process at the site.

There were some weaknesses identified in the QC/QA program. For example there was an incident where the QC group may have prevented installation errors when AC solenoid valves versus DC solenoid valves were installed within the Reactor Core Isolation Cooling System. Also, there were several incidents where QA's review of NCRs failed to identify that the disposition was not complete and one instance where an NCR was not written to resolve a polarization index measurement that was out of specification. These weaknesses were quickly corrected by PECo and none of the items remain unresolved.

PECo responses to NRC Generic Letters and Bulletins have consistently shown a clear understanding of the involved issues. The responses have been submitted in a timely manner with acceptable proposed resolutions with no need to request additional information. License amendments contained good supporting analyses and needed little additional information. The discussion of no significant hazards considerations (NSHC) within the amendment applications was very thorough and complete. Some of the safety evaluations, however, were adequate but weak; the NSHC discussion sometimes provided a better safety assessment than the reported safety evaluation.

As noted in Section III.A, the NRC determined that the licensed operator requalification program was unsatisfactory based on individual failure rate. Weaknesses were noted in overall crew communications, crew coordination under transient conditions, implementation of emergency operating procedures, knowledge of plant systems and the improper use of facility procedures. Certain of these weaknesses were repetitive of those noted during the previous and first requalification examination in 1988. PECo's root cause analysis was self-critical and identified insufficient management attention to the requalification process as the root cause of the weaknesses. PECo also noted additional causes of ineffective corrective actions to previously identified generic weaknesses. NRC agreed with PECo's conclusions and related corrective actions. Considering the weaknesses noted during all examinations given during this assessment period, it appeared that the ineffective training program aspects may be due to a weak involvement in the PECo operator training program by middle level managers from multiple departments. Although the operator requalification program was found to be unsatisfactory, safe operation of the Limerick facility was not affected as evidenced by the satisfactory operating record during start up of Unit 2 and the small number of operator related errors while operating both units. PECo management has taken aggressive action to correct the identified problems in the operator requalification program.

Summary

Overall, corporate and station management involvement in assuring quality continued to be strong. The safety conscious approach and emphasis on quality instilled by plant management and exercised by Limerick personnel is commendable. Corporate management has taken actions which have significantly improved the quality of engineering and technical support and Emergency Preparedness. In contrast, insufficient management attention resulted in the unsatisfactory licensed operator requalification program. Once identified, problems with the requalification program and personnel errors were aggressively and effectively pursued by management.

Corporate management has also expanded the role of the ISEG and LQD to look beyond compliance and assess means of improving the quality and safety of all activities. The PORC and NRB provided consistent, effective and in-depth review of plant issues. PECo has an aggressive self-assessment program and is proactive in correcting identified problems. Review teams are candid, thorough and effective in determining the root cause of events. Limerick continues to be a well run, safety conscious organization.

III.G.2 Performance Rating: Category 1

III.G.3 Recommendations: None

IV. SUPPORTING DATA AND SUMMARIES

IV.A Licensee Activities

Background

The assessment period began September 1, 1989, with the Limerick Unit 1 reactor at full power. On May 22, 1990, the unit attained one full year of continuous operation at a capacity factor of 93.39%. There were no scrams on Unit 1. One unplanned shutdown occurred on June 4, 1990 for offgas system and main turbine permanent magnet generator repairs. Unit 1 was shutdown on September 7, 1990 for the third refueling outage and was being refueled at the end of this assessment period.

At the beginning of this assessment period Unit 2 was at 28% power and the startup test program was in progress. On November 10, 1989, the Unit tripped from 98% power because of improper phase differential relay settings for the main transformer. On January 8, 1990, the 100 hour warranty run was completed and Unit 2 commenced commercial operation. There were two

additional reactor scrams occurring on July 15, 1990 and September 10, 1990. These scrams are further described in Section III.C. There was one planned shutdown on August 20, 1990 to make main turbine EHC repairs. The unit returned to power on August 26, 1990 and remained at power through the end of this assessment period.

IV.B NRC Inspection and Review Activities

Three NRC resident inspectors were assigned to the site throughout the assessment period. Regional inspectors performed routine inspections throughout the period, with added inspection emphasis during the scheduled outage. Team inspections were conducted in the areas of emergency planning, emergency operating procedures, regulatory effectiveness review and post accident sampling system. NRC performed a total of 3,963 hours of inspection during the period, which equates to 3,526 hours on an annualized basis.

IV.C Significant Management Meetings

A Management Meeting was held on October 6, 1989, at Limerick to discuss PECo's Self Assessment of the Unit 2 Power Ascension Program.

An Enforcement Conference was held on February 23, 1990, in the NRC Region I Office to discuss potential violations associated with Appendix R Safe Shutdown Issues. Subsequently, no violations were issued.

A Management Meeting was held on March 15, 1990, in the NRC Region I Office to discuss PECo's root cause analysis and proposed corrective actions regarding weaknesses identified as a result of an NRC administered operator requalification examination. (PECo actions to ensure that the weaknesses were promptly corrected were detailed in Confirmatory Action Letter (CAL) I-90-003 dated February 9, 1990.)

A Management Meeting was held on March 13, 1990, at Limerick to conduct a mid-cycle SALP review of licensee performance.

A Management Meeting was held on April 27, 1990, in the NRC Region I Office to discuss improvements PECo had implemented or planned to the engineering department since the previous SALP.

A Management Meeting was held on April 27, 1990, in the NRC Region I Office to discuss the Emergency Preparedness Program.

A Management Meeting was held on August 29, 1990, at Limerick to discuss technical issues related to the disposition of the N2H recirculation pipe to nozzle safe-end weld indication.

A Management Meeting was held on October 5, 1990, in the NRC Headquarters Office in Rockville, Maryland to review newly obtained data and PECo's planned disposition regarding the N2H recirculation pipe to nozzle safe-end weld indication.

IV.D Reactor Scrams and Unplanned Shutdowns

Event Description

Date	Power	Root Cause	Functional Area
1. Unit 2 automatically scrammed on Turbine Control Valve fast closure as a result of improperly specified "A" phase differential relay settings on the main transformer. This was during the power ascension program.			
11/10/89	98%	Undetected calculation error	Engineering (design)
2. Unit 2 automatically scrammed on low condenser vacuum caused when an oil drain pipe separated within the main condenser. The oil drain line is routed through the condenser and is open ended to atmosphere.			
7/15/90	100%	Inadequate pipe support design	Engineering (design)
3. Unit 2 automatically scrammed when a short occurred in a defective switch in a temperature indicating module while an operator was taking main steam tunnel area temperature readings. Another temperature circuit was in bypass at the time due to surveillance testing.			
9/10/90	100%	Defective temperature module	Not applicable
4. Unit 1 was shutdown for repairs due to low condenser vacuum and a failure of the turbine's permanent magnet generator.			
6/4/90	100%	Random equipment failures	Not Applicable

TABLE I

INSPECTION HOURS SUMMARY

Limerick Generating Station

September 1, 1989 - October 15, 1990

Functional Area	Hours	Annualized Hours	% of Time
A. Plant Operations	1,524	1,356	38
B. Radiological Controls	523	465	13
C. Maintenance/Surveillance	540	481	14
D Engineering/Technical Support	701	624	18
E. Emergency Preparedness	253	225	6
F. Security and Safeguards	162	144	4
G. Safety Assessment/ Quality Verification	260	231	7
TOTALS	3,963	3,526	100

TABLE 2

ENFORCEMENT SUMMARY

Limerick Generating Station

September 1, 1989 - October 15, 1990

Functional Area	Number/Severity of Violations Level IV	Level V
A. Plant Operations	2	
B. Radiological Controls	1	
C. Maintenance/Surveillance	1	
D. Engineering/Technical Support	2	
E. Emergency Preparedness		
F. Security		
G. Safety Assessment/ Quality Verification		1
TOTALS	6	1

TABLE 3

Licensee Event Reports*

Limerick Generating Station

September 1, 1989 - October 15, 1990

	Number by Cause**						
Functional Area	A	B	C	D	E	X	Subtotal
A. Plant Operations	9		3	1	8	7	28
B. Radiological Controls				2			2
C. Maintenance/Surveillance	9		1	3	3	2	18
D. Engineering/Technical Support	2	4	2				8
E. Emergency Preparedness	1						1
F. Security							
G. Safety Assessment/ Quality Verification							
TOTALS	21	4	6	6	11	9	57

* This analysis includes: LERs 89-50 through 89-60, and 90-01 through 90-20 for Unit 1; LERs 89-06 through 89-15, and 90-01 through 90-17 for Unit 2. LER 90-08 for Unit 1 was not issued.

** Cause Codes:
A. Personnel error
B. Design, manufacturing or installation
C. Unknown or external cause
D. Procedure inadequacy
E. Component failure
X. Other

*** Security Event Reports are discussed separately in Section III.E.

Root cause assessed by the SALP Board may differ from those listed in the LER.

As can be seen by the preceeding table, cause code A (personnel error) was the major contributor to the total of LERs. A PECo analysis of the reasons for the personnel errors has identified that the most frequent errors were lack of attention to detail while performing procedure oriented tasks. The analysis also showed that journeymen rather than new operators and technicians were the initiators.

No correlation could be determined with the next highest contributor, cause code E (component failure). These events seemed random in nature. The remaining LERs nad root cause analysis performed by PECo and have been categorized into the assigned cause codes as shown. All of the initiating events have been corrected or are being addressed by PECo. PECo has a very active root cause analysis program that performs a detailed analysis of LERs followed by prompt management attention.

During the last SALP period, there were 90 LERs issued over a 489 day period with one unit in operation. This SALP period, there were 57 LERs issued over a 410 day period with two units in operation. This represents a decrease in the number of LERs issued without observed change in the reporting threshold. The last SALP recorded 26 personnel errors, and this SALP shows 21 personnel errors. Considering the doubling of surveillance and preventative maintenance testing, because of the additional unit being placed in operation, it appears that the number of occurrences of personnel errors has significantly decreased.

ATTACHMENT 1

SALP CRITERIA

Licensee performance is assessed in selected functional areas, depending on whether the facility is in a construction or operational phase. Functional areas normally represent areas significant to nuclear safety and the environment. Some functional areas may not be assessed because of little or no licensee activities or lack of meaningful observations in that area. Special areas may be added to highlight significant observations.

The following evaluation criteria were used, as applicable, to assess each functional area:

- assurance of quality, including management involvement and control
- approach to the resolution of technical issues from a safety standpoint
- enforcement history
- operational and construction events, including response to, analyses of, report of, and corrective actions for
- staffing, including management
- effectiveness of training and qualification program

On the basis of the SALP Board assessment, each functional area evaluated is rated according to three performance categories. These definitions of these performance categories are given below.

Category 1.

Licensee management attention to and involvement in nuclear safety or safeguards activities resulted in a superior level of performance. NRC will consider reduced levels of inspection effort.

Category 2.

Licensee management attention to and involvement in nuclear safety or safeguards activities resulted in a good level of performance. NRC will consider maintaining normal levels of inspection effort.

Category 3.

Licensee management attention to and involvement in nuclear safety or safeguards activities resulted in an acceptable level of performance; however, because of the NRC's concern that a decrease in performance may approach or reach an unacceptable level, NRC will consider increased levels of inspection effort.

Category N.

> Insufficient information exists to support an assessment of licensee performance. These cases would include instances in which a rating could not be developed because of insufficient licensee activity or insufficient NRC inspection.

The SALP Board may assess a functional area and compare the licensee's performance during a portion of the assessment period to that during an entire period in order to determine a performance trend. Generally, performance in the latter part of a SALP period is compared to the performance of the entire period. Trends in performance from one period to the next may also be noted. The trend categories used by the SALP Board are as follows:

Improving: Licensee performance was determined to be improving during the assessment period.

Declining: Licensee performance was determined to be declining during the assessment period and the licensee had not taken meaningful steps to address this pattern.

A trend is assigned only when, in the opinion of the SALP Board, the trend is significant enough to be considered indicative of a likely change in the performance category in the near future. For example, a classification of "Category 2, Improving" indicates the clear potential for "Category 1" performance in the next SALP period.

It should be noted that Category 3 performance, the lowest category, represents acceptable safety performance. If at any time the NRC concluded that a licensee was not achieving an adequate level of safety performance, it would then be incumbent upon NRC to take prompt appropriate action in the interest of public health and safety. Such matters would be dealt with independently from, and on a more urgent schedule than, the SALP process.