ENCLOSURE

INITIAL SALP REPORT

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

REPORT NUMBERS: 50-277/91-99; 50-278/91-99

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION

UNITS 2 AND 3

ASSESSMENT PERIOD: AUGUST 4, 1991 - OCTOBER 31, 1992

BOARD MEETING DATE: DECEMBER 4, 1992

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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 evaluate licensee performance periodically on the basis of this information. The SALP process is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. The 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 December 4, 1992, to review the collection of performance observations and data and to assess the licensee's performance at the Peach Bottom Atomic Power Station (PBAPS). This assessment was conducted in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance," dated September 28, 1990.

This report is the NRC's assessment of the licensee's safety performance at the Peach Bottom Atomic Power Station for the period August 4, 1991 through October 31, 1992.

The SALP Board for the PBAPS assessment consisted of the following individuals:

Chairman:
C. W. Hehl, Director, Division of Reactor Projects (DRP)

Members:
C. Anderson, Chief, Reactor Projects Section 2B, DRP
J. Lyash, Senior Resident Inspector, DRP
W. Hodges, Director, Division of Reactor Safety (DRS)
S. Sharkman, Deputy Director, Division of Radiation Safety and Safeguards (DRSS)
C. Miller, Director, Project Directorate I-II, Office of Nuclear Reactor Regulation (NRR)
J. Shea, Acting Project Manager, NRR

Others Participating:
P. Stohr, Director, DRSS, Region II
E. Wenzinger, Chief, Projects Branch 2, DRP
P. Bonnett, Resident Inspector, DRP
M. Evans, Resident Inspector, DRP
J. Joyner, Chief, Facilities Radiological Safety and Safeguards Branch, DRSS
R. Keimig, Chief, Safeguards Section, DRSS
E. McCabe, Chief, Emergency Preparedness Section, DRSS
J. Laughlin, Emergency Preparedness Specialist, DRSS
A. Della Ratta, Safeguards Auditor, DRSS
D. Chawaga, Senior Radiation Specialist, DRSS
J. Durr, Chief, Engineering Branch, DRS
H. Gray, Chief, Materials Section, DRS
A. Lohmeier, Senior Reactor Engineer, DRS

II SUMMARY OF RESULTS

II.A Overview

Licensee management continued to maintain a strong safety perspective throughout the assessment period. Management fostered broad based performance improvements that led to stronger programs in most functional areas. Many of the programmatic weaknesses identified during the previous assessment period have either been eliminated or performance has been improved. For example, licensee actions to address previous weaknesses in the surveillance test scheduling process resulted in a significant reduction in the number of missed tests. Improvements in the Instrument & Controls Section, a weakness during the last period, contributed to the near elimination of safety system actuations due to personnel errors by that group. Fundamental problems with the quality of root cause analyses noted during the last two periods have been resolved, and the licensee's root cause analysis capabilities now constitute a strength.

Many of the long-standing radiation worker practice deficiencies previously observed at PBAPS have been corrected, and the Board assigned an improving trend in this functional area. The licensee continued to strengthen licensed operator staffing and training, contributing to improved Operations Department performance. Continued management support of the Security Program was evident, and helped to ensure implementation of an excellent program. The Emergency Preparedness Program was also well implemented. Although some problems were observed during the annual exercise, management corrective actions were prompt and Emergency Preparedness Program implementation remained a strength.

While overall progress in improving performance at PBAPS was clearly evident throughout the period, several weaknesses warranting continued management attention were identified. Numerous safety and non-safety related component failures occurred during this period, contributing to the initiation or complication of plant transients. These failures challenged the plant staff and highlighted the need to focus on plant performance monitoring and material condition. Areas for improvement in the quality of engineering and technical support were also noted, as indicated by deficiencies identified in the licensee's Motor Operated Valve Program and System Manager activities. Some lapses in operating procedure adequacy and effective use confirmed that continuation of the licensee's emphasis in this area was needed. Despite improvements this period in the quality and timeliness of corrective actions, a recurring weakness in implementing planned corrective actions was noted. Continued management attention to ensuring the development and implementation of timely and effective corrective actions is needed to compliment the significant improvements in root cause analyses already realized.

II.B Facility Performance Analysis Summary

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

Previous Assessment Period: June 1, 1990 through August 3, 1991

Present Assessment Period: August 4, 1991 through October 31, 1992

III PERFORMANCE ANALYSIS

III.A Plant Operations

III.A.1 Analysis

The previous SALP rated Plant Operations as Category 2. Licensed operators responded well to plant transients, and showed a sound knowledge of plant design. Licensed operator staffing was increased. The licensee was not completely effective in resolving weaknesses regarding procedure adherence, review and monitoring of work activities, and clearance and tagging development.

During the current SALP period, the facility was operated in a safe and conservative manner. Staffing and training initiatives undertaken during past SALP periods yielded positive results. The licensee continued to make progress in improving licensed operator staffing. An increase in the number of Senior Reactor Operators (SRO) provided licensee management with the flexibility needed to augment the control room shift complement, while broadening operator career paths through the use of off-shift rotational assignments. These efforts contributed to establishing a good mix of shift management personnel with strong technical backgrounds, and extensive in-plant operating experience. The licensee also initiated training of six SROs as Shift Technical Advisors (STA). Their plan is to add another SRO to each shift by licensing the STA. The licensee continued their efforts to provide increased operator involvement in the areas of operational support, permit writing, and unit coordination through rotational assignments for Reactor Operators (RO). These efforts have had a positive impact on operations staff performance, morale and professionalism.

Shift management maintained good oversight of plant activities. Shift turnovers were thorough, and ensured adequate communication of plant conditions and equipment status. Shift management review of planned testing and maintenance activities was good. During performance of significant operating activities or plant transients, the Shift Manager (SM) provided effective direction and leadership. The Shift Supervisors' (SSV) knowledge and use of the emergency operating procedures were excellent. For example, during an Alert following the failure of a Unit 3 transformer, the SM appropriately implemented the emergency plan and directed the overall response to the event. The SSV implemented the transient response procedures and quickly stabilized the plant. Communication among the control room staff during events was excellent.

Shift management was aggressive in scheduling and completing the actions needed to return safety-related equipment to service. The licensee implemented a new clearance and tagging process that resolved many of the tagging weaknesses noted during the previous period. However, some problems still existed. For example, a main generator trip and reactor scram occurred that reflected less than adequate review and coordination of tagging requested by the off-site load dispatcher.

The licensee generally maintained a professional control room environment with respect to communications, access control and physical conditions. During the conduct of turnovers and significant operating evolutions, shift management enforced control room access restrictions to minimize distractions to the operating staff. However, near the middle of the period a decline in the consistent implementation of these restrictions during routine evolutions was noted, and some control room crowding and distractions resulted. The number of control room instrument deficiencies remained high during most of the period. In some cases, the deficiencies were not fully assessed to determine their effect on operating procedure implementation. Licensee management took action to address these weaknesses, strengthening control room access controls, reducing the number of control room deficiencies, and providing guidance to operators addressing the review of the impact of control room deficiencies.

The ROs and non-licensed Plant Operators performed in a professional manner and displayed good safety perspective. ROs were knowledgeable of plant conditions and promptly and effectively responded to annunciators and plant transients. Operator response to several plant challenges during the period was commendable. For example, they effectively performed a rapid power reduction and implemented a scram due to the failure of a one inch vent line on the offgas recombiner. Non-licensed Plant Operators conducted daily plant tours and surveillances with a good knowledge and understanding of their duties, procedures and equipment.

The licensee completed the revision of their system operating and surveillance test procedures. This program strengthened many existing procedures, and led to the development of some new procedures. For example, the licensee developed a procedure consolidating the administrative controls for evaluating the impact of removing an emergency diesel generator from service, and a procedure detailing the method for installing logic trip signals when certain instruments become inoperable. However, some instances of lack of adequate operating procedures were noted. For example, no procedural guidance existed for recovery from an extraction steam isolation. Improper performance of the activity contributed to a plant scram. No procedures existed for system filling and venting, or for transfer of electro-hydraulic control system pressure regulators. Overall operator knowledge of and use of procedures was acceptable, but some weaknesses were noted. For example, operators did not follow the procedure for operation of the reactor water clean-up system, resulting in an engineered safety feature actuation. Near the end of the SALP period operator reference to and use of procedures during performance of routine activities was noted to be weak during SRO upgrade examinations. In response to these problems, licensee management took prompt action to clarify and communicate their expectations regarding procedure use to the operators, and to identify areas needing procedure enhancements. However, because this occurred late in the period, the effectiveness of the corrective actions was not evaluated.

During this assessment period, major refueling outages were performed on both units. Last SALP period, during a Unit 2 outage, several fuel movement errors by SROs with licenses limited to refueling occurred as a result of poor procedures or work practices. Strong licensee corrective actions in response to that problem resulted in significantly improved

communication between the control room and the refuel floor, and in the quality of refuel floor activities during the two subsequent outages. The licensee dedicated a group of licensed operators to coordinate Operations Department involvement in outage preparation, oversight and communication. This group was effective in improving outage coordination, and in reducing the distractions for the operating staff on the running unit. The licensee also initiated a program for minimizing outage risk. The licensee established policies and procedures for review of outage plans, and to heighten staff awareness with respect to shutdown risk. Overall, the outages were professionally handled and well managed.

The NRC administered one licensed operator requalification examination and three replacement examinations during the period. The pass rate for all examinations was very good. As previously discussed, a weakness was identified among the SRO upgrade candidates examined late in the period regarding reference to and use of operating procedures. Despite this problem, overall licensee performance in preparing individuals for examinations was good. Station and Operations Department management strongly supported the training program. Adequate training program resources were allocated. Management and trainees displayed a favorable attitude toward training. A spirit of teamwork among all participants was evident.

In summary, management promoted a safety conscious approach, and visibly supported operator training. Licensee efforts to strengthen staffing and provide operator career paths continued, and contributed to improvements in staff performance. Licensed operator performance in response to plant transients was strong. However, some problems were noted with instrument deficiencies, procedure adequacy, use and adherence, and with maintaining a good control room environment. Licensee management recognized these weaknesses and initiated corrective actions.

III.A.2 Performance Rating: Category 2

III.A.3 SALP Board Comment:

Although some weaknesses in areas such as operating procedure adequacy and use were noted during the period, the Board concluded that the overall level of licensee performance in this functional area had improved. The licensee has continued to strengthen operator staffing and shift complement and to assign individuals with operations expertise to off-shift rotational assignments supporting activities such as effective outage conduct. These efforts have resulted in improved staff performance, morale and professionalism.

III.B Radiological Controls

III.B.1 Analysis

The previous SALP Report rated Radiological Controls as Category 2. During that period staffing changes resulted in some program improvements, yet incidents resulting from poor radiological work practices were numerous and corrective actions were not always effective in preventing recurrence. Management assurance of quality was evident for technical issues but somewhat less effective in assuring quality of performance for the in-plant program. As low as reasonably achievable (ALARA) performance was good and the training program showed improvement. Performance in the areas of radioactive waste management, transportation, effluents, chemistry, and radiological environmental monitoring program (REMP) was very good during the last period.

III.B.1.1 Radiological Protection

During the current SALP period, the health physics (HP) organization demonstrated significant improvements in performance through changes in program implementation. Corrective actions for previously identified problems traceable to poorly defined supervisory responsibilities and poor work practices were effective. Exposure reduction efforts were effective and contamination control measures were improved. Although some incidents were attributable to poor radiation work practices or failure to adhere to procedure requirements, the frequency of such incidents declined significantly compared to previous periods.

Management assurance of quality improved during the assessment period. Strengthened management and supervisory oversight, and the effective dissemination of policies and expectations, contributed to a reduction in cumulative exposure, personnel contaminations and radiological control incidents. Examples of specific program improvements included management trending of radiological performance indicators, good housekeeping techniques (such as the use of knee walls to prevent the spread of contamination), and lowering the acceptance criteria for contamination on laundered protective clothing. Audits were in-depth and comprehensive and corrective actions generally prevented recurrence of similar incidents.

The interface between HP and other plant departments improved during the period. HP management attended Daily Leadership Meetings, and provided information to other departments on HP issues. Cooperation between departments was evident at those meetings. Personnel exposure goals were aggressive and good ALARA practices were used to minimize employee exposure. Other good licensee initiatives included sending HP teams to observe radiological practices at other facilities, and hosting a regional ALARA conference.

The HP organization performed tasks with a high level of technical competence throughout the period. Licensee personnel demonstrated proficiency by characterizing the response of various survey instruments to the types and energies of radiation found at the plant.

Performance was consistently good for shielding, ventilation and contamination control evaluations.

Health physics support for routine operation, maintenance and testing activities was good. Radiological work was well controlled and preplanning was evident. Compliance with Radiation Work Permit requirements improved during the period. Health physics technicians had a sound understanding of radiological conditions and typically provided adequate briefings to workers. Expanded use of the Plant Information Management System (PIMS) has improved the process for input and review of radiological control data. The PIMS provided on-line access to current data from many office locations and areas within the plant. The HP department's ability to handle non-routine tasks was generally effective. Some examples of good performance included the retrieval and handling of a jet pump within the spent fuel pool and the quick response to an offgas recombiner condenser leak. Major evolutions, including replacement of both main condensers, four Unit 2 feedwater heaters, control rod drive change-out, and disassembly of the 'C' low pressure turbine rotor, were well planned and controlled with only minor problems encountered. However, some weaknesses were noted in the conduct of some work. For example, one event of potential safety significance involved a failure to survey for beta radiation during reactor water clean-up pump work. Corrective actions in response to this incident were practical and comprehensive. In addition, an analytical review of beta radiation protection factors for protective clothing was initiated. A more appropriate beta calibration source was acquired and the ion chamber survey instrument's beta correction factor was reevaluated and changed. Some other problems occurred near the middle of the SALP period. Poor radiological work practices and failure to comply with procedures resulted in several instances of minor contamination control problems. Other problems involved monitoring of personnel who were de-sludging waste tanks, and radiological controls established for cutting control rod blades. The problems were of limited scope and were adequately addressed by the licensee.

Good staffing levels were maintained throughout the period. The licensee altered the approach to assignment of the outage staff since the last period. HP technicians were incorporated into work groups that functioned under supervisors who were responsible for specific plant areas. Improved effectiveness and quality of HP staff performance in the field has resulted. Responsibilities of positions within the HP organization were well defined.

Improved worker training contributed to a reduction in personnel errors and procedure compliance problems that, in the past, had resulted in a large number of radiological incidents at the station. The HP organization was generally effective in communicating lessons learned at PBAPS and other plants to radiation workers and HP personnel. This communication was achieved through training, newsletters, required reading and department meetings. Training for health physicists has not been limited to technical topics. Efforts

have been underway to improve the "team building" within the organization through improved relations between management and technical staff members. Overall, training was good and improving.

III.B.1.2 Radioactive Waste and Transportation

The licensee's program for processing, packaging and shipping of radioactive material remained strong. Clearly defined responsibilities and a highly qualified staff consistently contributed to sound performance. Quality assurance audits and surveillances were comprehensive and excellent in quality. Radwaste personnel executed effective housekeeping and floor cleaning efforts. One instance was noted where improper maintenance of radwaste processing equipment resulted in a loss of contamination control. However, overall performance in the area of radioactive waste handling remained excellent.

III.B.1.3 Radiological Environmental Monitoring, Confirmatory Measurements, and Effluent Control

The licensee conducted an effective REMP for routine operations. However, there was an isolated case where the licensee identified the inoperability of the intake composite water sampler. In that case, the licensee's corrective actions were neither adequate nor timely. The licensee implemented an excellent quality control program to ensure the validity of the analytical measurements for the REMP samples. The meteorological monitoring systems were properly calibrated and maintained. The scope and technical depth of Nuclear Quality Assurance (NQA) audits to assess the REMP and meteorological monitoring program were good.

The licensee conducted excellent radioactive liquid and gaseous effluent control programs. The Chemistry Department staff had excellent knowledge of the programs and understood the implementation of the Offsite Dose Calculation Manual. The reliability of the effluent and process Radiation Monitoring Systems was identified as a weakness during the previous SALP period. The licensee has undertaken a three-year project to upgrade the Radiation Monitoring System, which is scheduled to be completed in 1995. In the meantime, additional maintenance attention was provided to assure continued operation of the system. The scope and technical depth of NQA audits in these areas were very good. Air cleaning systems were properly tested and maintained.

The results of the NRC's radiological measurements comparisons program indicated that all measurements (13 sample media and 61 radionuclides) were in agreement with NRC criteria for results comparison. The scope and technical depth of NQA audits to assess the measurements program were good.

III.B.1.4 Summary

Radiological control effectiveness was good, and improved during the period. Improvement was noted in communication and coordination of activities between HP management, supervisors and the technical staff. Management oversight of HP program activities has improved. Some weaknesses were observed in radiation work practices and the handling of non-routine radiological work. Performance in the areas of effluent controls and the REMP continued to be excellent. The radiological measurements program was good.

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

III.C Maintenance and Surveillance

III.C.1 Analysis

The previous SALP rated the Maintenance and Surveillance functional area Category 2. During that period the licensee planned and performed maintenance tasks effectively. Their commitment to supervisory development, maintenance self-assessment and predictive maintenance programs were strengths. The need for improvements in the use of procedures by maintenance personnel, and in the control of measuring and test equipment (M&TE) was identified. The licensee planned and conducted major testing evolutions in an excellent manner. However, test control deficiencies and the number of unplanned equipment actuations during testing indicated weakness in work standards, and in personnel knowledge and use of surveillance test (ST) procedures. The licensee did not take strong action to address ST scheduling program problems, and the number of missed tests remained high during the last period.

During this SALP period, the licensee reorganized the Maintenance and Instrument & Controls (I&C) Section into four branches, each lead by a Branch Head. Three of the Branch Heads were newly appointed this period; two were previously Shift Managers and brought extensive plant operations experience to the Maintenance organization. Engineering functions, with the exception of motor operated valves, predictive maintenance, and preventive maintenance programs, were transferred to the Technical Section. These organizational changes helped the Maintenance Section to better focus on in-plant maintenance activity implementation. Staffing levels remained adequate. Licensee management continued to stress the need for self-assessment of the organization and actively supported improvement efforts. Initiatives taken as a result of the self-assessment that resulted in improved performance included reorganization of the I&C Branch into plant system-oriented teams, and establishment of a Quality Improvement Team to review issues involving nuclear instrumentation.

The licensee was effective in identifying and resolving high priority maintenance work, and therefore maintaining an adequate plant material condition. Several major equipment upgrades were completed including main condenser replacement, reactor recirculation pump motor generator set cleaning and emergency diesel generator cylinder liner replacement. However, numerous safety and non-safety related component failures occurred during the period. The number of out-of-service control room instruments remained high through most of the period. Problems with non-safety related and balance of plant equipment performance contributed to several operational transients, including recirculation pump trips and reactor scrams. These equipment performance problems highlighted the need to further strengthen the performance of the Maintenance organization. Actions taken by the licensee to address these issues included identification of chronic problem areas affecting safe and reliable operation of the plant, initiation of obsolete I&C equipment modifications, and the establishment of a tracking system and dedication of resources to resolve control room instrumentation deficiencies. The effectiveness of these actions could not be assessed before the close of this SALP period.

The quality of the maintenance planning process was mixed. Communication and coordination among the various working groups continued to be good. The daily interface meeting between the Unit Coordinators and the Operations Shift Manager was effective in prioritizing and scheduling emerging maintenance items. High visibility maintenance activities were planned in an excellent manner, demonstrating that adequate planning expertise existed. Examples included emergency diesel generator 18-month maintenance, and the replacement of a residual heat removal system pump motor. However, weaknesses in maintenance planner training and guidance contributed to inconsistencies in the quality of work packages regarding work instruction detail and post-maintenance testing criteria. These weaknesses resulted in a heavy reliance on the skills of the technician/craftsman to ensure appropriate implementation of the work. For example, an inadequate work package for the removal and reinstallation of the 11 Unit 2 safety relief valves during a previous refueling outage contributed to improper installation of the valve thermal insulation. This resulted in component heat stress and significant component degradation. While the errors contributing to this incident were made during a previous assessment period, some of the underlying weaknesses persisted into the current period. Additional examples of inconsistent planning quality were noted during an NRC Team Inspection near the middle of the period. The licensee implemented staff, procedure, and training enhancements directed at improving the maintenance planning process. These efforts resulted in noticeable improvement near the end of the period. However, more time is needed to assess their long-term effectiveness.

During this SALP period, the in-field performance of maintenance activities was good. Craft personnel were knowledgeable and exhibited good technical understanding of the equipment being repaired and the tools being used. The licensee's replacement of a residual heat removal pump motor was very well done and resulted in the breaching of secondary containment for a minimum amount of time. The licensee maintained an extensive set of component specific maintenance procedures. The quality of these procedures was good, with some exceptions. The maintenance procedure for removal and installation of the safety relief

valves was inadequate in that it did not address removal and installation of the thermal insulation. Weaknesses in the procedure for preventive maintenance of 4 KV breakers caused an equipment actuation that contributed to a plant scram.

During this period, the licensee's vibration monitoring, thermography, and lube oil analysis programs continued to be well implemented. Through these efforts several improvements to rotating equipment were completed that contributed to component reliability. The licensee's programs for Inservice Inspection, Inservice Testing and welding were generally effective. In addition, the licensee corrected previous deficiencies in the program for control of M&TE.

The performance of Nuclear Maintenance Division personnel was good. During the previous period, errors occurred during the Unit 3 refueling outage as a result of inattention to detail, and the double verification process not being properly implemented. The licensee implemented extensive corrective actions and demonstrated considerable improvement during two subsequent outages. For example, the conduct of a jet pump recovery evolution early in the period was commendable. Activities associated with reactor vessel disassembly and reassembly, and the cleaning of the bottom head drains for both units were accomplished well.

As part of their ongoing procedure upgrade program the licensee completed the rewrite of ST procedures to incorporate human factor considerations, and to ensure appropriate technical content. In general, the ST procedures were well written and technically sound. However, a few procedural inadequacies were identified following the rewrite, including discrepancies in the procedures for logic system functional testing of the primary containment isolation system, and monitoring of reactor pressure vessel temperature during heat-up and cool-down. The licensee's corrective actions in response to these problems included review of other procedures for similar problems.

The licensee continued to plan and conduct major test evolutions effectively. Examples included conduct of the reactor vessel hydrostatic test and containment integrated leak rate test following the Unit 3 refueling outage, and a Special Test to demonstrate operability of the reactor core isolation cooling system testable check valve. In addition, the quality of in-field surveillance activities was significantly improved over that noted during the previous SALP period. Testing activities were well planned and the procedures were followed. The licensee implemented a series of corrective actions in the area of I&C activities, as a result of weaknesses identified during the last SALP period. These corrective actions resulted in improved performance and nearly eliminated the occurrence of safety system actuations attributable to personnel errors by the I&C Group. Increased and more effective I&C supervisory involvement in field activities was also observed during the period.

Licensee management made significant progress in implementing actions to correct the deficiencies in the ST scheduling and results review program that were identified during previous SALP periods. The licensee implemented an improved program and established

meaningful program performance indicators to resolve the long-standing deficiencies. During the current period, only two STs were missed. These missed STs were due to unique causes rather than any programmatic weakness.

In summary, the licensee's overall performance in the area of maintenance and surveillance was good and supported safe station operation. Licensee actions taken to address weaknesses in the ST program and I&C activities have been effective. Some weaknesses were noted in the maintenance planning process and procedures. The number of plant events and transients resulting from component failures during the period challenged the plant staff.

III.C.2 Performance Rating: Category 2

III.C.3 SALP Board Comment:

The Board viewed the continuation of licensee efforts to improve the condition of plant equipment, and to reduce the number of equipment problems that contribute to safety system actuations and operational transients, as important to improving overall safety.

III.D Emergency Preparedness

III.D.1 Analysis

During the last SALP, Emergency Preparedness (EP) was rated Category 1. That rating was based on a well-defined EP training program with an extensive drill/practice schedule, a strong State and local government interface, corporate management involvement on-site, and overall good performance.

During this SALP period, there was effective licensee response to the five operational events that required implementation of the Emergency Plan. Four of these were Unusual Events: a dislodged jet pump assembly in the spent fuel pool; emergency core cooling system initiation and injection in response to a valid signal; and two instances of transportation of a potentially contaminated individual off-site. An Alert was declared for a switchyard transformer failure affecting plant operation. Each event was quickly recognized and properly classified. Notifications to off-site officials and the NRC were timely.

During the Alert, licensee actions were generally timely and in accordance with established emergency response procedures. Shift staff decision-making and overall response coordination were effective. Following the event, Technical Support Center (TSC) activation timeliness (1 hour, 55 minutes versus the 1 hour goal as described in NUREG-0654) was identified as a weakness. The circumstances involved event declaration during wet, foggy weather at 1:50 a.m. on July 4, 1992. The Shift Manager delayed his turnover to the Emergency Director in the TSC for 30 minutes due to telephone conversations with senior management

and public information personnel. In response, the Station Vice President issued guidance to Shift Managers and Emergency Directors ordering TSC activation precedence over such discussions. Further, during the Alert, the Emergency Response Organization (ERO) call-out procedure was noted to be cumbersome. The licensee changed the procedure and installed an automated call-out system by the end of the period. The effectiveness of these measures has not yet been reviewed by the NRC.

Good overall performance was noted in the August 26, 1992, full-participation exercise. Under a very challenging severe accident scenario, there were strengths in Simulator Control Room command and control, Emergency Director plant and procedure knowledge, mitigation/restoration efforts, and site security performance. Excellent Emergency News Center display capabilities were also evident. However, a weakness in Emergency Operations Facility (EOF) command, control, and communications resulted in 1) misidentification of the release pathway, 2) incorrect and insufficiently based protective action recommendations, and 3) failure to consider issuing potassium iodide for field teams. Another weakness was identified in accuracy of information provided to the media. That these weaknesses became evident was in large part due to the challenging nature of the exercise. The licensee took prompt corrective action by providing additional training to key emergency responders, revising Emergency Response Procedures, and designating company Vice Presidents as Emergency Response Managers. In a subsequent (10/14/92) licensee drill, much improved EOF command, control, and communications were evident. Overall, the challenging August 1992 exercise and the resulting changes were assessed as effective in strengthening emergency response capabilities.

Administration of the drill/exercise program was controlled by licensee Corporate Headquarters (Chesterbrook) and was a program strength. The site had two practice drills, one dress rehearsal drill, and an annual exercise each year. ERO members were required to play in one drill/exercise every three years. Chesterbrook developed all drill scenarios and maintained a data base on the status of satisfying all required objectives. Drill/exercise reports were well-written, complete, and self-critical. These addressed strengths, weaknesses, and areas for improvement, and received wide distribution to site and corporate management. The licensee noted that the on-site mini-drill program was informal and not well-documented, and initiated formalization of the process.

Licensee management support of EP was strong. The program was administered jointly by the Chesterbrook and Peach Bottom EP groups. Site Emergency Preparedness Supervisor responsibilities included on-site maintenance, surveillance, communications, facilities, mini-drills, and Emergency Response Procedures. Corporate Emergency Preparedness Manager (EPM) responsibilities included off-site training, drills and exercises, and supporting the site. Corporate and site interaction was assessed as effective in promoting a strong EP program.

EP training was effective and well-documented. Well defined procedures identified ERO positions by job access codes and described the required training for each position. ERO training and qualification status was tracked by the PIMS. The Site Emergency Preparedness

Supervisor interfaced closely with the Training Department to ensure that lesson plans were updated as procedures were changed. Overall training effectiveness was demonstrated by the response to the five operational events and by proficient performance of two operating crews during NRC inspection. That inspection included administering fast-breaking event scenarios that required two crews to respond without ERO augmentation. Both crews correctly recognized the postulated conditions and properly classified the simulated fast-breaking events. Protective action recommendations were conservative.
The EP organization was amply staffed with well-qualified personnel. The Corporate Emergency Preparedness Manager had a staff of 14 with a varied mix of expertise; while the Site Emergency Preparedness Supervisor had a staff of three, with licensed SRO, health physics, and clerical expertise. An additional on-site position was authorized, but not yet filled. A new Site Emergency Preparedness Supervisor took over duties in February. The new Site Emergency Preparedness Supervisor had several years experience in the corporate EP group, and recently completed a 15-month tour with INPO in their EP group, thus providing a well experienced addition to the EP group. The ERO was staffed four deep and members routinely were rotated through positions during drills so that all received drill experience. Selection Managers assigned by the Site Vice President selected ERO personnel, ensuring quality.

The NQA Department conducted the annual EP audit. The last audit (1991) was completed using a thorough and detailed checklist. It noted several program strengths and some areas needing corrective action. Action items resulted in Corrective Action Requests, which received aggressive follow-up by the EP group until closed. The audit report properly addressed 10 CFR 50.54(t) interfaces and was widely distributed to management.

Management support of EP was evident in several significant program enhancements. A new common EOF and Emergency News Center was completed. That facility provided a large EOF operations room, an adjoining large media briefing room, and other offices for licensee, State, and federal responders. The EOF was equipped with the Emergency Preparedness Data System. That system projected information on three overhead screens, and provided hard copy capability as well. During the August 1992 exercise, the Emergency Preparedness Data System was appraised as highly effective. The licensee also instituted a new dose assessment computer program, the Common Dose Model, which was used in the plant Control Room, TSC, and EOF. The Common Dose Model was evaluated as enhancing dose assessment capabilities. The EOF was assessed, during several drills, as providing effective emergency response capability. Other Emergency response facilities described in the Emergency Plan were appropriately maintained.

In summary, the licensee maintained a strong EP program. Management remained deeply involved and demonstrated commitment to the program by hiring a highly-qualified replacement for the Peach Bottom Site Emergency Preparedness Supervisor, and by applying significant resources to the new EOF. The ERO effectively implemented the Emergency

Plan during five events. The challenging scenario for the annual exercise resulted in improved response capabilities. Effective EP training was verified by strong operator performance during walk-through scenarios.

III.D.2 Performance Rating Category 1

III.E Security and Safeguards

III.E.1 Analysis

During the previous assessment period, the licensee's performance was rated as Category 1. That rating was based on the licensee's continued efforts to maintain and implement a very effective and performance-oriented program as evidenced by appropriate management support and program upgrades and enhancements.

During this assessment period, the licensee continued to implement a very effective program. Corporate and plant management continued to be actively involved in security matters as evidenced by the support and funding for the security program upgrades. The more significant of these upgrades were: 1) replacement of about 90% of the perimeter intrusion detection system; 2) the installation of new state-of-the-art access control equipment in the plant access control center and warehouse building; and 3) new computer software to enhance assessment and alarm capability. The licensee also remained very active in industry groups involved in nuclear plant security matters by sponsoring and participating in meetings, and maintained effective liaison with local law enforcement agencies through on-site training and meetings. These activities demonstrated a high degree of program support and interest on the part of corporate and site management.

The program was administered by the Director of Nuclear Security who is very knowledgeable of nuclear power plant and security matters. The Director's immediate staff was composed of well-trained and experienced security personnel who provided excellent oversight of the contract security force. Licensee and contractor management met frequently to review program implementation and to resolve emerging problems and issues. Excellent communications and rapport between the licensee and contract security force were maintained as evidenced by minimal problems and high morale in the force. A notable program strength was plant and security managements' continual interaction as evidenced by discussion of security issues at daily plant status, refueling and outage meetings. There was generally excellent program support from all plant groups and personnel. For example, excellent cooperation and rapport among departments were demonstrated in preparation for and during an NRC Operational Safeguards Response Evaluation during this period. The NRC found that the overall protection strategy for the plants was very sound. Another notable strength in the licensee security staff was a full-time technical engineer and the assignment of a full-time I&C video technician to maintain equipment and implement upgrades. Their combined efforts to maintain systems and equipment significantly reduced the need for compensatory measures and attendant overtime. Staffing of the contract security force was consistent with

program needs, as evidenced by the minimal use of routine overtime. Members of the security force exhibited a professional demeanor and were very knowledgeable of their duties. The turnover rate for the contract security force remained less than five percent.

The training and qualification program continued to be carried out by an experienced and knowledgeable staff. The program was well-structured and maintained current through the effective use of feedback from operational experiences. However, toward the end of the period, the effectiveness of routine patrols was questioned when several minor security system discrepancies were identified by the NRC, that had not been detected previously by security patrols. Prompt corrective action was undertaken to augment the training and to retrain all officers. The licensee also provided certain licensee and contractor supervisors with firearms instructor courses and courses in supervisory development and safety. The overall effectiveness of the program was reflected by a limited number of personnel errors and no violations during the period.

The annual audit, by NQA, with the assistance of Corporate security agents as technical specialists, was very comprehensive in scope and depth and resulted in no significant findings. Another program strength was the licensee's continued use of internal audits and self-assessments throughout the period to identify potential weaknesses before they became problems. Corrective actions on findings and recommendations identified during audits and self-assessments were prompt, appropriate and effective.

Events that have to be logged and that occurred during the period were appropriately analyzed and tracked. Corrective actions, where required, were timely and effective, as indicated by a reduction in their number compared to the previous period. Event reporting procedures were clear, consistent with NRC reporting requirements and correctly implemented. No prompt reportable security events occurred during the period. The licensee's Fitness-for-Duty program, and its implementation, were found to be responsive to both the spirit and intent of NRC's rule. The program was aggressive, comprehensive and directed toward ensuring safe plant operation.

During this assessment period, the licensee submitted two revisions to the Physical Security Plan and one revision to the Training and Qualification Plan under the provisions of 10 CFR 50.54(p). The revisions were technically sound and reflected well-developed policies and procedures.

In summary, the licensee continued to maintain a very effective and performance-oriented security program. Corporate and plant management attention to and support of the program were clearly evident. Security management continued to exhibit a high degree of expertise and excellent knowledge of nuclear security objectives. The training program was strong, as indicated by a limited number of personnel errors. Program strengths were identified, particularly in security staffing, plant and security management interactions, and audits and self-assessments.

III.E.2 Performance Rating Category 1

III.F Engineering and Technical Support

III.F.1 Analysis

This area was rated Category 2 in the last assessment period. During that period, the Nuclear Engineering Department (NED) resolution of technical issues was good. The NED on-site staff at Peach Bottom Atomic Power Station (PBAPS) performed effectively and Corporate efforts to improve performance were demonstrated through initiation of training programs, implementation of regular NED/Plant interface meetings, and initiation of a personnel rotation program. Engineering program weaknesses remaining at the end of the period were those of Q-List omissions, lack of review of non-conformance report (NCR) safety evaluations by the Plant Operations Review Committee (PORC), adequacy of site engineering corrective actions, and quality of engineering support.

During the current assessment period, good on-site management involvement was evidenced by a number of management actions including the dissemination of the PBAPS 1992 Mission Statement, Operational Objectives, and Goals throughout the PBAPS technical organization. Chronic problem areas were publicized to provide focus of management attention and resources on systems having the greatest need for improvement. Consistent with corporate goal setting strategy, engineering organization performance monitoring was used effectively by the PBAPS engineering organization to identify those areas requiring management attention and adjustment of resource expenditure to ameliorate problem areas.

Support to the site by NED corporate engineering was good, and an appropriate allocation of corporate engineering resources was evident in addressing several issues. Communication between corporate engineering and the station operations staff was good. Engineering support resulted in resolution of long-standing emergency service water system issues. Industry issues associated with fire barriers were promptly and effectively addressed by NED. NED dedicated significant resources to analysis and resolution of site specific reactor water level indication accuracy problems. NED site engineering provided technically adequate support in responses to NCRs, engineering work requests, and engineering change requests. NED site engineering also provided for minor modification design changes, screening for safety impact, and work priority evaluation. Additionally, they were aggressively working off a large NCR backlog on a scheduled basis.

Important changes that resulted in improved modification packages were the expanded application of the Modification Management Process and Modification Teams. Modification packages such as the feed-water heater replacement and high pressure coolant injection booster pump impeller replacement were of excellent quality and demonstrated a high level of engineering and technical support capability in resolution of technical problems.

Mixed progress was noted in improving the effectiveness of the Technical Section to provide engineering support during the assessment period. In an effort to improve site engineering effectiveness, a reorganization was implemented that included alignment of the Technical Section with NED and consolidating the engineering support functions from the Maintenance/I&C organization into eight branches of the Technical Section. The licensee assigned senior engineers with diverse experience to the eight Branch Head positions. Six engineers were assigned to the control room shift crews and helped to coordinate engineering support to operations. The licensee made substantial progress in implementing a comprehensive Technical Staff training program to strengthen the plant engineering background.

At the end of the assessment period, however, the effectiveness of System Managers and new Branch Heads was not fully established. Although their role and responsibilities were defined, their ability to effectively monitor system performance was not demonstrated. This was due to the System Managers' lack of specific system experience and knowledge. Their management of work load and prioritization of efforts was weak and, as a consequence, they did not consistently perform system walk-downs, and acted primarily in a reactive manner to system problems. Their use of performance monitoring, trend observation, and data analysis was limited. In some cases, however, good system monitoring was demonstrated by the system engineers. Unit 2 residual heat removal system injection valve leakage trend evaluation, reactor vessel water level instrument divergence, traversing in-core probe seal failure monitoring, and observing control rod drive mechanism degradation showed good system monitoring. Recognizing the problem of mixed levels of performance, Technical Section management took steps near the end of the assessment period to evaluate System Manager workload and to improve the plant performance monitoring program.

The licensee aggressively pursued and resolved programmatic issues identified during the last assessment period, involving completeness and control of the Q-List. A comprehensive NED root cause analysis identified inadequacies in the following areas that accounted for the Q-list problems: an inadequate drawing review process, inadequate internal engineering evaluations, and inadequate administrative controls. These inadequacies were subsequently corrected during this assessment period.

Work continued during the assessment period with the development of the PIMS. A revised drawing control system was operational, although some problem areas continued to exist with drawing control associated with temporary plant alterations. The PIMS, with modification information included, was an effective means to control a centralized drawing and modification data bank.

The 10 CFR 50.59 safety evaluation process functioned well. Safety reviews for plant modifications were generally of high quality and an effective modification preparation procedure involving design, safety review, installation, and testing was in effect as evidenced by the heat exchanger replacement modification and the high pressure coolant injection system booster pump impeller replacement. The PORC performance was effective in review and approval of the modification safety evaluations.

Many NED engineering initiatives were being implemented to increase plant operation efficiency, including improvement of plant performance, equipment reliability, effectiveness of organizational activity, and self-evaluation of performance. Examples included lengthened fuel cycles, improved design basis documentation, and new digital feed-water control systems. The scope and quality of engineering initiatives showed licensee commitment to improvement of plant performance.

Engineering and technical support were strong in support of license amendments and relief requests. Safety analyses in support of several amendment requests showed sound understanding of the engineering and safety issues involved. Examples included a proposed Technical Specification modification that will incorporate significantly enhanced emergency diesel generator surveillance requirements, and an emergency amendment, to allow loading of fuel with more than one control rod withdrawn, required to support core manipulations after finding debris in the lower core during the Unit 3 refueling outage.

Licensee engineering performance in generic issue actions was mixed. During the assessment period, licensee corporate engineering assistance was strong in completing actions on Generic Letter (GL) 88-01 on inter-granular stress corrosion cracking and GL 89-13 on service water systems. The licensee was responsive to emerging generic issues, as exemplified by response to NRC Bulletin 92-01, and its Supplement, discussing Thermo-Lag 330 fire barrier material deficiencies. Potentially affected plant areas were identified and appropriate compensatory action taken. However, in the case of GL 89-10, the NRC found several weaknesses in engineering support of the Motor Operated Valve (MOV) program. Cases were found of both over-thrusting and under-thrusting remaining after diagnostic testing. Problems with torque switch settings and the MOV data base were noted. Corrective action weaknesses were noted in the reporting and disposition of valve control deficiencies. The licensee was reviewing MOV operability and deficiency reporting procedures as a result of the GL 89-10 inspection findings at the close of the SALP period.

During the assessment period, good licensee engineering resolved several long-standing technical issues. A Supplemental Safety Evaluation confirmed the adequacy of the licensee's response to the station blackout issue. Furthermore, the licensee prepared a revised station blackout analysis that demonstrated a strong engineering and safety conscious approach with continued strong management in resolution of the heretofore unresolved problem. A comprehensive program of flow testing and balancing involving coordination between NED and PBAPS was successfully carried out in resolution of a long-standing emergency service water system issue.

Review of Nuclear Quality Assurance activities indicated that the audits of engineering functions were well planned and comprehensively implemented. It was noted, however, that the elements of the quality assurance program did not preclude problems in design control, nonconformance reporting, and disposition of MOV weaknesses. Engineering training at PBAPS provided for a wide range of programs for orientation of the starting engineer, continuing

technical training for the Technical Section staff, and a rotational program in multiple disciplines for potential supervisory personnel. The training facilities were excellent and the course content comprehensive.

In summary, corporate and site management showed strong involvement in improvement of engineering and technical support toward effective operation of PBAPS. Included in these improvements were good support of site engineering by NED, excellent modification packages, continued improvement in computerized drawing control system development, good safety evaluation procedure implementation, excellent scope and quality of engineering initiatives, good engineering support of amendment requests and technical issue resolution, effective root cause analyses, and a good engineering training program. Mixed strengths and weaknesses were found in Technical Section performance, and in engineering response to generic issues. Engineering weakness was found in the MOV program in reporting and disposition of valve deficiencies.

III.F.2 Performance Rating Category 2

III.G Safety Assessment/Quality Verification

III.G.1 Analysis

During the previous assessment period, licensee performance in this area was rated as Category 2. Licensee strengths included the close involvement of corporate and station management in routine plant activities, and the strong commitment of resources to identify problems and areas of performance weakness. The wide variety of self-improvement programs conducted at Peach Bottom was viewed as a significant strength. However, there were weaknesses in the quality of root cause analyses, and in devising and implementing timely and effective corrective actions.

Throughout the current SALP period, the licensee continued to devote considerable resources to organizational self-assessment and self-improvement programs. The first site-wide self-assessment was conducted in January 1992 and provided a thorough, in-depth, broad scope look at station activities. The program identified a number of areas requiring additional management attention. An NRC Integrated Performance Assessment Team (IPAT) Inspection found that nearly all weaknesses or areas for improvement identified by the IPAT had been previously identified by the licensee's self-assessment. The IPAT did conclude, however, that the licensee should have taken more immediate corrective action for some of the weaknesses identified in the self-assessment. Overall, the licensee's self-assessment was viewed as an effective initiative in identifying areas of weakness.

The licensee expanded self-improvement efforts over the period with several programs directed at improving corporate and station work environments. The licensee continued to pursue implementation of a Quality Management Program by completing extensive training in

quality management techniques. Application of quality management skills following training was evident at several levels of the organization. Another important self-improvement effort supported by the licensee during this period was the expansion of the Supervisory Development Academy to include all first line supervisors in the nuclear organization. Continuation and expansion of these improvement programs represent a significant commitment of resources by licensee management that have produced noticeable positive effects.

The licensee implemented effective actions to address previous weaknesses in their root cause analysis program. During this period, the licensee strengthened the role and resources of the station Experience Assessment Group (EAG). The EAG revised the investigative procedures to encourage problem identification by lowering the threshold for event reporting, and to better characterize the potential significance of each report. Management and staff training in root cause analysis techniques was completed. In addition, the EAG initiated tracking and analysis of an expanded data base of event root causes to identify potential adverse trends. Several cases in which trends of concern were identified indicate that the licensee achieved some success with these enhanced EAG assessment activities. These changes represent improvements in the licensee's ability to identify, assess and address problem precursors.

The quality of root cause analysis has improved significantly, helping to identify underlying problems. However, the overall program for correcting deficiencies and anomalous performance at Peach Bottom is complex, consisting of numerous, and sometimes redundant, problem identification, evaluation and corrective action tracking mechanisms. This redundancy resulted in some duplication of effort and made open corrective action tracking and priority assignment difficult. It contributed to a lack of clarity or inconsistency in the threshold for reporting issues, and to a recurring weakness in implementing planned corrective actions. For example, upon finding degraded automatic depressurization system (ADS) valves in Unit 3, the licensee did not implement appropriate near-term corrective actions pending completion of the formal root cause analysis. As a result, Unit 2 restarted with similar ADS valve insulation deficiencies. In another example, the NRC MOV Team Inspection found that MOV discrepancies were not uniformly addressed by the licensee, in part due to the cumbersome nature of the overall corrective action process. Licensee management recognized these problems and initiated actions to address them, resulting in improvement. These activities included revision of procedures and practices to focus on implementation of interim corrective actions, and identification and management monitoring of top priority corrective actions through use of a "Hot Corrective Actions List." In addition, licensee senior management established a Corrective Action Program Task Force to perform an evaluation of the program and to recommend improvements. This task force was ongoing at the close of the SALP period.

Although weaknesses in the licensee's programs for correcting deficiencies were identified, the licensee was effective in resolving many previously identified programmatic weaknesses. The enhancements made to the EAG significantly improved the root cause analysis process. As a result of an assessment initiated by the Peach Bottom Vice President, the licensee

identified several recurring deficiencies in their training program. In response, licensee management implemented comprehensive corrective actions that resulted in clear improvement. This was confirmed by an NRC Training Program Team Inspection.

During the last SALP period the licensee experienced a high number of personnel errors in the I&C department. Extensive analysis and implementation of changes in technician organization and training contributed to a clear improvement in performance. Long-standing weaknesses in the surveillance test scheduling program and in the operation of the emergency service water system, were also resolved.

With regard to ongoing, daily monitoring of overall plant performance, the licensee continued to maintain an extensive set of performance indicators addressing emergency core cooling system availability, personnel safety and plant performance. The indicators were widely distributed, and effectively used to help identify areas requiring increased attention. The licensee also established a tracking system to identify degradations in redundant safety systems and non-safety equipment. The status of the degraded systems and actions needed to restore them were discussed weekly by management. The licensee also established a list of near-term "follow-up issues" important to plant operation and assigned each to a Superintendent. These efforts helped to strengthen management awareness of plant performance and facilitated follow-up action. One exception to otherwise good performance in this area was the licensee's weak recognition of the potential impact of out-of-service control room instrumentation on plant operations.

During the SALP period, the licensee experienced a significant number of unplanned plant shutdowns and scrams. In many cases these events were caused by equipment performance problems. For example, during July and August 1992 four recirculation pump trip events, three reactor scrams and a feedwater extraction steam isolation occurred. These events were primarily caused by problems with non-safety-related equipment performance and challenged the operations and technical staff. The number of transients indicated weakness in the quality and scope of the maintenance program and in the Technical Support staff's program for monitoring equipment performance.

The performance of various safety and quality oversight bodies remained a strength. Early in the period, PORC was not effective in performing broad reviews of issues affecting plant operations and PORC composition lacked continuity. However, licensee implementation of the Station Qualified Reviewer (SQR) program has significantly reduced the administrative burden on PORC that, in part, impeded its effectiveness. As a result, the depth and scope of PORC reviews have improved noticeably since implementation of the SQR program. The Nuclear Review Board (NRB) continued to provide strong oversight and assessment of the nuclear organization. NRB members consistently demonstrated a broad safety perspective, and provided challenging questions to the plant management team.

The licensee maintained a competent Nuclear Quality Assurance staff with diverse experience. The corporate Performance Assessment Division performed effective audits, including continued implementation of licensee sponsored safety system functional inspections. The onsite quality assurance staff conducted performance based reviews of station programs and processes. Findings from these audits were well documented in the form of Corrective action Requests and received an adequate level of line management review and response. The Independent Safety Engineering Group continued to provide excellent evaluations of plant events and issues.

Licensing activities remained strong throughout the period. Supporting information for most licensing actions was technically sound and reflected a safety conscious approach. Examples of strong licensing actions included a revision to the emergency diesel generator surveillance requirements that was issued, in part, in July 1992, and an emergency Technical Specification change request to allow loading of fuel assemblies with more than one control rod removed. Licensing action on station blackout activities was completed with issuance of an NRC supplemental safety evaluation approving the licensee's proposal to install a dedicated power feeder from the Conowingo Hydro electric station as an alternate AC source. Although resolution of the station blackout issue followed significant discussions with the NRC staff, strong, safety conscious involvement on the part of licensee management was evident throughout the discussions.

In summary, the licensee made significant progress in addressing the weaknesses seen during the previous SALP period. Licensee management has continued to maintain a strong safety perspective and has improved their effectiveness in identifying and correcting performance weaknesses. The licensee has made significant progress in establishment of a strong root cause analysis process, and these improvements had a positive impact. However, while the quality and timeliness of specific corrective actions have improved, continued emphasis on improvement is needed in this area. Finally, added licensee focus is needed to address the influence of plant material conditions on the number of plant transients caused by equipment failures.

III.G.2 Performance Rating: Category 2

IV SUPPORTING DATA AND SUMMARIES

IV.A Licensee Activities

During the last assessment period the licensee implemented several important organization and management personnel changes, and an early retirement program that resulted in attrition of some senior staff. During the current SALP period the licensee maintained a stable management team. Some changes in the organization and staffing at lower levels in the organization occurred.

The licensee completed a Unit 3 refueling outage during the SALP period that included replacement of the main condenser, overhaul of both recirculation motor generator sets and residual heat removal system motor replacement. At the close of the SALP period Unit 2 was continuing with a refueling outage that included items such as replacement of four feedwater heaters, installation of a hardened torus vent and main steam isolation valve poppet modification. Both plants operated at a high capacity factor during most of the assessment period. However, problems with non-safety related equipment such as reactor recirculation pump motor generator sets, recirculation flow control, offgas processing, feedwater heating and electrical substations initiated reactor scrams or transients. This was particularly evident during July and August of 1992.

IV.B NRC Inspection and Review Activities

Three NRC Resident Inspectors were assigned to the site during the assessment period. NRC team inspections and reviews were conducted as follows:

- The NRC conducted one licensed operator requalification examination and three licensed operator replacement examinations.

- Between September 1991 and December 1991 the NRC conducted a series of inspections to evaluate the effectiveness of the licensee's corrective actions in response to emergency service water system performance problems.

- The NRC conducted a 14 member Integrated Performance Assessment Team Inspection during February and March 1992 to evaluate the status of licensee programs in each of the SALP functional areas.

- The NRC conducted an Operational Security Readiness Evaluation Team inspection to assess the licensee's ability to respond to on-site security threats.

- The NRC participated in the licensee's annual emergency preparedness exercise in August 1992. An NRC inspection team evaluated the licensee's performance during that exercise.

- In August 1992, a six member team evaluated the adequacy of the licensee's program in the areas of licensed and non-licensed operator, I&C technician, electrical and mechanical maintenance technician, and technical staff training.

- An eight member NRC team evaluated the licensee's MOV design, testing and maintenance program in October 1992. As a result of problems identified by the team, the licensee elected to delay start-up of Unit 3 following a plant scram for about two weeks. During that time the licensee evaluated MOV over-thrust, under-thrust and over-torque concerns and conducted inspections of a sample of MOVs.

ATTACHMENT 1

SALP EVALUATION 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, reporting 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. The 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 reduce 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. 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 deter-

mine 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.