ENCLOSURE

INITIAL SALP REPORT

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

REPORT NOS. 50-387/89-99; 50-388/89-99

PENNSYLVANIA POWER & LIGHT COMPANY

SUSQUEHANNA STEAM ELECTRIC STATION

UNITS 1 AND 2

ASSESSMENT PERIOD: August 1, 1989 - November 30, 1990

BOARD MEETING DATE: January 22, 1991

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I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect observations, 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 January 22, 1991 to review the collection of performance observations and data, and to assess the licensee's performance at the Susquehanna Steam Electric Station. This assessment was conducted in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance".

The SALP Board for the Susquehanna Steam Electric Station assessment consisted of the following individuals:

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

Members
W. Hodges, Director, Division of Reactor Safety (DRS)
M. Knapp, Director, Division of Radition Safety & Safeguards (DRSS)
W. Butler, Director, Projects Directorate I-2, NRR
A. Blough, Chief, Projects Branch No. 2, DRP
G. Barber, Senior Resident Inspector, Susquehanna
M. Thadani, Licensing Project Manager, NRR

Other Attendees
P. Swetland, Chief, Reactor Projects Section 2A
J. Stair, Resident Inspector, Susquehanna
B. Westreich, Reactor Engineer, DRP
J. Durr, Chief, Engineering Branch, DRS
P. Eapen, Chief, Special Test Programs Section, DRS
W. Pasciak, Chief, Facilities Radiation Protection Section, DRSS
J. White, Chief, Nuclear Material Safety Section C, DRSS
R. Keimig, Chief, Safeguards Section, DRSS
J. Kottan, Laboratory Specialist, DRSS
J. Noggle, Radiation Specialist, DRSS
C. Gordon, Sr. Emer Prep Specialist, DRSS
R. Albert, Physical Security Inspector, DRSS
K. Green, NRR
K. Brockman, Region I Coordinator, EDO
P. Ray, Performance Evaluation Branch, NRR

II. SUMMARY OF RESULTS

II.A Overview

Overall licensee performance was very good. Strong management support and oversight were evident, and facility operations were conducted in a conservative, safety conscious manner.

There was a continuation of superior performance in plant operations, maintenance, surveillance and security. Noteworthy in these areas was the high quality of individual performance, and self assessment. The overall quality of training programs also contributed to strong performance, even though some weaknesses in program administration were noted.

Radiological controls performance was good. While overall control of radiological activities was effective, there were weaknesses in contractor and contamination controls.

Emergency preparedness improved significantly during this period. The full implementation of position specific emergency response procedures, and the excellent performance during the annual exercise were noteworthy in the achievement of a superior rating.

Engineering and technical support activities were generally conducted in a high quality manner. However, slow evaluation and resolution of some recent and long standing technical issues detracted from an otherwise strong standard of performance.

Strong safety assessment and quality verification performance was marked by effective strategic planning and follow through, and superior self assessment programs.

II.B Facility Performance Analysis Summary

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

Previous Assessment Period: February 1, 1988 to July 31, 1989

Present Assessment Period: August 1, 1989 to November 30, 1990

III. PERFORMANCE ANALYSIS

III.A Plant Operations

The previous SALP report rated performance in operations as Category 1. That assessment concluded that the operating staff continued to display strong management involvement and was aggressive in dealing with plant problems. Operators' conservative approach to nuclear safety was a significant strength. Good training and staffing levels were in place, as evidenced by the fact that there were very few operator-induced events.

During this assessment period, operators continued to maintain a strong safety perspective and were well-trained and qualified. Professionalism was apparent in everyday activities. Procedural adherence is mandated and receives significant management emphasis. Operators were effective at monitoring and controlling plant activities and evolutions. They also exhibited thorough knowledge of the plant by identifying and responding to plant problems and transients correctly and expeditiously. For example, operator response to an uncontrolled heatup transient during a Unit 1 outage in February 1990 was very thorough and focused on termination of the heatup. In addition, operators rapidly identified and terminated an unanticipated actuation of the Reactor Core Isolation Cooling System at Unit 2 in May 1990, thus limiting the power excursion.

In July 1990, the operators' rotating shift schedule was changed from an 8-hour shift to a 12-hour shift to improve long-term operator performance on shift. The licensee conducted a survey of industry experience with the use of 12-hour shifts and hired a consultant to educate employees and their spouses on the effects of 12-hour shift work. Operator feedback on the new shift schedule has been very positive. The change has eliminated the use of split shifts to fill in for unplanned absences and has reduced overtime use by operations.

Changes occurred in the licensee's upper level management organization during the period. The plant superintendent was promoted to Vice President, Nuclear Operations, and the Assistant Superintendent for Outages was promoted to Plant Superintendent. The filling of the previously vacant Vice President position has increased management's interaction at all levels and is viewed as a positive action. These changes have continued an emphasis on high quality operations. Direct involvement by middle management and upper management was frequently observed in the plant. Corporate management visited the site frequently and was found to be very involved with emerging plant issues.

There was one automatic scram on Unit 1 and two automatic scrams on Unit 2 during the SALP period (see Section IV.D). None of the scrams was attributed to operator error. One scram on each Unit was attributable to unrelated problems in the offsite switchyards and the other Unit 2 scram was due to a failed feedwater level controller transmitter. Operator response following these scrams was excellent. In each case, the emergency operating procedures (EOPs) were used to effectively stabilize the plant in hot shutdown. Licensee corrective actions have improved control of activities in the offsite switchyards.

The operator training programs were well designed, implemented, and strongly supported by both training management and line management. However, some weaknesses were noted. The most significant program weakness allowed two operators who failed requalification examinations to return to licensed activities prior to retraining and successful retesting. This weakness was subsequently corrected by the licensee. The NRC administered requalification examination in January 1990 resulted in eight of the ten reactor operators (ROs) and all of the ten senior reactor operators (SROs) passing the examination. (The two ROs who failed subsequently passed an NRC administered requalification examination in April 1990). The requalification program was determined to be satisfactory. All six ROs passed the initial examination administered in April 1990, as did two of the three SROs.

The Susquehanna EOPs were generally acceptable, although some weaknesses were noted. Suppression chamber pressure indication was not available in the control room and was difficult to interpret for use as a decision point in the EOPs. The licensee took prompt action to assure that operators were aware of this safety significant issue and subsequently performed short- and long-term corrective actions regarding suppression chamber pressure indication. Another noted weakness was slow implementation of several actions directed by the primary containment control EOP. Continued simulator fidelity problems were also a particular concern. However, the licensee has initiated action to place a new state-of-the-art simulator in service by September 1992, in parallel with certifying the current simulator. Notwithstanding these items, the EOPs can be performed successfully in the plant. An identified strength was the success of the licensee's training program in training the operators to use the EOPs in the control room and the plant. The licensee's initial response to the EOP inspection did not include prompt corrective action for some short term items and therefore required an additional response.

Housekeeping of the plant was excellent. The licensee continued to expend significant resources to maintain a clean and well kept plant. On every shift, two or three people cleaned the plant on a full time basis. The licensee continued to implement a vigorous painting program to upgrade the permanent appearance of the plant. A new labeling program for equipment and flowpaths provided a marked improvement in identification of system components and flow directions. During the period, the licensee's control of transient

equipment and material continued to be a problem. Unsecured equipment and material were occasionally observed in the plant. Although corrective actions are in progress, implementation has been slow. Overall, however, housekeeping was a licensee strength.

During the previous SALP period, the number of outstanding fire watches needed to compensate for degraded or ineffective fire protection barriers, seals and equipment was a noted weakness. During the current period, the licensee expended significant efforts to resolve these equipment deficiencies and to reduce the number of fire watches. During 1990, the number of fire zones requiring hourly fire watches was improved from about 190 to about 40. This reduction in affected fire zones reflects good progress toward recovering from previous weaknesses in fire protection performance. Overall, the licensee's fire protection program was found to be well-managed and adequately staffed with experienced and knowledgeable personnel.

In summary, the licensee has demonstrated continued strong performance in the area of plant operations. Aggressive management involvement in operational activities was noted at both the corporate office and the site. The plant continues to operate safely and effectively. The licensee's training programs are very good and operator staffing is excellent. There were no scrams due to operator error. Operational problems did occur, but the operators dealt with them in a prompt and effective manner. Overall, plant operations is a significant licensee strength.

Performance Rating: 1

Board Comment: None

III.B Radiological Controls

The radiological controls program was assessed as Category 2, with an improving trend during the previous SALP period. The program was considered to be effective. A good level of management involvement and support for resolving previously identified problems was noted. The internal and external exposure controls programs, including ALARA efforts, were of good quality and effectively implemented. The effluent monitoring and control program was effective. There was a need for continued management attention to the control of contaminated material.

A well defined and staffed radiation protection organization was in place. The organization was effectively augmented during the outages with properly trained and qualified contracted personnel. An appropriate level of supervisory oversight of the augmented organization was

maintained. The radiation protection organization has remained stable and several inter-departmental interface positions (e.g. Maintenance Drywell Coordinator, Outage Scheduler, and Radiological Controls Consultant) have been added. The addition of these positions has improved communications between the radiological control groups and the station's other functional groups. Added management oversight has been achieved by dividing the Radiation Protection/Chemistry Group into separate radiation protection and chemistry groups.

The licensee's overall training and qualification program for radiation protection personnel and radiation workers was found to be of good quality. No deficiencies were identified which reflected inadequacies in the training and qualification program. Special control point instructions were developed to provide additional guidance for controlling access to radiologically significant work activity areas. Late in this assessment period, NRC review found that there were only limited administrative controls over the duties performed by radiation protection technicians to ensure the assignment of only qualified personnel. Also, there was no clear guidance as to what constitutes acceptable "equivalent" experience for commercial nuclear power experience when qualifiying contractor radiation protection personnel. The licensee initiated a review of these issues.

During the previous assessment period, the licensee experienced continued problems with the control of radioactive material. Since then, the licensee has essentially eliminated any inadvertent release of contaminated material from the radiological controlled area (RCA). A computerized tool accountability program has been implemented along with many procedural modifications. An isolated event involving the improper release of a tool was quickly identified by the accountability program and rectified.

Overall, the licensee has implemented an effective external and internal exposure control program. The licensee was sensitive to industry events. For example, as a result of a spent fuel pool personnel exposure event at another station, the licensee required the use of alarming dosimeters around the spent fuel pools. The licensee also used alarming dosimeters for personnel radiation exposure control in the Drywell. Personnel exposure reports were published at least daily providing good control over the accumulation of personnel exposure. The licensee demonstrated good overall control of airborne radioactivity. Radiation protection work practices were generally well performed and controlled. Some isolated problems (e.g., lack of documentation of surveys and a worker not adhering to radiation protection and confined space postings) were immediately evaluated and corrected by the licensee.

There were weaknesses with contamination control practices (e.g., the potential for cross contamination of personnel; and hoses and lines extending from posted contaminated areas into clean areas). Contamination events were of minor significance but indicated lack of

worker attention to proper contamination control practices. The licensee was pursuing improvements.

A significant, isolated external exposure event occurred early in the period and involved an unplanned radiation exposure to a small area of the chest of a contractor chemistry technician. The contractor technician carried an unsurveyed, highly radioactive reactor coolant filter sample in his shirt pocket for a short period of time. Although no overexposure occurred, the event revealed significant weaknesses in the licensee's control of contractor work activities. Subsequent NRC and licensee reviews of the unplanned exposure event identified failures of multiple exposure control barriers (e.g., radiation work permit controls and supervisory and management reviews) which contributed to the occurrence of the event. The licensee took aggressive actions to assure the program deficiencies were corrected. Control of contractors has been significantly enhanced since this event occurred. The licensee evaluated the management control of all contractors on site and issued a special procedure to provide guidance for control of contractors.

Audits of the radiation protection program continued to be of very good quality. Various audit perspectives were obtained from such diverse groups as the corporate radiation protection group, the station quality control department and from outside industry experts. The audits were performance-based and reflected good management involvement with the radiation protection program.

A high degree of corporate and station management involvement in ALARA goals was evident. Although the implementation of the ALARA program was good, there were weaknesses in the scope of ALARA training for maintenance personnel and in station wide publicity of the ALARA program. The ALARA group had early involvement in station planning activities and complete access to all scheduled work packages. Emergent work received appropriate ALARA reviews. Exposure goals were developed for individual departments and jobs and were considered reasonable. Repair of Reactor Water Clean-Up (RWCU) pump seals in both units has accounted for a large percentage of the maintenance personnel exposure for the last two years. In part due to ALARA recommendations, the current pumps are scheduled to be replaced with seal-less pumps, but not until 1992.

The licensee had in place an effective program for the control of radioactive gaseous and liquid effluents. In addition, the radiological environmental monitoring program (REMP) was found to be effectively implemented. Procedures for both the radioactive effluent monitoring and control program and the REMP were detailed and well written and procedural adherence was excellent.

Expertise was available within the chemistry department management and staff to effectively conduct the radiological effluents program. The reorganization of the radiation protection/ chemistry group, discussed earlier, appeared to enhance the ability of the licensee to effectively manage the program. At the end of the assessment period, the licensee was in the process of qualifying an individual as the new Chemistry Supervisor.

QA audits of the effluent and environmental monitoring programs were thorough, of excellent technical depth, and of sufficient scope to identify programmatic problems in these areas. Overall licensee performance in these areas was considered to be excellent.

QA audits and surveillances of the solid radioactive waste and transportation program were of excellent scope and technical depth. The quality assurance program in the solid radwaste and transportation area was a noted strength. Also notable in this area was the licensee's excellent training program for radwaste personnel.

During this assessment period, the licensee identified an under-reporting of the quantity of radioactivity in shipments of dewatered resins from 1984 to 1990. This event demonstrated an isolated, but significant lack of radwaste transportation program oversight and attention to detail, but was not indicative of an overall programmatic breakdown. The NRC has not yet reviewed licensee long term corrective actions for the problem. Overall, the licensee's performance in this area was considered to be good.

In summary, management involvement and control in assuring quality was apparent. With the exception of the radwaste classification issue the licensee aggressively pursued the resolution of technical issues, and the resolution of previously identified problems was excellent. The enforcement history in this functional area has been acceptable with two isolated problems detracting from an overall effectively implemented radiological controls program. No significant operational events, attributable to poor performance in the area of radiological controls, occurred this assessment period. Staffing in all radiological controls areas was good. The licensee's overall training program for permanent and contractor radiation protection personnel was also good.

Performance Rating: 2

Board Comment:

The licensee maintained effective radiological controls programs. This rating does not reflect a decline in performance, but the trend of improvement during the last SALP period was not sustained at the previous rate and performance did not achieve the previous expectation.

III.C Maintenance/Surveillance

The previous SALP report rated the licensee's performance in the combined Maintenance/ Surveillance functional area as Category 1. The maintenance and surveillance programs were properly established and implemented. Both organizations were staffed with well qualified and skilled individuals. Surveillance and maintenance of safety-related components and systems were rigorous as evidenced by no automatic scrams from either activity.

The maintenance program is well organized, and the licensee has demonstrated good performance in this area. Both unit and individual system availability have been maintained at a high level. Mid-level and senior site management involvement with plant maintenance activities was apparent throughout the period. Foremen supervised daily maintenance activities and problems to assure that they were properly tracked, prioritized and resolved. Daily planning meetings demonstrated the ability of plant management to adjust priorities and to effectively coordinate ongoing work activities with newly identified problems requiring maintenance. Interaction with plant operations occurred on a daily basis in order to schedule work activities and assure that coordination with operations and other groups was established. Preplanned schedules were used whenever possible to control activities. An evolving package of preplanned maintenance was kept up to date during power operations in case a forced shutdown or automatic scram occurred. The licensee emphasized the importance of forced outage maintenance by extending unplanned shutdowns for up to seven days to complete preplanned forced outage activities. Administrative controls over procurement, receipt, inspection, storage and issuance of materials were effective for ensuring the availability of materials when needed for routine or emergency maintenance activities.

The licensee has established long term maintenance programs in order to preserve the life extension option for Susquehanna. Program enhancements which were identified for the long term include, better use of predictive maintenance; continued efforts to integrate reliability centered maintenance concepts into the maintenance process; and the on-going implementation of a preventive maintenance improvement program.

A significant strength of the maintenance organization was its stable and well trained staff. Maintenance activities were generally found to be properly authorized and conducted in accordance with written instructions/procedures. The maintenance training program was effective and demonstrated well defined qualification criteria for maintenance personnel. The tracking system used for qualification of personnel has been improved since the last SALP period and the licensee has committed to accelerate completion of formal personnel training and certification. When a supplemental work force was necessary during outages, the licensee had an effective program for control of contracted maintenance personnel. Individual work groups were responsible for assuring that contractor personnel working with

their groups had appropriate training and qualifications for the jobs they performed. Licensee actions were found to be effective at processing a large contractor maintenance force for outages.

During the assessment period, Susquehanna completed two refueling outages and several forced outages. The maintenance planning and outage organizations functioned exceptionally well in scheduling all required tasks and coordinating the team work required of the different work groups to accomplish those tasks. Two engineered safety system actuations resulted from maintenance related activities during the Unit 2 refueling outage. In addition, a scram signal resulted from maintenance activities while shutdown during this outage. No rod motion occurred from the signal since all rods were fully inserted. These events were caused by personnel errors and procedural deficiencies that were promptly corrected.

Preliminary results from a maintenance team inspection confirmed that the maintenance program was well described and adequately implemented. Good availability and equipment operability indicate that the maintenance process was effective. Corporate and station management support of the maintenance process was evident in five-year plan program goals; in adequate fiscal allocations and trained manpower; and in maintenance facilities, equipment, and spare parts availability. Weaknesses identified by the maintenance team included inadequacies in performing and documenting 50.59 reviews, delays in performing periodic maintenance procedure review, poor preplanning of a HPCI turbine six year inspection, and a failure to follow some work procedures. Overall, the material condition of the plant was well maintained.

Licensee management is effectively using performance indicators to assess maintenance and to address unacceptable trends. The licensee uses PRA techniques to assess and modify plant design and operations. Although a comprehensive risk-based maintenance prioritization system is not yet in place, the licensee is proceeding toward this goal.

QA surveillance of maintenance activities was adequate and effective in identifying program implementation deficiencies. QA audits were found to be thorough as evidenced by the quality of audit findings and observations documented in audit reports. The QA/QC groups were active in maintenance activities, including the work authorization process. In contrast, the licensee's correction of some nonconformances and deficient conditions was slow, and in some cases, took years (See section III.G for details).

The licensee's electrical maintenance program was adequately staffed with experienced and knowledgeable personnel. The effectiveness of the electrical maintenance program was evidenced by few circuit breaker failures. However, the licensee's maintenance management was not always aggressive in resolving issues promptly. For example, it was previously

identified that the licensee did not have adequate breaker testing program for 480 volt breakers. Actions to resolve this concern included only a tentative schedule to complete a breaker testing program by the end of third quarter 1991.

In general, supervisory oversight and procedural control of maintenance activities was very good. However, a noted lapse in this performance was evident when sandblast material was introduced into the air intakes of two diesel generators. Although this appeared to be an isolated case, it was considered to be significant because of its common mode failure potential. In addition, procedures used for a six year inspection of the HPCI turbine lacked detail commensurate with the evolution's safety significance. The HPCI inspection was completed satisfactorily.

The surveillance program was effectively managed and implemented throughout the assessment period. A computer-based system scheduled the necessary surveillance tests and tracked them effectively. This system assured good coordination between Operations, Maintenance, Radiation Protection, Chemistry, and Instrumentation and Control personnel for the performance of the surveillance program. The successful implementation of this program and the cooperation of the departments involved were strengths of the surveillance program.

No automatic scrams or transient events occurred as a result of surveillance related activities during the period. However, three safety system actuations of minor consequence and one Reactor Core Isolation Cooling (RCIC) initiation occurred during the performance of surveillances. Three of these actuations were directly attributable to personnel errors, and one was due to a procedural deficiency. The licensee took action to assure that appropriate corrective actions were taken. Considering the large number of surveillances performed in 16 months of two unit operation and refueling outages, these cases represent a very small fraction of the total number of surveillances performed. Overall, conduct of the surveillance program was excellent.

In-service testing (IST) performance was good. The IST program successfully monitored the performance of pumps and valves throughout the plant and adequately documented age-related degradation. During the assessment period, the licensee's in-service inspection (ISI) program was well planned and implemented. One weakness was noted in the ISI area. The licensee failed to provide adequate ISI contractor and procedural controls, which led to a plant start-up with a potentially unacceptable ultrasonic indication in the reactor vessel. The indication was subsequently evaluated and found to be insignificant. The licensee took appropriate corrective actions to prevent the recurrence of this problem. The examination program for the detection of intergranular stress corrosion cracking also exhibited some

weaknesses; however, prompt action by the licensee resolved these deficiencies. Staffing levels, including the use of ISI contractors were good. Overall, licensee ISI personnel and contractors were found to be well-qualified in performing ultrasonic testing.

In summary, the licensee has carried out successful maintenance and surveillance programs, although some weaknesses were identified. These programs were adequately scheduled, planned, and implemented. A strong management commitment was evident in conduct of maintenance and surveillance activities. Minor weaknesses in the maintenance area were due to personnel errors and procedural deficiencies. The surveillance program was generally very good.

Performance Rating: 1

Board Comment: None

III.D Emergency Preparedness

During the last SALP period, Emergency Preparedness (EP) was rated Category 2, a decline from the previous assessment. Strengths were noted in the areas of coordination with offsite authorities and in the use of the simulator to stage the control room portion of the 1989 exercise. Weaknesses were identified during this exercise, particularly with regard to the formulation and issuance of timely protective action recommendations, and an incomplete update of Emergency Plan Implementing Procedures (EPIPs). An additional concern involved the lack of distribution of independent audit reports to the state and local agencies.

In this SALP period, the licensee performed well during the annual partial participation exercise. Changes in plant conditions were readily observed by the shift staff and were used to properly classify emergency conditions. The licensee completed development of new Position Specific Procedures (PSPs) for each designated emergency response position so that a separate procedure can be used by each emergency response organization (ERO) staff member. The PSP's received both peer and management review before implementation. Personnel effectively used PSP's to execute response actions. No performance weaknesses were identified during the exercise and only minor improvement areas were noted.

Emergency response facilities were maintained in an excellent state of readiness. The ERO was fully staffed and trained in key response functions. EP staffing has remained stable throughout the period to effectively maintain major program functions. Management was supportive of EP activities and demonstrated a clear understanding of relevant issues affecting the program. Senior managers are kept apprised of EP program activities through formal

meetings with the EP staff. Key management and technical staff at the site and corporate office are assigned emergency response functions and have maintained ERO qualification. Emergency response training has been effective in general employee training as well as qualifying individual members of the ERO to perform response functions. Course requirements necessary to satisfy each emergency position are subject to management involvement and approval. Lesson plans for ERO training were adequate but not completely updated to correspond to the PSP's.

Independent quality assurance audits were performed using a detailed audit plan and were found to be adequate in scope and provided a thorough review of EP activities. Results of audits were reviewed by corporate and plant management who ensured that audit results were properly addressed and that significant deficiencies were given priority. The audit reports were properly distributed. Corrective actions on recommendations identified during audits and self-assessments were timely.

During this period, the licensee responded well to an actual plant challenge requiring activation of the Emergency Plan. In February 1990, the licensee properly classified an Alert due to a loss of shutdown cooling which resulted in reactor coolant temperatures exceeding 200 degrees F. Activation of the Technical Support Center (TSC) was prompt and was completed prior to exceeding the Alert initiating condition. Operators demonstrated good knowledge of Abnormal Operating Procedures used to provide an alternate means of decay heat removal and with EPIPs used to carry out event response. The licensee's self-critique of the response identified a significant concern regarding their ability to promptly activate the Media Operations Center (MOC) to provide timely transmission of plant status information to the public. A task force was formed to evaluate and address this concern and propose corrective action to prevent recurrence. Overall implementation of the Emergency Plan during the Alert was effective and well coordinated.

In summary, performance has improved since the previous assessment and an effective EP program was implemented throughout this period. Involvement of management in the quality of both onsite and offsite program activities was evident. Actions taken for previous weaknesses were effective. The training program is well defined and organized and ERO personnel were well qualified. Implementation of the recently developed PSPs has significantly enhanced response capability. ERO performance in the annual exercise was excellent. Response activities during an Alert were effective, with the exception of timely activation of the MOC.

Performance Rating: 1

Board Comment: None

III.E Security and Safeguards

During the previous assessment period, the licensee's performance was rated as Category 1, as it has been for all previous assessment periods in this functional area. That rating was based on a highly effective and performance-oriented security program, an excellent enforcement history, experienced security supervisory personnel and a high degree of management involvement in and support for the program.

The licensee's high level of performance during the previous assessment periods was also sustained during this period. Upgrading and enhancement of systems and equipment continued. In particular, some aging package and personnel search equipment and security vehicles were replaced with state of the art equipment. Additionally, the licensee continued to maintain (1) a well planned and integrated security program utilizing well-trained personnel; (2) an effective and well-supported testing and maintenance program as evidenced by a short turn-around time for equipment maintenance, an excellent on-line availability record for security equipment, even for some aging equipment, and the absence of equipment related events requiring reports to the NRC; and (3) an excellent working environment for security personnel as evidenced by, in particular, the clean and well maintained access control centers, security office areas, security training center, alarm stations and security vehicles.

Plant and corporate management continued to be actively involved in security matters as evidenced by excellent support for and cooperation with security program implementation, upgrade enhancements, security personnel training and participation in industry groups involved with nuclear security matters. Site security management and staff are well-trained and highly qualified professionals who have been vested with the necessary authority and discretion and who ensure that the security program is implemented effectively and in compliance with NRC regulations. Corporate security management continued to be actively involved in all site security program activities and continued to conduct various surveillances and reviews of on-site security readiness to ensure that a high quality and effective program was being implemented. Site and corporate security management also continued to actively participate in industry groups engaged in nuclear plant security matters. They also maintained excellent rapport and effective communication channels with the plant staff who exhibited an excellent attitude toward the program.

Staffing of the security force was consistent with program needs as evidenced by the minimal amount of overtime required to support the program and the adequate off-shift time available to provide the security force members with effective training. The allocation of adequate resources to provide for an effective security force has resulted in a minimal number of personnel errors and an excellent enforcement history.

Audits of the security program conducted by the licensee's QA Group, and surveillance conducted by the Corporate Security Staff, were found to be comprehensive and thorough. Findings of the audits and surveillance were directed toward refining and enhancing the

program and no major deficiencies were noted. Corrective actions were always prompt and effective with aggressive follow-up to insure proper implementation.

A review of the licensee's security event reports and reporting procedures found them to be well understood by security supervisors and consistent with NRC regulations. There were no events requiring a prompt reporting during this period. Other events were found to be promptly logged, appropriately tracked, with corrective action specified, as necessary.

The licensee security training program was administered by four full-time and highly qualified instructors with full-time administrative support. The program as administered was well-structured, maintained current and exceeded the requirements of the NRC-approved Security Force Training and Qualification Plan. The security training facilities were well maintained and training was conducted utilizing excellent lesson plans and state-of-the-art training aids for hands-on-training. Security management also instituted a tactical training program for the armed security force members during this assessment period. The licensee's training program is aggressive and has resulted in security force members being very knowledgeable of their duties, contents of procedures and overall responsibilities.

During this assessment period the licensee implemented a Fitness-for-Duty (FFD) program in response to new NRC requirements. The licensee's FFD program development and implementation were found to be responsive to both the spirit and intent of the NRC's FFD rule.

The licensee also submitted three changes to the security plan under the provisions of 10 CFR 50.54(p) during this assessment period. These revisions were of high quality, technically sound and reflected well-developed policies indicating a comprehensive and thorough understanding of the NRC's performance objective for nuclear power plant security.

In summary, the licensee continued to maintain a highly effective and performance-oriented program. Management attention to and support for the program are clearly evident in all aspects of program implementation. The efforts to upgrade some security systems and aggressively maintain other aging equipment were commendable, and demonstrated the licensee's commitment to a very effective and high quality program. The security training program was dynamic and very well administered. In addition, the licensee's FFD program met the spirit and intent of the FFD rule.

Performance Rating: 1

Board Comments: None

III.F Engineering/Technical Support

In the previous SALP report, Engineering and Technical Support was rated as Category 1, with an overall conclusion that the licensee demonstrated a high quality engineering program. No significant deficiencies had been identified in this functional area. Positive factors were noted in the following areas: system engineering/technical support, management involvement in the plant modification process, assessment and development of probabilistic risk concepts, and a motivated and highly qualified engineering staff.

During the current SALP assessment period, the licensee's engineering organization provided sound technical resolution of many safety significant issues. For example, engineering review of a suppression pool-to-drywell vacuum breaker modification already installed on Unit 1 identified that a flow limiting orifice had been omitted during the original design change. When analyses indicated that potential damage could result during vacuum breaker operation without the orifices, a prompt shutdown and repairs were completed. In another case, prompt and effective evaluation of extensive corrosion in one RHR pump motor cooler resulted in timely and conservative replacement of all these coolers on both units. Licensee identification of and timely response to these safety concerns indicated thorough engineering involvement and a conservative approach to plant problems.

Effective engineering was also evident in support of other plant problems. For example, when a control rod could not be inserted during a weekly control rod surveillance, the licensee developed a special test with the vendor's concurrence that was able to free the control rod. In another case, low flow to certain emergency service water (ESW) coolers was noted. A licensee evaluation with significant involvement of the system engineers identified that the flow reduction was due to silt buildup in the lines. Good engineering direction and technical competency were displayed in support of the silt flushing, and in the ESW flow balance performed. The frequency of silt flushing was temporarily increased in order to prevent blockage from silt buildup. Subsequently, modifications were made which allowed various valves to be fully opened while other valves were left throttled to prevent the potential for silt buildup. These licensee actions were prudent.

Management involvement in the modification process continued to be evident. Administrative procedures which control the modification process and plant configuration control were thorough and effective. Both Resident Engineering and Corporate Nuclear Engineering departments were involved in planning and prioritization of plant modifications. Modification packages were well organized and included detailed design descriptions which contributed to successful installations with little or no followup work required. Good communications were maintained between corporate engineering and all other plant support organizations during modification planning. Review of nuclear plant engineering work practices indicated that the engineering work activities were being prioritized and executed according to appropriate procedures to support the plant and licensee needs.

During this assessment period, the NRC conducted an electrical distribution system functional inspection (EDSFI) to determine if the electrical distribution system would be capable of performing its intended safety function as expected, and to assess the licensee's engineering and technical support of the electrical distribution system. The licensee mounted a significant engineering effort to prepare for the EDSFI, and as a result, was well prepared and provided significant assistance to the NRC team during the inspection. A strong resource commitment was evident. The licensee had aggressive self assessment/audit programs which have identified many technical and programmatic concerns regarding the electrical system. However, some of the concerns had not been fully evaluated or corrected in a timely manner. In addition, several instances were identified where operability/reportability reviews had not been completed in accordance with the applicable procedures.

Although engineering support was generally good, some errors in design changes occurred. In addition to the omission of flow orifices during the Unit 1 vacuum breaker modification, a modification to the full flow test valve for RCIC and HPCI flow surveillances prevented achieving adequate flow in the test line at a reactor pressure of 150 psig. This modification permitted full flow at 920 psig, but due to an engineering oversight, the higher head loss effects during the 150 psig surveillance test were not considered. This modification did not affect the flow path for actual injection.

There were instances where engineering failed to address causal factors and implement timely corrective actions. For example, in February, 1990, a loss of shutdown cooling with reactor coolant temperatures exceeding 200 degrees F was caused by a recurring power failure problem from a poorly designed electrical insulator. Two Emergency Diesel Generator (DG) crankcase overpressurizations occurred in September and October 1990 due to an assortment of conditions associated with DG operating and test conditions, as well as design and maintenance factors, the collective impact of which were not clearly understood. The licensee committed significant resources to ensure long lasting corrective action for both the problems. In addition, reactor water cleanup (RWCU) pump seal failures have been a continuing problem. Accordingly, resources are also being allocated for the RWCU pump seal problem. The licensee's approach to these and other engineering problems emphasized a prolonged, methodical identification of the root cause without promptly addressing potential causal factors in parallel. The net result of this approach was untimely resolution of engineering problems in some cases. However, once management focuses support on resolving a problem, it gets prompt attention and comprehensive resolution.

Licensee review of conditions that were potentially outside the plant design basis was a significant NRC concern during the period. A number of these conditions identified by the licensee were not fully analyzed, compensated for and/or reported to the NRC in a timely manner. These include the potential inadequacy of electrical distribution design calculations, potential electrical distribution system single failures that could overload DGs, and design deficiencies in the leak detection system and the inboard main steam isolation valves. Resolution of some problems was not always managed effectively, and corrective actions

were often slow in implementation. In response to the need to address reportability and correction of engineering problems, an engineering deficiency reporting (EDR) system was developed and implemented. The EDR program was intended to capture these and other deficiencies and to provide prompt operability/reportability evaluations as well as a focused approach to resolution. Many significant issues were reviewed under the EDR program with inconsistent results. In response, the licensee made several significant changes to the EDR process which appear to have resolved the earlier problems. The licensee made good progress in implementing the EDR program which has improved their timeliness in reviewing engineering issues.

There were concerns with the licensee's resolution of environmental qualification (EQ) deficiencies such as the polyurethane damper seals in the standby gas treatment and direct expansion cooling units. In addition, EQ related nonconformance reports including 64 motor-operated valves in the reactor building were not adequately dispositioned, and many of the qualification issues existed for several years. Although management attention to EQ was a weakness identified in the 1986-1988 SALP, the effectiveness of corrective actions had apparently not been long-lasting. However, improvement has been noted in the licensee's recent resolution of these engineering issues.

The lack of prompt disposition and correction of some of these issues appeared to result from the misclassification of the safety significance of these matters. The licensee placed heavy emphasis on the perceived small probability of occurrence of some events or the expected satisfactory outcome of incomplete reanalyses to justify interim operation with the existing discrepancy. There was less focus on the potential adverse consequences should the event occur. On this basis, concerns perceived to be of low safety significance received low priority on completion of reanalyses and corrective action, and on final operability/ reportability determinations. During the latter half of the period, the licensee has taken action to effect positive changes in their approach to safety significant issues. Currently the licensee has redefined safety significance to better focus on the potential adverse consequences of failures, even those of very low probability.

The licensee is supportive of industry standards groups, BWR owners group efforts, and professional society participation. In addition, the licensee's engineering groups were well trained, and staffed with sufficient personnel of all engineering disciplines. About a third of all the licensee's engineering work is normally performed by contractors and consultants. Contractor involvement is currently higher than normal due to support for the EDSFI, design basis reconstitution efforts and a future power uprate request. The licensee's Operational Effectiveness Review determined that the efficiency of engineering support could be improved by reducing the number of separate support groups which currently exist.

In summary, the quality of engineering support provided by onsite and offsite engineering groups was good. The licensee's management and engineering staff were knowledgeable and technically competent and the engineering effort was directed toward plant safety. Design

problem issues were self-identified by the licensee and corrective actions were taken to address them. Timeliness of evaluation, reporting and resolution of identified problems was an NRC concern during the period. Engineering deficiency management has been the focus of increased licensee attention and improvement was noted.

Performance Rating: 2

Board Comment:

This lower performance rating reflects the more comprehensive focus during this period on several engineering concerns, and on weaknesses in the management controls which resulted in prolonged resolution of many long-standing technical issues.

III.G Safety Assessment/Quality Verification

During the last assessment period, this area was rated Category 1, with a declining trend. Licensee strengths included a strong safety attitude, an effective strategic planning tool in the Managing For Excellence program, and well-developed probabilistic risk methodologies available to prioritize maintenance efforts and to quantify operational risks inherent with the plant design. Weaknesses were also noted including inadequate contractor training on safety concern programs, too many uncorrected fire protection deficiencies, coordination and tracking of maintenance personnel through their training programs, and lack of full participation by designated security personnel at fire brigade drills.

During the current assessment period, the licensee has effectively corrected the previously identified weaknesses in this area. New procedures were written on safety concern resolution and the licensee implemented special training for all employees to emphasize the proper way to present and process safety concerns. The licensee reduced the number of required fire watches throughout the units by completing Appendix R modifications and correcting other deficiencies. In addition, maintenance personnel qualification was more visible. The licensee displayed qualification status in a more prominent location to ensure that work will be performed by qualified personnel and also emphaiszed the timely completion of maintenance worker qualification. Finally, a tracking process that assures that security personnel attend the minimum required number of fire drills has been implemented. This new tracking program has assured full attendance by security personnel at drills and training.

Licensee management continues to take an active role in assuring safe operation of the two units. Corporate management visits the site frequently and actively participates in plant activities during these visits. During the current SALP period, the licensee conducted an operational effectiveness review (OER) to review the structure of the organization and seek changes to increase the productivity, eliminate redundant functions, and ensure functional efficiency. The adoption of the OER program was indicative of the corporate focus on self-

assessment. Station supervision also contributed to the high quality of plant activities through routine day-to-day oversight at work sites, effective daily coordination meetings and maintenance of high expectations regarding operational safety perspective.

The licensee continued to use its safety review committees as effective tools in assessing and improving plant operation. During this assessment period, the nuclear safety assessment group (NSAG) conducted thorough and extensive evaluations of plant operations, maintenance and outage safety. The NSAG also performed a self-assessment of previous plant performance to ensure safety significant issues were being properly addressed. These NSAG activities have provided a significant contribution to the assurance of safety at Susquehanna.

The licensee's staff was generally well prepared and technically correct when discussing emerging safety issues with NRC licensing. NRC comments on licensee technical resolutions were given due consideration before providing licensing submittals. The licensee has an actions tracking system which effectively monitored the progress of resolution of all pending safety issues. The licensee is proactive and plans its licensing activity to ensure that delays in processing licensing actions are minimized, and that timely NRC reviews are facilitated.

The licensee has continued to demonstrate its capabilities in the field of risk assessment. Its individual plant evaluation (IPE) methodologies are frequently used to improve operating procedures and training, accident management strategies, and the prioritization of preventive and corrective maintenance activities. All of these activities were directed to minimizing the risks to public health and safety. The licensee is an industry leader in assessing the risks posed by nuclear facilities while in the shutdown mode.

Licensee event reports (LERs) were well written with clear descriptions of subject events. Root cause analysis was adequate, and recommended corrective actions were technically correct. When in-depth engineering analysis and evaluation were required, the problem was referred to corporate engineering for solution. These solutions were generally very good.

Internally, the licensee uses three reporting systems to identify, document, and initiate action on plant deficiencies including Significant Operating Occurrences Reports (SOORs), Non-Conformance Reports (NCRs), and Engineering Discrepancy Reports (EDRs). During this period, Event Review Teams (ERTs) were formed to review Category 1 SOORs (the most significant). These ERTs were comprised of plant staff members who were the most knowledgeable in the affected systems, equipment, or procedures. ERTs provide a more thorough and timely evaluation, and were found to be very effective at identifying the specific causal factors and broken barriers that led to these important events.

The NRC had concerns regarding the number and significance of outstanding open NCRs. In one case, the licensee failed to provide timely resolution of two 1988 NCRs involving environmental qualification of limitorque motor operators for 64 containment isolation valves. (See Section III.F) In another case, an NCR concerning the qualification of HPCI system

instrumentation remained open for a prolonged period. Many conditionally released NCRs existed and remained open for prolonged periods of time. Due dates for conditionally released NCRs were frequently extended with little or no additional justification.

As discussed in Section III.F, the lack of prompt disposition and correction of certain issues resulted from the misclassification of safety significance. However, later in the SALP period, compensatory actions, operability/reportability determinations and final disposition for safety significant issues were receiving more prompt attention.

The licensee implemented a new deficiency management program to review all outstanding NCRs, SOORS, and EDRs. This program reevaluated many old safety significant issues, prioritized them according to safety significance, and appropriately dispositioned them. By the end of the SALP period, the licensee had reviewed and closed out 328 of 517 NCRs, and 271 out of 605 SOORs, and was making good progress on closing open EDRs. These closure rates also included the new reports issued since the effort commenced. The licensee has committed significant resources to reduce the number and age of outstanding deficiencies. The licensee has set closure goals of 1992 for old issues and one fuel cycle for all newly identified deficiencies. Thus far, the licensee's progress in meeting this goal has been excellent.

In summary, the licensee's management continued to emphasize thorough self-assessment and organizational effectiveness. The licensee's technical staff was of high caliber and was generally very thorough in resolving complex technical issues. The use of the IPE methodology to address normal and abnormal operational problems continued to be evident. The licensee's nonconservative approach in defining safety significant concerns resulted in weaknesses regarding timely discrepancy resolution and reportability determinations. Management redefined a more conservative approach to safety significant issues and has made significant progress in resolving outstanding discrepancies.

Performance Rating: 1

Board Comment:

The licensee's conservative approach to nuclear activities and continued management support of comprehensive self-assessment programs reflected a superior quality program. However, there were problems involving timely resolution of deficiencies primarily in the area of Engineering and Technical Support. Continued improvement of this attribute in all appropriate functional areas should remain a management priority.

IV. SUPPORTING DATA AND SUMMARY

IV.A Licensee Activities

During the assessment period, the Susquehanna units operated safely and effectively. Unit 1 experienced four unplanned shutdowns, one of which was an automatic scram. Unit 2 experienced two unplanned shutdowns, both of which were automatic scrams. (See Section IV.D - Reactor Trips and Unplanned Shutdowns).

Refueling outages were conducted on both units. The Unit 2 third refueling outage took place from September 9, 1989 through November 23, 1989 for a total of 76 days. The Unit 1 fifth refueling outage took place from September 12, 1990 through November 17, 1990 for a total of 66 days. Major activities during these outages included refueling, replacement of selected Control Rod Drives and LPRM strings, surveillance testing and inservice inspections. Also, several major projects to address Heat Exchanger replacement, Appendix "R", Loss of Offsite Power, Emergency Service Water and Instrument Air upgrades were completed.

Significant events which occurred during the assessment period included: A significant radiation exposure of a contractor individual in August 1989, when the individual placed a contaminated millipore filter in his shirt pocket; two emergency diesel generator crankcase overpressurizations in September and October 1989 resulting in substantial damage to both engines; an Alert was declared in Unit 1 on February 3, 1990 due to a loss of shutdown cooling leading to reactor coolant temperatures greater than 200 degrees F. Temperature was stabilized at approximately 250 degrees F and shutdown cooling was returned to service about 5 hours later; in September 1990 two emergency diesel generators suffered extensive damage when sandblast grit entered the combustion chambers from the intercoolers following sandblast cleaning of the intercoolers.

IV.B NRC Inspection and Review Activities

During this assessment period there were two NRC resident inspectors assigned to the site. Several programmatic inspections were performed by regional inspectors in the areas of Maintenance, Emergency Preparedness, Security, Engineering, Quality Assurance, and Radiological Controls. The NRC conducted the following team inspections during the period: Electrical Distribution System Functional, Maintenance Team, Fitness For Duty, Emergency Operating Procedures, and Training. There were a total of 6966 inspection hours, which represents 5573 hours on an annualized basis.

IV.C Significant Licensee Meetings

-- A Management Meeting was held on September 6, 1989, in the NRC Region I office to discuss licensee initiatives in the maintenance area.

-- An Enforcement Conference was held on October 3, 1989 in the NRC Region I office to discuss the unplanned occupational exposure of a contractor employee at Susquehanna Unit 2.

-- An Enforcement Conference was held on November 21, 1989 in the NRC Region I office to discuss a requalification program provision that allowed operators who failed requalification to return to licensed duties prior to successful retraining and retesting.

-- A Management Meeting was held on December 19, 1989 in the NRC Region I office to discuss reportability of engineering deficiencies.

-- A Management Meeting was held on May 23, 1990 in the NRC Region I office to discuss the licensee's performance at the mid-SALP period.

-- A Management Meeting was held on July 10, 1990 in the NRC Region I office to discuss various electrical distribution issues at Susquehanna Units 1 and 2.

-- An Enforcement Conference was held on October 4, 1990 at the NRC Region I office to discuss apparent violations regarding corrective action for environmental qualification deficiencies and nonconformance report system concerns.

-- A Management Meeting was held on October 26, 1990 at the NRC Region I office to discuss licensee initiatives in the area of discrepancy management.

-- A Management Meeting was held on November 15, 1990 at the PP&L Allentown office to discuss licensee initiatives in the area of reportability.

IV.D Reactor Trips and Unplanned Shutdowns

	Date	Power Level	Root Cause	Functional Area
			UNIT 1	
1.	09/08/89	100%	Personnel Error	Engineering/Technical Support

Event Description:

MANUAL SHUTDOWN due to questionable operability of wetwell to drywell vacuum breakers. A damping orifice was inadvertently omitted from modification of the vacuum breakers during the previous Unit 1 refueling outage.

Reactor Trips and Unplanned Shutdowns (Cont.)

Date	Power Level	Root Cause	Functional Area

Event Description:

UNIT 1 (continued)

2.	05/28/90	100%	Component Failure	NA

AUTOMATIC SCRAM due to Feedwater Control System circuit failure. The "B" level instrument failed downscale generating a false low level signal that caused the feedwater pumps to overfeed the vessel resultin in an actual high level turbine trip and reactor scram.

3.	02/01/90	100%	Design Deficiency	Engineering/Technical Support

MANUAL SHUTDOWN due to a leak in the EHC line to the number 4 Main Turbine Control Valve. The leak was due to engineering specifying incorrect O-rings during initial plant construction.

4.	06/07/90	100%	Component Failure	NA

MANUAL SHUTDOWN to replace all 4 RHR pump motor oil coolers as a result of extensive cooler corrosion initially found in Unit 2.

UNIT 2

1.	02/06/90	100%	Component Failure	NA

AUTOMATIC SCRAM due to generator load rejection. A loose states link generated a high resistance connection which tripped the backup differential current protection scheme for the 500KV switchyard.

2.	05/28/90	100%	Component Failure	NA

AUTOMATIC SCRAM due to Feedwater Control System circuit failure. The "B" level instrument failed downscale generating a false low level signal that caused the feedwater pumps to overfeed the vessel resulting in an actual high level turbine trip and reactor scram.

TABLE 1

Inspection Hour Summary*#

Susquehanna Steam Electric Station

August 1, 1989 - November 30, 1990

FUNCTIONAL AREA	HOURS	ANNUALIZED HOURS	PERCENT
PLANT OPERATIONS	1285	1028	19
RADIOLOGICAL CONTROLS	467	374	7
MAINTENANCE/SURVEILLANCE	1133	906	16
EMERGENCY PREPAREDNESS	219	175	3
SECURITY/SAFEGUARDS	186	149	3
ENGINEERING SUPPORT	2317	1854	33
SAFETY ASSESSMENT/ QUALITY VERIFICATION	1359	1087	19
TOTALS:	6966	5573	100

* Does not include NRC licensing staff hours.

\# Includes 1,197 hours for the EDSFI Inspection and 545 hours for the Maintenance Team Inspection.

TABLE 2

Enforcement Summary

Susquehanna Steam Electric Station

August 1, 1989 - November 30, 1990

Number of Violations by Severity Level

FUNCTIONAL AREA	I	II	III	IV	V	DEV	TOTAL
PLANT OPERATIONS				3			3
RADIOLOGICAL CONTROLS			1	2	1		4
MAINTENANCE/SURVEILLANCE							
EMERGENCY PREPAREDNESS							
SECURITY/SAFEGUARDS				1			1
ENGINEERING SUPPORT			1	1			2
SAFETY ASSESSMENT/ QUALITY VERIFICATION				3		1	4
TOTALS:			2	10	1	1	14

Enforcement conferences were held with the Licensee on October 3, 1989, to discuss an unplanned personnel explosure; on November 21, 1989, to discuss a provision in the requalification program which allowed the assignment of licensed duties to personnel that had failed a requalification examination; and on October 4, 1990, to discuss corrective action / environmental qualification issues. A $25,000 civil penalty was imposed for the latter violation.

TABLE 3

Licensee Event Report Summary

Susquehanna Steam Electric Station

August 1, 1989 - November 30, 1990

Number of LERs by Cause Code

FUNCTIONAL AREA	A	B	C	D	E	X	TOTAL
PLANT OPERATIONS	5		1		9	1	16
RADIOLOGICAL CONTROLS	1	1			1		3
MAINTENANCE/SURVEILLANCE	7	2		4	1		14
EMERGENCY PREPAREDNESS							
SECURITY/SAFEGUARDS							
ENGINEERING SUPPORT		3			7	1	11
SAFETY ASSESSMENT/ QUALITY VERIFICATION	6	1		1	1		9
- TOTAL:	19	7	1	5	19	2	53

This analysis includes LERs 88-022 through 90-024 for Unit 1 and 89-006 through 90-012 for Unit 2.

Cause Codes *

A. Personnel Error
B. Design/Man.Constr./Install
C. External Cause
D. Defective Procedure
E. Component Failure
X. Other

* Root Causes assessed by the SALP Board may differ from those listed in the LERs.

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:

1. Assurance of quality, including management involvement and control;

2. Approach to resolution of technical issues from a safety standpoint;

3. Enforcement history;

4. Operational and construction events (including response to, analyses of, reporting of, and corrective actions for);

5. Staffing (including management);

6. 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 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 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 to compare the licensee's performance 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 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

Declining: Licensee performance was determined to be declining and the licensee had not satisfactorily addressed 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, although minimally adequate, 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.