U.S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

REPORT NOS. 50-220/90-99 AND 50-410/90-99

INITIAL SALP REPORT

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT UNITS 1 AND 2

ASSESSMENT PERIOD: MARCH 1, 1990 - MARCH 31, 1991

BOARD MEETING DATE: MAY 15, 1991

TABLE OF CONTENTS

		Page
I.	INTRODUCTION	1
II.	SUMMARY OF RESULTS	1
	II.A Overview	1
	II.B Facility Performance Analysis Summary	3
III.	PERFORMANCE ANALYSIS	4
	III.A Plant Operations	4
	III.B Radiological Controls	8
	III.C Maintenance/Surveillance	11
	III.D Emergency Preparedness	14
	III.E Security and Safeguards	16
	III.F Engineering and Technical Support	18
	III.G Safety Assessment/Quality Verification	20
IV.	SUPPORTING DATA AND SUMMARY	23
	IV.A Licensee Activities	23
	IV.B NRC Inspection and Review Activities	23
	IV.C Significant Meetings	24
	IV.D Reactor Trips and Unplanned Shutdowns	24

Attachment 1 - SALP Criteria

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 May 15, 1991, to review the collection of performance observations and data, and to assess the licensee's performance at Nine Mile Point. This assessment was conducted in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance".

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

Members

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II. SUMMARY OF RESULTS

II.A Overview

Niagara Mohawk demonstrated an overall improvement in performance during this assessment period as the site-wide initiatives begun as part of the Unit 1 Restart Action Plan increased in effectiveness. The functional areas of plant operations, maintenance/surveillance and safety assessment/quality verification, in particular, have shown marked improvement. Specific Nuclear Division actions which have contributed to this improvement were increased corporate and station management involvement in day-to-day activities, broad implementation and employee participation in self-assessment activities, and greater adherence to procedures and attention to detail. Contributing to the successful execution of these actions was a Nuclear Division reorganization which more clearly defined individual responsibilities and accountability.

Performance in the area of plant operations at both units significantly improved. Operators at Unit 1 were challenged by a demanding power ascension testing program and a number of unplanned plant transients. Overall, operators performed well and maintained the unit in a safe configuration. The Unit 2 operators exercised improved control over plant systems and significantly reduced the number of plant transients and unplanned safety system actuations.

In the area of maintenance and surveillance testing, performance generally improved. The increased supervisory and management involvement in day-to-day activities resulted in fewer maintenance related plant transients or systems problems. In addition, a major revision of the maintenance administrative control procedures helped to streamline the work control processes and minimize the potential for personnel error.

In the radiological controls area, performance continued to be generally good. ALARA performance was considered mixed, in that, Unit 2 outage exposure projections were inaccurate and ALARA reviews of emergent work items were considered cursory. However, the subsequent Unit 1 mid-cycle outage reflected many of the lessons learned from the Unit 2 outage ALARA concerns and performance was much improved. Progress was noted in addressing many of the effluent and process radiation monitor operability concerns.

Emergency preparedness performance remained strong with a fully qualified staff and considerable depth and experience. Emergency preparedness training continued at a high level and was reflected in the Niagara Mohawk staff performance during the observed drill and actual events throughout the assessment period.

Particularly noteworthy was the continued excellence in performance in the security area. A regulatory evaluation review conducted during the middle of the SALP period identified the Niagara Mohawk nuclear security program to have been one of the best in the nation.

In summary, the broad improvement initiatives implemented by the licensee have resulted in substantially improved overall performance. In particular, the increased management involvement and oversight of station activities and increased emphasis on individual accountability with more clearly defined responsibilities has resulted in overall improved safety assessment and quality verification of day-to-day activities.

II.B Facility Performance Analysis Summary

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

Previous Assessment Period: March 1, 1989 to February 28, 1990

Present Assessment Period: March 1, 1990 to March 31, 1991

III. PERFORMANCE ANALYSIS

III.A Plant Operations

Unit 1

The previous SALP report rated Plant Operations at Unit 1 as Category 3. The SALP report stated that station management had made substantial progress in addressing and correcting concerns previously identified. However, other problems were noted relative to the evaluation of personnel performance, self-assessment capability, problem identification, and attainment of operator performance at the level established by the Nuclear Division Standards of Performance.

Unit 1 operations performance this assessment period demonstrated significant improvement. The operations staff successfully met the challenges of transitioning from a prolonged shutdown, progressing through an extensive power ascension test program (PATP), and achieving full power operations. Operations management demonstrated improved oversight and assessment capabilities as reflected in the PATP self-assessment and the successful application of the lessons learned throughout this assessment period.

A number of operational events and challenges were encountered by the operations staff this assessment period. With few exceptions, operations staff support of the unit restart effort (i.e., system walkdowns, valve lineups, surveillance and inservice testing, and maintenance support) was good. During the PATP, in addition to the demanding test schedule, a number of unanticipated events challenged the operators who responded professionally and competently to these events to maintain the unit in a safe configuration. These events included: unidentified drywell leakage which resulted in a forced shutdown; turbine high vibration which caused two forced shutdowns; and abnormal neutron monitor response in the intermediate range. A number of other events during this assessment period (i.e., loss of offsite power, turbine control valve malfunction resulting in automatic reactor scram, and recirculation pump trips) were likewise appropriately responded to by the control room operators.

In contrast to the above, a few events involving licensed and non-licensed operations personnel showed instances of poor performance and inattention to detail. These events included inadequate control of a blue markup on a feedwater pump, improper testing control for the turbine torsional test, a several thousand gallon condensate spill in the radwaste building, and an inadvertent reactor scram from full power during a surveillance test when the wrong fuses were pulled. Station and corporate management response to these events was prompt, thorough and effective in precluding recurrence. For example, in some cases, station management took disciplinary action to reinforce their performance expectations. In total, the operations staff demonstrated that they were capable of achieving expected standards of performance, and when they fell short, were capable of being sufficiently self-critical to identify the root cause of the problem, implement effective corrective action and learn from their mistakes.

The restructuring of the management organization resulted in better oversight and control of operations-related activities. In particular, the operations management staff was increased and some key personnel changes were made which contributed to improved direct supervisory involvement on a day-to-day basis. This increased oversight and involvement was demonstrated by increased supervisory presence in the control room, supervisory participation in pre-evolution and routine shift briefings, by more frequent plant tours and self-assessment activities. Operations management presence was also evident in the operator training programs. Also, effective management oversight was evidenced by increased emphasis on evaluating performance and identifying problems that led to a few instances where licensed operators were removed from shift work for remediation and operator license candidates were removed from the training program prior to administration of the NRC examinations.

Niagara Mohawk continued to improve the operator training program at Unit 1. Initial examinations were administered to five senior reactor operators (SRO) and three reactor operator (RO) applicants; all of which passed except for one SRO who failed both the written and operating portions of the examination. Overall, the applicants were well prepared for NRC license examinations. No programmatic weaknesses were identified. In addition, two requalification program evaluations were conducted involving seventeen SRO and twelve RO license holders. All operators passed the examinations indicating their ongoing preparedness for the examination and overall proficiency. Niagara Mohawk training and operations management was effective in these efforts by incorporating the "lessons learned" from the previous NRC requalification program evaluations at Unit 2 and other related inspections.

The operations group was generally effective in the control of test activities, particularly during the PATP. Operators were cautious, deliberate, and methodical during each phase of the power ascension process. The test program effectively incorporated hold points and self assessment activities. Niagara Mohawk demonstrated good control of technical issues which developed during this process and, in general, were effective in tracking them to resolution. The one exception to this generally effective control of test activities was the turbine torsional testing mentioned above.

Staffing levels in the operations area were ample this assessment period. Operators were in a five-shift crew rotation plus a permanent day-shift relief crew. In addition, there were a sufficient number of senior reactor operator license holders available who became involved with rotational assignments in other station departments for both individual career development and improved departmental interaction and coordination.

In summary, the concerns addressed in the previous SALP reports with respect to operator performance, training programs and management oversight have been appropriately resolved with signs of continued improvement. A number of significant challenges to the capabilities of the operations staff were encountered this SALP period and, in general, the operations staff met these challenges with good success.

Performance Rating: Category 2

Board Recommendations: None

Unit 2

The previous SALP report rated Plant Operations at Unit 2 as Category 3. Contributing to this rating was inconsistent operator performance in which poor control of component and system status resulted in several unnecessary operational events and, in addition, an unsatisfactory NRC evaluation of the licensed operator requalification program.

During this SALP period, overall operations staff performance improved substantially. Control of component and system status was noted to be good during maintenance, surveillance and outage activities. The number of automatic reactor scrams and forced shutdowns decreased during this assessment period and operator response to those encountered was good. The licensed operator requalification program was restored to a satisfactory rating. Particularly noteworthy was operations management involvement in day-to-day activities.

Control of system and equipment status was much improved this assessment period due to operations staff advance review of work packages in accordance with the revised maintenance control processes, increased operations management oversight and increased emphasis on personal accountability and professionalism. Notwithstanding, some isolated operational events did occur due to personnel error. These events (e.g., inadvertent safety feature actuations, a discharge of new spent fuel pool cleanup resins into the refuel cavity, and minor Technical Specification (TS) surveillance problems) were all of low safety significance and not indicative of poor operating practices. For those isolated events, operations management took prompt and effective action to evaluate the event, determine the root cause(s), implement corrective action and impose disciplinary action, when warranted. These few events represent a significant reduction from previous SALP periods.

Automatic and forced unit shutdowns were reduced to a total of four this assessment period and the causes were design problems rather than personnel related. Operator response to all four shutdowns was excellent. For the three forced shutdowns, control room operators quickly diagnosed the problem, took actions to minimize the plant transient, effectively maintained the unit in a safe configuration, and avoided the need for automatic protective function initiations. The electrohydraulic system pipe break was detected by an auxiliary operator making rounds and quick action by the control room operators avoided the need for any automatic system response. The reactor coolant pressure boundary leak, which resulted in a forced shutdown near the end of the SALP period, was detected early by control room operators and closely monitored. Prior to reaching the TS limit, station management decided to reduce reactor power and make a drywell entry to investigate the source of the unidentified leakage. As clearly demonstrated by these events, the operations staff has taken timely and conservative action with respect to the continued safe operation of the unit.

Both the initial operator license training and requalification training programs at Unit 2 were determined to be good. Initial examinations were administered to seven SRO and three RO applicants; with only one failure. Examinations were administered to six SRO applicants limited to fuel handling (LSRO); one applicant failed the written examination. Overall, the applicants were well prepared. A requalification program evaluation was conducted in May 1990 for six SROs and nine ROs. All operators passed the examination. It was evident that plant management took an active role in identifying and correcting inadequate operator, crew and training staff performance. The NRC concluded that Niagara Mohawk had adequately implemented the necessary corrective actions following the previous SALP period (July 1989) unsatisfactory requalification program evaluation. Accordingly, the Unit 2 licensed operator requalification program was determined to be satisfactory in November 1990.

The NRC evaluation of emergency operating procedures (EOPs) concluded that they were technically correct, could be physically carried out in the plant and could be implemented by the plant staff. The operator understanding of the EOP bases and their ability to use the EOPs were considered strengths. Some technical and human factors deficiencies were identified, mostly with the EOP support procedures. These deficiencies were attributed to the weak validation and verification process for support procedures. The quality assurance (QA) department involvement in the EOP area was effective since a number of deficiencies identified by the NRC staff had already been identified by the QA staff and were being corrected by the operations staff. Overall, the good results of the EOP team inspection indicated that Niagara Mohawk made a concerted effort to adapt previous lessons learned from Unit 1 and other industry inspections in order to improve the Unit 2 EOP program structure and content.

During this assessment period, operations management involvement and oversight was evident in a number of ways. Progress was made in the reduction of nuisance control room annunciators. The prioritization of the modification packages necessary to eliminate these nuisance alarms and the significant commitment of resources to implement them was evident. A reorganization and increased operations supervisory staffing permitted more supervisory presence in the control room during both day shift and backshift evolutions. Shift turnover briefings were typically attended by operations management. Special planned evolutions or tests were observed and frequently briefed by operations management. Their increased oversight and day-to-day involvement were considered instrumental in the error free execution of the turbine torsional testing and the smooth transition from the first refuel outage to unit restart and power ascension. However, the inadvertent engineered safety feature actuations and minor surveillance problems which occurred due to inattention to detail indicated the continued need for heightened supervisory and operations management day-to-day oversight. Good planning and operations management involvement in the training programs helped to ensure adequate staffing and the return to a six shift rotation, plus a permanent relief day shift. In addition, station management response to operational events was prompt and thorough.

In summary, operations performance improved and was more consistent this assessment period. Fewer personnel errors occurred due to increased operations management oversight and involvement in day-to-day activities. Operator response to plant events was good and staffing levels were ample. The licensed operator requalification program was evaluated as satisfactory and an EOP review found the procedures to be good and well understood by the operators. Niagara Mohawk demonstrated good performance in this area for the assessment period.

Performance Rating: Category 2

Board Recommendations: None

III.B Radiological Controls

The previous SALP report rated Radiological Controls as Category 2. Continuing problems were noted in the area of operability of the effluent monitoring system, especially at Unit 2. The radwaste and environmental monitoring programs were considered strong.

Niagara Mohawk made significant changes to improve its management oversight of the radiological safety area during the second half of the assessment period. Changes were made in both the organizational structure and the management personnel in this area. These changes resulted in more aggressive resolution of radiological issues raised by either its own quality assurance programs or the NRC. Two new radiation protection managers, one for each unit, were hired. New supervisors for radcon operations, ALARA and radcon support were also assigned for each unit. Internal dosimetry, external dosimetry and shipping staffs were left under the site support organization.

Radiological controls at both units were determined to be generally good, with occasional lapses of control in ensuring timeliness and posting of surveys and ensuring the utilization of proper protective clothing by plant personnel. Hot particle controls, especially during the Unit 2 first refueling outage, were generally effective.

Unit 1 maintained an effective ALARA program that had considerable success during the mid-cycle outage which occurred near the end of the assessment period. This success was attributable to excellent cooperation and coordination between the ALARA supervisor and the operations and maintenance departments, together with a strong commitment in support of the ALARA goals by both the Unit 1 plant manager and outage manager. In addition, the Unit 1 staff benefitted from the lessons learned during the Unit 2 refueling outage with respect to emergent work item impact on ALARA goals and planning.

ALARA performance at Unit 2 was mixed, being generally good while the plant was operating, but considerably less successful during the first refueling outage. Problems during the outage were attributable to inaccurate dose rate projections due to a lack of historical data, incomplete pre-planning of the full scope of testing and inservice inspection work to be performed during the outage, and the subsequent ineffective ALARA review of emergent work. The Unit 2 ALARA supervisor was generally not included in the early stages of outage planning activities. Additionally, radiation work permit amendments for emergent work were often provided to the Unit 2 ALARA group only hours before the work needed to be performed.

Corporate support of ALARA was also determined to be weak as indicated by inconsistent performance between the two units, and the lack of a clearly defined corporate ALARA program. Towards the end of the assessment period, Niagara Mohawk began developing an action plan to address these weaknesses, and to stress management's commitment to ALARA.

Niagara Mohawk's external dosimetry program continued to be effectively implemented. Procedures addressing external dosimetry controls, including the operation of the TLD facility, were found to be generally well established and written. However, although the number and magnitude of internal contaminations for 1990 were found to be small, procedures addressing internal exposure control were found to be generally incomplete, difficult to use, and sometimes inconsistent.

Niagara Mohawk continued its aggressive program to reduce the size of contaminated areas in Unit 1, with the completion of the first phase of the radwaste building 225 foot elevation decontamination. This was a major project involving the extensive utilization of robotics to perform debris removal and surface decontamination.

In general, the amount of contaminated areas at Unit 2 remained small, in spite of the six month long refueling outage. However, significant portions of the Unit 2 refueling floor continued to be used for the storage of outage equipment awaiting decontamination. Also noted at both units were several instances of trash and laundry left in piles on the floor inside contaminated areas.

In general, the Niagara Mohawk program for the assurance of quality in radiation protection remained a notable strength throughout the assessment period. Audits were found to be performance based, with excellent scope and technical depth. Radiation protection and radwaste management continued to use these audits as a means for improving performance. Niagara Mohawk also continued to use an extensive surveillance program to further enhance its programs in these areas. However, this surveillance program was not effective in dealing with the ALARA problems noted during the refueling outage at Unit 2.

Staffing levels in the radiological safety and radwaste areas were good. All key supervisory positions were filled by Niagara Mohawk employees. Background and training for personnel were appropriate. Training of Niagara Mohawk personnel involved in radwaste remained generally strong, although a formal retraining program for the training staff had not been developed.

Niagara Mohawk performance in the areas of radwaste processing and transportation remained strong. All shipments were accepted at the burial sites without incident, with the exception of a cask shipment of irradiated hardware from the Unit 1 fuel pool made at the end of the assessment period. This shipment was identified by the State of Washington as having excessive amounts of removable contamination on the outer cask surface. This was considered an isolated event and not indicative of overall performance.

The Unit 2 commitment to waste minimization was also a notable strength. Waste volume generation at Unit 2 continued to be low.

Confirmatory Measurements (Chemical and Radiological)

Niagara Mohawk's performance with respect to NRC standard chemical measurements was good. All of the measurements were in agreement or qualified agreement under the criteria used for comparing results. The results of the radiological sample measurements comparisons also were very good, with all in agreement under NRC criteria used for comparing results. An appropriate laboratory measurements QC program was implemented in both units.

Radiological Environmental and Effluent Monitoring Programs

Niagara Mohawk continued to have a strong environmental monitoring program. Niagara Mohawk operated an extensive surveillance program for the collection and analysis of environmental samples and for the meteorological monitoring instrumentation.

The programmatic weakness of the operability of effluent monitors, identified during the last SALP period, continued during the current assessment period. The root cause of the inoperability of these monitors was design deficiencies that impaired equipment reliability. These problems (reported in semiannual effluent reports, LERs, and Special Reports) were generally corrected near the end of this SALP period as the result of special management attention and initiatives to improve their design and availability. Liquid and gaseous effluent sampling, analysis, and reporting were good. Air cleaning systems were maintained and tested as required by the Technical Specifications.

Quality assurance audits generally covered the stated objectives and were found to be of excellent technical depth to assess the radiological environmental and effluent monitoring programs.

Overall Summary

Niagara Mohawk continued to implement an effective radiological safety program and completed staffing and organizational changes to support continued success. Performance in the area of ALARA was generally good with some ALARA shortcomings identified during the Unit 2 refueling outage. Radwaste processing and transportation remained a strength. Radiological chemistry controls were good and progress was noted in the area of effluent monitoring.

Performance Rating: Category 2

Board Recommendations: None

III.C Maintenance/Surveillance

The previous SALP report rated Maintenance/Surveillance as Category 3. Inadequate control of maintenance activities resulted in a high number of operational events, particularly at Unit 2. Weaknesses were also noted in the proper diagnosis of equipment failures and the limited maintenance backlog reduction. Performance in the area of surveillance testing was observed to have improved. Computerized scheduling and tracking of Technical Specification surveillance tests at both units resulted in a significant reduction in missed tests, particularly at Unit 2.

Maintenance

During this assessment period, performance in the maintenance area improved. There were no direct maintenance-related forced shutdowns or scrams at Unit 2; however, there were four forced shutdowns at Unit 1 directly caused by improper maintenance. Overall, maintenance activities observed at both units during routine operation and during outages were conducted well and in accordance with procedures.

Operational events involving preventive or corrective maintenance were significantly reduced this assessment period. At Unit 1, four forced shutdowns occurred during the assessment period because of improperly performed maintenance. Two of the four forced shutdowns were caused by maintenance performed during the previous assessment period (turbine generator lube oil system overhaul and main steam line isolation valve internals repair). One forced shutdown was caused by improper corrective maintenance on an electromatic relief valve (ERV). The root cause for the ERV forced shutdown was personnel error. The ERV pilot valve post-reassembly adjustment was improperly determined not to be applicable, although specified by the procedure. A fourth shutdown, caused by turbine generator front standard malfunctions, was partially attributable to insufficient routine preventive maintenance and cleaning. No direct maintenance-related shutdowns occurred at Unit 2. The four forced shutdowns at Unit 2 all resulted from design deficiencies. The maintenance staff responded to these events promptly and properly. They developed thorough troubleshooting and/or repair plans to address the problems.

A number of difficult equipment failures/problems were successfully addressed by the maintenance groups at both units this assessment period. At Unit 1, a feedwater pump impeller installation deficiency, turbine generator front standard malfunctions, and a transformer fault which caused a complete loss of offsite power were all carefully investigated and appropriately addressed. At Unit 2, an emergency diesel generator cracked cylinder head was properly diagnosed and replaced.

During the assessment period, there were several scram signals generated while Unit 1 was shutdown. These scrams were primarily the result of persistent equipment problems in three areas. These areas were: spurious spiking on the intermediate range nuclear instruments; spurious failure/cycling of contacts in the low condenser vacuum/main steamline isolation bypass circuitry; and deenergization of reactor protection system buses 11 or 12 due to problems with their associated motor generator sets. These problems were well documented and considerable maintenance staff troubleshooting, engineering staff review and senior management attention was expended to identify and correct the source of these problems. These scram signals were of minimal safety consequence and would generally have not challenged the reactor protection system during normal power operations. Niagara Mohawk has identified the underlying causes for these scram signals and appears to have initiated appropriate corrective maintenance and/or engineering design changes to resolve them.

A maintenance performance assessment team (MPAT) inspection was conducted during this assessment period and concluded maintenance performance was acceptable. The team noted that maintenance personnel were knowledgeable and experienced. The team concluded that maintenance was being performed in accordance with procedures. In addition, the team observed that maintenance issues were properly and conservatively resolved. The team identified only one concern involving the improper control and assembly of scaffolding in safety-related areas. However, station staff response to this concern was prompt and thorough. In addition, the MPAT identified that the Unit 1 work control center effectively planned, scheduled and controlled work activities.

The maintenance backlog at Unit 1 was significantly reduced prior to restart from the 1988-91 refuel outage. However, the maintenance backlog at Unit 2 remained high throughout most of the assessment period and only began to trend downward towards the end of the period after the unit was returned to power. Niagara Mohawk attempted to reduce the Unit 2 backlog, but plant events precluded a net reduction in the total backlog. Maintenance department staffing levels at both units was ample. Prioritization of work items was observed to be appropriate and conducive to continued safe operation.

Maintenance administrative procedures were upgraded to include more precise procedural controls over maintenance activities such as troubleshooting, temporary modifications, plant impact reviews, and measuring and test equipment calibration and usage. In addition, maintenance management has emphasized procedural adherence and individual accountability. In spite of these initiatives, there were a few events at Unit 2 which resulted from instances of poor maintenance performance. Some examples included: improper selection of a torque wrench and failure to follow RWP requirements during preventive maintenance on control rod drive hydraulic control units; failure to backfill a reactor pressure transmitter which resulted in an inadvertent ESF actuation; and improper restoration from a local leak rate test which resulted in personnel contaminations. Although these events were of minor safety significance, they indicated inattention to detail and poor procedural adherence. An improving trend in these areas was noted in the latter part of the assessment period and an increase in maintenance supervision presence in the field was observed, particularly at Unit 1.

Housekeeping at both units this assessment period was good. A noticeable effort was made at Unit 1 to clean up and repaint the reactor building corner rooms. However, lapses were identified at both units with respect to general area cleanliness and radiological housekeeping practices. These lapses were generally coincident with unit outages. In contrast, inspector drywell tours at the conclusion of unit outages identified good material and cleanliness conditions.

Surveillance

During this assessment period, surveillance testing continued to improve. Implementation of the inservice inspection and testing programs was satisfactory. The execution of the power ascension testing program (PATP) at Unit 1 was noteworthy.

There were few missed surveillance tests this assessment period. Those that were missed occurred at Unit 2 and were the result of personnel inattention to detail and were of minor safety consequence. This overall improvement can be attributed to an effective computerized tracking system at both units and the diligent efforts of the responsible station staff. Surveillance testing improvements were complemented by the successful completion of some complex special testing performed at Units 1 and 2 (i.e., integrated leak rate test and turbine torsional test at Unit 2; and a loss of offsite power test at Unit 1). In addition, the planning, execution and assessment of results from the numerous and involved PATP tests at Unit 1 were well coordinated and controlled.

To support the conduct of the Unit 1 PATP, Niagara Mohawk dedicated significant resources to carefully prepare test procedures and to plan and coordinate the three major testing phases. Indicative of the good planning and preparation was the smooth execution of the program and the good correlation between anticipated and actual test results. The one exception, to this otherwise excellent test program, was the performance of the Unit 1 turbine torsional test. A poorly written test procedure unnecessarily challenged the operators and operations support staff and ultimately was the basis for aborting the test. In addition, problems encountered with the test initially were not addressed in an effective manner. Subsequent performance of the turbine torsional test at Unit 2 was generally enhanced, due to training on the lessons learned from the Unit 1 torsional test.

Inservice inspection (ISI) and inservice testing (IST) programs at both units were satisfactorily implemented during this period. ISI examinations at Unit 2 identified a weld indication in the high pressure core spray nozzle safe-end, which required Niagara Mohawk evaluation and NRC review and approval for continued operation without rework. Detailed internal reviews of Unit 2 IST procedures identified discrepancies in the testing of service water pumps and residual heat removal motor operated valves. These self identified problems were reflective of conscientious and dedicated ISI and IST staffs.

Overall Summary

Performance in the maintenance area was improved this period; however, a few instances of poorly performed or insufficient maintenance resulted in unplanned Unit 1 shutdowns. Notwithstanding, significant maintenance staff efforts to improve procedural controls and personnel procedural adherence were evident. Progress was noted in the work request backlog reduction at both units. Performance in the surveillance area was good during this assessment period. A few missed surveillances at Unit 2 resulted from inattention to detail, but overall compliance with the Technical Specification testing was good. Power Ascension Testing at Unit 1 was generally well planned and executed. Overall implementation of the ISI and IST programs was good.

Performance Rating: Category 2

Board Recommendations: None

III.D Emergency Preparedness

The previous SALP rated Emergency Preparedness as Category 1. This rating was based on good performance during an exercise, strong management support of the emergency preparedness program and an effective emergency preparedness training program.

Corporate and site management was effectively involved in assuring emergency preparedness quality with the exception of their response to the Emergency Response Facility Appraisal items. The Vice President Nuclear Support routinely participated in Emergency Preparedness Branch staff meetings. Managers maintained Emergency Response Organization position qualification, reviewed and approved the Emergency Plan and procedure changes, participated in drills and exercises, and effectively interfaced with State and County Offices of Emergency Management personnel. Emergency Plan and procedure changes were also appropriately reviewed and approved by the Station Operating Review Committee following a review to insure the changes did not decrease emergency preparedness effectiveness.

Site management was also involved with off-site activities to assure quality. Managers participated in frequent Emergency Plan development and coordination meetings with State and County officials. Public information material was developed and distributed. Two remote sensing systems were used to test sirens daily and continuously. This testing frequency exceeds that suggested in NRC guidance. Niagara Mohawk maintained these redundant testing systems to insure reliability. Siren availability significantly exceeded FEMA specifications during this assessment period.

Niagara Mohawk has been slow to complete action on several enhancement items identified during the 1988 Emergency Response Facility Appraisal. At the beginning of 1991, nine items remained open. Four items were related to dose projection, four to plant computer systems and one to habitability. At the conclusion of the assessment period, two of the items had been closed. The licensee projects completion of the remaining items in late 1991 or early 1992.

The emergency preparedness training (EPT) program, based on exercise and actual event response, made a positive contribution to emergency preparedness effectiveness. A training matrix and lesson plans were based on the emergency plan and procedures. All lesson plans were rewritten to ensure user friendliness and conformance with revised training department format. In addition to classroom training, four station drills and five drills of different types were held. Additionally, core damage mitigation training was given to the technical staff. Over 1000 site personnel were qualified for an emergency response organization (ERO) position. There were six staff members qualified for each ERO management and decision making position. Two weaknesses were identified during the annual exercise, however they did not indicate an ineffective EPT program. One weakness resulted from failure of an ERO manager to request core damage assessment and the other resulted from failure of the dose assessors to consider plume trajectory variability when calculating projected doses. Several strengths were also identified including strong engineering response by the Technical Support Center staff and development of protective action recommendations based on degrading plant conditions.

Licensed operators received classroom and simulator training in both classification and protective action recommendation development during each training cycle. When simulator scenarios were used, the entire control room staff participated to provide an integrated shift response. The effectiveness of operator emergency preparedness training was demonstrated by response to six operational events each of which involved a different cause. The events were properly classified as Unusual Events. Notifications to the State and County were timely.

As the result of a reorganization, an emergency preparedness branch has been established, headed by a director who reports directly to the Vice President, Nuclear Support. The branch was staffed by ten persons including three clerical, two senior reactor operators and an experienced dose assessor. An ample staff capable of effectively implementing the emergency preparedness program was available.

In summary, Niagara Mohawk maintained an effective emergency preparedness program. Corporate and station management was routinely involved with and committed to quality. However, the schedule set for resolving the Emergency Response Facility Appraisal items indicates that management attention was not uniformly applied. The emergency response organization was qualified and fully staffed. Training was effective as demonstrated by the annual exercise response and the response to six actual conditions requiring classification. Niagara Mohawk maintained a good interface with State and County officials.

Performance Rating: Category 1

Board Recommendations: None

III.E Security and Safeguards

The previous SALP report rated Security and Safeguards as Category 1. This rating was based upon: maintaining a very effective and performance-oriented program; continuing efforts to upgrade the operation and reliability of security systems and equipment; a training program that was dynamic in scope and well administered; and, management support that was clearly evident in all areas of the day-to-day security operation and active in planning for the security upgrades and enhancements.

Plant and corporate management involvement in the security program continued to be a notable strength as evidenced by the budgeting and planning to support program upgrades throughout the entire period. Security management personnel also remained actively involved in industry groups engaged in nuclear plant security matters. The security manager and his staff continued to demonstrate an excellent understanding of nuclear plant security objectives. The background and nuclear security expertise of this staff was the main strength of this organization. They were quick to recognize where improvements could be effected in the program and provided sound and effective resolutions.

Niagara Mohawk made very good progress on a comprehensive upgrade of the assessment system. In addition, they have completed the installation of a double security fence around the entire protected area and completed an upgraded intrusion detection system on the Unit 2 side of the protected area. A revision to the surveillance procedures was also recently completed that now emphasizes performance testing of equipment. The continued assignment of approximately 20 full-time instrumentation and controls (I&C) technicians to the security organization to maintain security systems and equipment is one of the key elements to the continued success of the security program. Their dedication to the program was evident in the overall excellent preventive maintenance program and the rapid response to equipment problems which minimized the need for compensatory measures.

A Regulatory Effectiveness Review (RER) was conducted in June 1990 and the team concluded that, in general, all elements of the Nine Mile Point security program were sound, well-managed and effective. The program was considered to be one of the most effective that the RER team had assessed, to date. While some potential weaknesses with assessment aids were found, they had already been identified and compensated for by Niagara Mohawk, and a major upgrade was in progress. The RER also noted that it was the first time they had tested an intrusion detection system without identifying a weakness. This was further evidence of the effectiveness of the security staff and program. In addition, the armed response capability demonstrated sound strategic planning, excellent training, effective deployment of response equipment, and a competent response force.

The security training program was also a key element of the program. The experience and background of the security training staff was excellent. Their competence and dedication was evidenced in the demeanor, professionalism and knowledge exhibited routinely by the security officers. Niagara Mohawk continued to maintain well equipped training facilities which include an on-site firing range and a fully-equipped exercise and fitness center for security officers that was also available to other plant personnel. Niagara Mohawk recently completed a comprehensive revision of the training and qualification plan to consolidate numerous revisions and to make crucial security force tasks more performance-oriented.

Niagara Mohawk continued to use self-assessments to provide effective oversight of security program implementation and personnel performance. The self-assessments, along with the annual audit, were thorough, comprehensive and performance-based. Corrective actions on findings and recommendations were prompt and effective with adequate follow-up to ensure their implementation.

Niagara Mohawk made two, one-hour security event reports during the assessment period. One report concerned an informational picket line against a contractor working at the plant and the second report involved the accidental discharge of a hand-gun by a security officer. The latter event was considered an isolated case in which the individual did not follow written procedures and practices in which he was trained. Niagara Mohawk took prompt and appropriate actions in each case. A review of the logable security event reports revealed that events were tracked and analyzed and the deficiencies were effectively corrected by the security staff. The reporting procedures were well understood by security supervisors and were consistent with NRC regulations.

During this assessment period, Niagara Mohawk submitted two revisions to the security plan. Both were technically sound and exhibited the licensee's thorough knowledge and understanding of NRC requirements and security objectives.

In summary, excellent security practices, a sound, performance-oriented training program, and effectively installed and well maintained equipment, coupled with a very competent and effective management team assured the continued implementation of a high quality program during this assessment period. Management attention to and support for the program were clearly evident in all aspects of program implementation. The security personnel were competent and dedicated professionals with the demonstrated skills and knowledge necessary to meet the security plan objectives.

Performance Rating: Category 1

Board Recommendations: None

III.F Engineering and Technical Support

The previous SALP report rated Engineering and Technical Support as Category 2. Niagara Mohawk had improved the overall quality of engineering work and support for the station during the last SALP cycle. In general, engineering work was good with some areas for improvement noted. The following areas were identified as needing improvement: timeliness and quality of engineering work and increased management oversight of engineering work; management attention to assure the timely implementation of the technical training program for the nuclear engineering staff; and, the need for a thorough review of technical issues to assure quality work.

In response to the problem areas identified during the last assessment period, Niagara Mohawk management demonstrated a determination to improve its performance with the following actions: a team of engineering managers was established to monitor technical issues and the overall effectiveness of engineering support; senior management issued criteria for handling technical issues to clarify when engineering support should be requested and provided; and management attention was focused on the implementation of the new broad-based engineering technical training program.

The establishment of the site systems engineering group has achieved noticeable improvements in the quality of engineering support. The system engineers have become the focal point for engineering activities at the site. They were involved and were being held accountable for the coordination of maintenance, modification and testing activities involving their systems. Systems engineers were knowledgeable and had a positive impact on plant performance. For example, the system engineers at Unit 2 identified improper calibration of hydrogen analyzers, improper inservice testing of service water motor-operated valves, improper installation of containment monitoring system resistance temperature detectors and improper Type B testing of a traversing incore probe flanged connection. At Unit 1, systems engineers helped to resolve motor generator set performance problems and gaseous effluent monitor operability concerns.

Good working relationships and communications were observed between the various station and corporate engineering staffs. In addition, Niagara Mohawk reorganized the nuclear engineering department on a unit basis for design and plant support functions. This has helped to establish more clearly defined individual duties and responsibilities for plant changes and modifications and has assisted in building the observed stronger ties between the engineering and station staffs. For example, active participation and coordination of corporate and site engineers resulted in the successful completion of the Unit 1 power ascension testing program (PATP).

The engineering staff's project work load was controlled in accordance with the Niagara Mohawk integrated priority system procedures. Technical issues were assigned, prioritized, and tracked on a weekly basis. The system for assigning priorities to plant modifications appeared to have the proper safety perspective. The engineering department was adequately staffed (including contractors) to support the needs of the station.

There was ample evidence of increased engineering management involvement during this assessment period. For example: a concern regarding the potential for diesel generator fuel oil contamination was immediately resolved; a thorough technical review and good overall control of the turbine torsional test at Unit 2 was observed; and a site licensing group was newly formed to expedite the closure of licensing issues and to coordinate resolution of technical issues with the engineering staff.

The engineering staff training program was previously identified as a programmatic weakness by the NRC and the need for continued management attention was addressed in the last assessment report. Critical training in thirteen specific areas was completed in May 1990 to address the training weaknesses in the interim. A broad-based technical training program was being finalized by engineering management near the end of this SALP period.

Generally, good performance was observed in design change activities this assessment period. Review of modifications identified well organized and technically accurate design packages. Field verifications revealed correct as-built configurations, properly revised drawings and procedures and knowledgeable responsible design engineers. Examples of good engineering work at Unit 1 included: identification and resolution of potential system operability concerns for containment spray and reactor building closed loop cooling heat exchangers; resolution of core spray sparger pipe whip operability concerns; resolution of detailed control room design review issues; and a thorough review of feed water system flow induced vibrations. At Unit 2 an additional example of good engineering effort was the successful completion of the safety parameter display system modifications prior to restart from the first refueling outage.

However, some isolated design and technical review problems of minor safety significance were encountered during this assessment period. For example, a Unit 1 modification was installed without the Station Operation Review Committee (SORC) review required by procedure. Subsequent review by Niagara Mohawk identified six modifications for Unit 2 which were also not SORC reviewed. The resolution of motor generator (MG) set problems at Unit 1 has been slow. Problems with the MG set date back to the early 80s. During the extended Unit 1 outage, a task force determined that the MG sets should be replaced with static invertors for increased system reliability. At Unit 2, four different design problems were identified, resolved or remain to be addressed for long term resolution. These design problems involved balance of plant systems which caused forced shutdowns.

Technical support to the station operations and maintenance staff was found to be adequate and effective. Evidence of good technical support was identified during various NRC team inspections and particularly during reviews of power ascension testing at Unit 1. However, incidents of poor performance in other areas demonstrated some inconsistency in the quality of engineering review activities. For example, at Unit 1 the inadequate followup and resolution of an improper emergency condenser isolation setpoint led to both systems being declared operable before a proper recalibration was conducted. In addition, at Unit 1 there was no basis for the acceptance criteria selected for special tests to determine the adequacy of minimum flow of the core spray pumps. Also, pump suppliers were not involved in determining this acceptance criteria as suggested by Bulletin 88-04.

In summary, Niagara Mohawk showed evidence of increased management involvement in engineering activities compared to the previous assessment period. The addition of the systems engineers to each of the plant staffs was shown to have been an asset to the overall quality of engineering support. However, a few examples during the assessment period indicated performance inconsistencies and minor shortcomings in engineering management oversight. Overall engineering and technical support performance was good and generally improved.

Performance Rating: Category 2

Board Recommendations: None

III.G Safety Assessment/Quality Verification

The previous SALP report rated Safety Assessment/Quality Verification as Category 3 with an improving trend. Niagara Mohawk's performance demonstrated some inconsistency, but an overall improvement was observed. The previous assessment noted an apparent turning point in Niagara Mohawk's approach to assuring quality. Implementation of the Restart Action Plan was responsible for better problem identification, more critical problem evaluation and self-assessment, and the establishment of programs and standards to promote and sustain good performance. The approach appeared to have yielded improved results noted in the engineering and surveillance areas and the general improvement in most other areas. However, the performance in several areas remained at minimally acceptable levels providing a challenge for Niagara Mohawk management to utilize this better approach to produce improved results on a consistent basis in all aspects of plant operations.

Niagara Mohawk implemented several management changes during this assessment period. These changes included the appointment of a new Executive Vice President, Nuclear; a new Vice President, Nuclear Generation; and a new Plant Manager - Unit 2. A reorganization of the site staff, which provides unitized control of each plant, was also implemented. These organization changes enabled Niagara Mohawk site management to better implement the improved standards of performance and accountability measures which had been previously introduced.

During this assessment period, increased management oversight, a conservative attitude, and a good safety perspective in the areas of plant operations and maintenance/surveillance were evident during both routine activities and special evolutions. For example, preparations for the Unit 1 power ascension test program and the Unit 2 startup following the first refueling outage were comprehensive and thorough. Although Niagara Mohawk experienced some difficulties during the initial attempt to perform the Unit 1 turbine torsional test, these difficulties were properly addressed, particularly after intervention by senior corporate management. The lessons learned from this test which included technical and organization performance issues, and lessons from another licensee were thoroughly reviewed and appropriately considered before conducting the Unit 2 turbine torsional test. Good management oversight was observed during the Unit 2 turbine torsional test and during troubleshooting of the Unit 1 main turbine pressure oscillations.

Generally effective implementation of Niagara Mohawk's standards of performance were observed; however, some isolated inconsistencies were noted. Implementation of these standards of performance and their reinforcement by accountability meetings were effective tools in reinforcing individual responsibilities and accountability. An overall improving trend was seen in the area of adherence to these higher performance standards, especially towards the latter part of the assessment period. However, occasional lapses were noted throughout the period in procedural adherence and proper problem identification and resolution. Examples of these lapses include control of blue markups at Unit 1, pulling of wrong fuses during surveillance testing at Unit 1, improper reassembly and adjustment of an electromatic relief valve at Unit 1, maintenance of hydraulic control units at Unit 2, and a radwaste building condensate spill at Unit 1.

Improved engineering and administrative procedures for the proper control of plant design changes and modifications were generated this assessment period and have been, in general, effectively implemented by Niagara Mohawk. More specific measures were provided to ensure proper technical reviews, independent verifications, appropriate levels of approvals, proper installation, and post-modification testing. The revised review and approval processes were effective in ensuring that plant changes were properly evaluated in accordance with 10 CFR 50.59 to determine if an unreviewed safety question was involved.

Analyses to determine root causes of most events have been thoroughly and effectively performed. A noted exception to this good performance occurred early in the period and involved the evaluation of the Unit 1 feedwater pump blue markup problem, which resulted in operation of the feedwater pump with the suction valve shut. The analysis for this event was not thorough in that site management focused only on the personnel performance aspect of the event and did not consider the programmatic aspects.

During this assessment period, both units instituted a permanent outage group and assigned an outage manager. These groups gained experience and improved their performance throughout the assessment period. Lessons learned from problems encountered during the Unit 2 refueling outage, including clearly defining and freezing the scope of work and improved contingency planning, enabled the Unit 1 outage group to be more effective in their overall planning, coordination, and work control during the Unit 1 mid-cycle outage in February-March 1991. This outage was completed ahead of schedule and under the projected ALARA goals.

Niagara Mohawk effectively utilized its self-assessment programs as a diagnostic tool. Self-assessments performed during the Unit 1 power ascension test program (PATP) were comprehensive and critical. Implementation of the self-assessment process became more effective as the power ascension test program progressed and as Niagara Mohawk made appropriate modifications to improve the process. Self-assessments have continued to function as an effective management tool since completion of the power ascension test program. Comprehensive and performance-based self-assessments were also effective in providing management oversight in the maintenance of high levels of performance in the functional areas of Security and Emergency Preparedness.

The safety oversight committees (Site Operations Review Committee and Safety Review and Audit Board) provided a positive performance impact on the station. These committees focused on the safety issues and effectively reviewed station activities to maintain that focus. The Independent Safety Engineering Group (ISEG) provided timely and effective reviews of plant and industry events. ISEG safety assessments and recommendations generally indicated good technical reviews and sound recommendations. The ISEG redefined and expanded its responsibilities and involvement to include independent oversight of both Unit 1 and Unit 2 activities. This expansion of review functions to include Unit 1 activities was accomplished even though, the Unit 1 Technical Specifications do not require an ISEG function.

The quality assurance (QA) staff was strengthened by adding individuals with an operations background. A reorganization of the QA group resulted in the Vice President, Quality Assurance focusing on nuclear responsibilities and moving his office and direct support staff to the station. The impact and effectiveness of this reorganization has not yet been assessed. The QA audits reviewed this assessment period were in-depth and performance-based. Quality control (QC) surveillances were also performance-based. In addition to normal duties, QC was responsive to station management and provided independent assessments, by special request, of suspected problem areas.

Licensing submittals were generally technically sound and thorough. The submittals usually demonstrated sufficient management involvement and oversight so that resolution of the issues was accomplished without requiring additional information, thereby demonstrating a thorough understanding of the issues. License amendment requests have almost always been submitted in a timely manner. However, occasional problems have occurred. For example, the Unit 1 request for a temporary waiver of compliance for improving instrument channels was not adequately reviewed by Niagara Mohawk before proposing it to the NRC. In addition, the initial response to Generic Letter 89-13 did not include sufficient detail to enable the NRC staff to complete its review.

Licensee Event Reports (LERs) were well-written and described the major aspects of each event, the system and components involved, and the significant actions taken or planned to prevent recurrence. The LERs also appropriately identified the root cause(s) of the event. Timely telephone notifications made pursuant to 10 CFR 50.72 were comprehensive and permitted the NRC Operations Officer to clearly understand the events. A conservative approach in reporting was evident in that several events were reported even though NRC notification may not have been specifically required by regulation.

In summary, Niagara Mohawk demonstrated an improved approach to assuring quality and assessing the safety significance of issues affecting plant operations. The self-assessment programs became more effective during the latter portions of the assessment period. The new standards of performance and their methods of implementation were effective in articulating management expectations and requirements and were found to be generally well understood and followed by the Nuclear Division personnel. Licensing action submittals were generally technically adequate and timely. Overall performance in this functional area improved during this SALP period.

Performance Rating: Category 2

Board Recommendations: None

IV. SUPPORTING DATA AND SUMMARY

IV.A Licensee Activities

During this assessment period Unit 1 remained shutdown until July 29, 1990 when the reactor was taken critical for the first time in approximately two and one-half years. A number of forced shutdowns occurred following startup, as highlighted in Section IV.D. A comprehensive power ascension testing program was completed by the middle of November 1990. A mid-cycle maintenance and surveillance outage was successfully conducted near the end of the assessment period. The outage was completed ahead of schedule and considerably under ALARA exposure goals. At the end of the assessment period the unit was operating smoothly at full capacity.

Unit 2 operated at full power from the beginning of the assessment period until May 14, 1990 when a loss of instrument air caused control room operators to manually scram the reactor. Repairs were made to the instrument air system and the unit returned to full power on June 8. End of cycle coastdown commenced on July 14. The reactor automatically scrammed from approximately 65% power on September 7 due to a generator field ground. The first refueling outage was commenced following the September 7 scram and completed on January 19, 1991. The unit operated at power until March 30, 1991 when the unit was shutdown to repair an unisolable reactor pressure boundary leak.

IV.B NRC Inspection and Review Activities

Three NRC resident inspectors were assigned to the site throughout the assessment period. Region based inspectors performed routine inspections throughout the assessment period. NRC team inspections were conducted in the following areas:

-- Reinspection of the Unit 2 licensed operator requalification training program was conducted in April 1990.

-- Readiness assessment team inspection of Unit 1 in May 1990.

-- Regulatory effectiveness review of site security and safeguards in June 1990.

-- Augmented inspection coverage of Unit 1 restart preparations and startup activities in July 1990.

-- Maintenance performance assessment team inspection of both units in October 1990.

-- Augmented inspection coverage of Unit 2 restart from first refuel outage in January 1991.

-- A team review of Unit 2 emergency operating procedures was conducted in January 1991.

IV.C Significant Meetings

The following significant meetings were held during this assessment period between the NRC and Niagara Mohawk staffs:

-- March 9, 1990 Enforcement Conference to discuss apparent violations concerning the Unit 1 reactor building emergency ventilation system.

-- March 29, 1990 NRC Restart Review Panel meeting to discuss Unit 1 restart readiness.

-- May 14, 1990 NRC Commissioners briefing to discuss the NRC staff assessment of readiness for restart of Unit 1.

-- September 7, 1990 meeting with ACRS to discuss restart of Unit 1.

-- December 18, 1990 public meeting to discuss Power Ascension Test Program self-assessment results.

IV.D Reactor Trips and Unplanned Shutdowns

Unit 1

	Date	Power	Root Cause	Functional Area
1.	7/30/90	1%	Personnel Error	Maintenance

The failure to perform post-maintenance adjustments on two of six electromatic relief valves (ERVs).allowed them to relieve pressure at 15 psig during reactor heatup. A failed open vacuum breaker on one of the ERV downcomers resulted in steam escaping and condensing in the drywell which led to a forced shutdown and declaration of an Unusual Event due to rapid increase in drywell unidentified leakage. (LER 90-16)

2.	8/6/90	19%	Personnel Error	Maintenance

During rollup of the turbine prior to synchronizing the generator with the grid, high vibration occurred on the number five main bearing at 1750 rpm. Operators tripped the turbine and broke vacuum on the condenser to allow rapid slowdown of the turbine. The reactor was manually scrammed in anticipation of an automatic scram on low condenser vacuum. The cause of the failure of the bearing was traced to a blank flange inadvertently left installed on the bearing oil supply line. (LER 90-17)

	Date	Power	Root Cause	Functional Area
3.	8/19/90	21.5%	Procedural Deficiency	Engineering and Technical Support

During performance of the turbine torsional test, turbine vibration problems were experienced. Operators tripped the turbine and broke vacuum on the condenser. A manual scram was inserted to preclude an automatic scram on low condenser vacuum. The most likely cause of the low pressure turbine rotor vibration was the slow acceleration rate through a critical speed range and insufficient turbine warming. (LER 90-20)

4.	11/17/90	96%	Personnel Error	Operations

During the performance of surveillance testing on the main steam line radiation monitors, an operator pulled an incorrect set of fuses which generated a full main steam isolation valve (MSIV) logic signal and resulted in a reactor scram. (LER 90-26)

5.	12/29/90	98%	Personnel error	Maintenance

During performance of a surveillance test on the MSIVs, an inboard MSIV (01-02) became stuck in the partially closed position. Unable to open the valve due to grounds on all three phases of the valve motor operator, and with a one-half scram condition caused by the partially shut MSIV, plant operators were forced to shutdown the plant. The root cause was determined to be improper alignment of the valve internals during reassembly. (LER-90-19)

6.	12/29/90	10%	Random Failure	N/A

During the 12/29 forced shutdown, while at 10% power, a spike on an intermediate range monitor (IRM) occurred causing a trip signal to be generated on RPS channel 11. This, in coincidence with a trip signal on RPS channel 12 caused by the stuck MSIV, generated a full scram. The cause of the IRM spiking was not determined. (LER 90-19)

7.	2/12/91	83%	Equipment malfunction	Maintenance

A problem in the turbine mechanical hydraulic control system caused a turbine control valve to rapidly go to the 50% closed position and then back to full open. This induced a pressure transient on the reactor which caused reactor power to increase and the reactor to scram as a result of the high flux condition. Inspection of the turbine front standard during the outage did not identify any specific mechanical problem which could have caused the turbine control valve to act erratically, however, general cleanliness and some worn bearings and linkages were considered potential causes for the malfunction. (LER 91-02)

Unit 2

	Date	Power	Root Cause	Functional Area
1.	5/14/90	100%	Design Deficiency	Engineering/ Technical Support

A turbine building instrument air line rupture resulted in the offgas condenser level control valves to fail shut and a subsequent loss of main condenser vacuum. A manual reactor scram was appropriately initiated at 45% reactor power.

2.	9/5/90	64%	Design Deficiency	Engineering/ Technical Support

A generator field ground resulted in a turbine generator trip which caused an automatic reactor scram.

3.	1/18/91	12%	Design Deficiency	Engineering/ Technical Support

Failure of a weld on an electro-hydraulic control (EHC) oil line resulted in a loss of EHC pressure and forced shutdown for repairs. The root cause was determined to be vibration induced fatigue failure.

4.	3/29/91	100%	Design Deficiency	Engineering/ Technical Support

The sample line connection on the A recirculation loop riser developed a leak resulting in a forced shutdown for repairs. The root cause of the piping leak was still under investigation at the close of the SALP period.

ATTACHMENT 1

SALP EVALUATION CRITERIA, PERFORMANCE CATEGORIES AND TRENDS

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

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

2. Approach to the identification and resolution of technical issues from a safety standpoint.

3. Enforcement history.

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

5. Staffing (including management).

6. Effectiveness of training and qualifications program.

The performance categories used when rating licensee performance are defined as follows:

Category 1. Licensee management attention to and involvement in nuclear safety or safeguards activities in a superior level of performance. NRC will consider reduced levels of inspection effort.

Category 2. Licensee management attention to and involvement in nuclear safety or safeguards activities resulted in a good level of performance. NRC will consider maintaining normal levels of inspection effort.

Category 3. Licensee management attention to or 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 efforts.

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 performance trend, if appropriate. The trends are:

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.

Trends are normally assigned when one is definitely discernable and a continuation of the trend may result in a change in performance during the next assessment period.